ROLE OF SMALLER NAVIES

A THESIS FOR THE DEGREE OF PhD IN
INTERNATIONAL RELATIONS

BY

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THESIS STATEMENT

THE ROLE OF THE SMALLER NAVIES IN
THE CURRENT POLITICO - ECONOMIC
AND TECHNOLOGICAL ENVIRONMENTS
VIS -A - VIS THEIR NATIONAL MARITIME
STRATEGY
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Muhammad Anwar TI(M)  
Captain Pakistan Navy
<table>
<thead>
<tr>
<th>AAM</th>
<th>Air to Air Missile</th>
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<tbody>
<tr>
<td>AAW</td>
<td>Anti Air Warfare</td>
</tr>
<tr>
<td>ADA</td>
<td>Action Data Automation System</td>
</tr>
<tr>
<td>ADAWS</td>
<td>Action Data Automation and Weapon System</td>
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<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
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<tr>
<td>AEW</td>
<td>Airborne Early Warning</td>
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<tr>
<td>AGS</td>
<td>Survey Ship</td>
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<tr>
<td>AIO</td>
<td>Action Information Organisation</td>
</tr>
<tr>
<td>ALH</td>
<td>Advanced Light-Weight Helicopter</td>
</tr>
<tr>
<td>AMCM</td>
<td>Airborne Mine Counter Measure</td>
</tr>
<tr>
<td>AOE</td>
<td>Fast Combat Support Ship</td>
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<tr>
<td>AOR</td>
<td>Replenishment Tanker</td>
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<tr>
<td>AOS</td>
<td>Support Tanker</td>
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<tr>
<td>AP</td>
<td>Transport Ship</td>
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<td>APDS</td>
<td>Armour Piercing Discarding Sabot</td>
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<td>ASM</td>
<td>Air to Surface Missile</td>
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<td>Anti Submarine Rocket</td>
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<td>ASTT</td>
<td>Anti Submarine Torpedo Tube</td>
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<td>ASUW</td>
<td>Anti Surface Ship Warfare</td>
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<td>ASW</td>
<td>Anti Submarine Warfare</td>
</tr>
<tr>
<td>BASH</td>
<td>Barge Aboard Ship</td>
</tr>
<tr>
<td>C³</td>
<td>Command, Control and Communications</td>
</tr>
<tr>
<td>C³I</td>
<td>Command, Control, Communication and Intelligence</td>
</tr>
<tr>
<td>CAAIS</td>
<td>Computer Assisted Action Information System</td>
</tr>
<tr>
<td>CACS</td>
<td>Computer Assisted Command System</td>
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<tr>
<td>CAS</td>
<td>Central Asian States</td>
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<td>CENTCOM</td>
<td>Central Command</td>
</tr>
<tr>
<td>CG</td>
<td>Guided Missile Cruiser</td>
</tr>
<tr>
<td>CGN</td>
<td>Nuclear-propelled Guided Missile Cruiser</td>
</tr>
<tr>
<td>CIS</td>
<td>Common-wealth of Independent States</td>
</tr>
<tr>
<td>CIWS</td>
<td>Close-In Weapon System</td>
</tr>
<tr>
<td>CNS</td>
<td>Chief of the Naval Staff</td>
</tr>
<tr>
<td>CODAG</td>
<td>Combined Diesel and Gas Turbine</td>
</tr>
<tr>
<td>CODLAG</td>
<td>Combined Diesel Electric and Gas Turbine</td>
</tr>
<tr>
<td>CODOG</td>
<td>Combined Diesel or Gas Turbine</td>
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<tr>
<td>Abbreviation</td>
<td>Definition</td>
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<tr>
<td>--------------</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>CPC</td>
<td>Coastal Patrol Craft</td>
</tr>
<tr>
<td>CPP</td>
<td>Controllable Pitch Propellers</td>
</tr>
<tr>
<td>CVV</td>
<td>Mid-size Carrier</td>
</tr>
<tr>
<td>DDG</td>
<td>Guided Missile Destroyer</td>
</tr>
<tr>
<td>DWT</td>
<td>Dead Weight Tonnage</td>
</tr>
<tr>
<td>EC</td>
<td>European Community</td>
</tr>
<tr>
<td>ECM</td>
<td>Electronic Counter Measure</td>
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<tr>
<td>ECO</td>
<td>Economic Cooperation Organisation</td>
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<td>EEZ</td>
<td>Exclusive Economic Zone</td>
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<tr>
<td>ESM</td>
<td>Electronic Support Measure</td>
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<td>FAC</td>
<td>Fast Attack Craft</td>
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<tr>
<td>FF</td>
<td>Frigate</td>
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<tr>
<td>FFG</td>
<td>Guided Missile Frigate</td>
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<tr>
<td>FLIR</td>
<td>Forward Looking Infra-Red</td>
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<tr>
<td>GCC</td>
<td>Gulf Cooperation Council</td>
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<tr>
<td>HE</td>
<td>High Explosive</td>
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<tr>
<td>HP</td>
<td>High Pressure</td>
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<td>HQ</td>
<td>Headquarters</td>
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<tr>
<td>HWT</td>
<td>Homing Wire Guided Torpedo</td>
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<tr>
<td>ICBM</td>
<td>Inter-Continental Ballistic Missile</td>
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<tr>
<td>KSEW</td>
<td>Karachi Shipyard and Engineering Works</td>
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<tr>
<td>LASH</td>
<td>Lighter Aboard Ship</td>
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<tr>
<td>LCM</td>
<td>Landing Craft, Mechanised</td>
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<td>LCP</td>
<td>Landing Craft, Personnel</td>
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<td>LCT</td>
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</tr>
<tr>
<td>LCU</td>
<td>Landing Craft, Utility</td>
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<tr>
<td>LCVP</td>
<td>Landing Craft, Vehicle/Personnel</td>
</tr>
<tr>
<td>LP</td>
<td>Low Pressure</td>
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<td>LPC</td>
<td>Large Patrol Craft</td>
</tr>
<tr>
<td>LRAACA</td>
<td>Long Range Air ASW-Capable Aircraft</td>
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<td>LRMR</td>
<td>Long Range Maritime Reconnaissance</td>
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<tr>
<td>LSL</td>
<td>Landing Ship, Logistics</td>
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<tr>
<td>LSM</td>
<td>Landing Ship, Medium</td>
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<tr>
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<td>LWT</td>
<td>Light Weight Torpedo</td>
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<tr>
<td>MAD</td>
<td>Magnetic Anomaly Detection</td>
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<td>MCM</td>
<td>Mine Counter Measure</td>
</tr>
<tr>
<td>MR</td>
<td>Mine Hunter</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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</tr>
<tr>
<td>MHC</td>
<td>Mine Hunter (Coastal)</td>
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<td>Ministry of Defence</td>
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<td>MOU</td>
<td>Memorandum of Understanding</td>
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<td>Missile Piercing Discarding Sabot</td>
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<td>MR</td>
<td>Maritime Reconnaissance</td>
</tr>
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<td>MSC</td>
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<tr>
<td>MSI</td>
<td>Mine Sweeper (Inshore)</td>
</tr>
<tr>
<td>MSO</td>
<td>Mine Sweeper (Ocean)</td>
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<tr>
<td>MTB</td>
<td>Motor Torpedo Boat</td>
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<tr>
<td>NAFTA</td>
<td>North American Free Trade Agreement</td>
</tr>
<tr>
<td>NAM</td>
<td>Non-Aligned Movement</td>
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<tr>
<td>NG</td>
<td>Nouvelle Generation</td>
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<tr>
<td>NM</td>
<td>Nautical Mile</td>
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<td>NPT</td>
<td>Nuclear Non-proliferation Treaty</td>
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<tr>
<td>NTC</td>
<td>National Tanker Company</td>
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<tr>
<td>NWFZ</td>
<td>Nuclear Weapons Free Zone</td>
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<tr>
<td>OAU</td>
<td>Organisation of African Unity</td>
</tr>
<tr>
<td>OEMs</td>
<td>Original Equipment Manufacturers</td>
</tr>
<tr>
<td>OGDC</td>
<td>Oil and Gas Development Corporation</td>
</tr>
<tr>
<td>OIC</td>
<td>Organisation of Islamic Conference</td>
</tr>
<tr>
<td>OMFTS</td>
<td>Operational Manoeuvre From the Sea</td>
</tr>
<tr>
<td>OPV</td>
<td>Offshore Patrol Vessel</td>
</tr>
<tr>
<td>OTHT</td>
<td>Over The Horizon Targeting</td>
</tr>
<tr>
<td>PAK</td>
<td>Pakistan</td>
</tr>
<tr>
<td>PC</td>
<td>Patrol Craft</td>
</tr>
<tr>
<td>PCI</td>
<td>Patrol Craft Inshore</td>
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<tr>
<td>PIMA</td>
<td>Pakistan Institute of Maritime Affairs</td>
</tr>
<tr>
<td>PN</td>
<td>Pakistan Navy</td>
</tr>
<tr>
<td>PNS</td>
<td>Pakistan Navy Ship</td>
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<tr>
<td>PNSC</td>
<td>Pakistan National Shipping Corporation</td>
</tr>
<tr>
<td>PPF</td>
<td>Pre-fragmented Proximity Fuze</td>
</tr>
<tr>
<td>RCD</td>
<td>Regional Co-operation for Development</td>
</tr>
<tr>
<td>RPM</td>
<td>Revolutions per Minute</td>
</tr>
<tr>
<td>SAARC</td>
<td>South Asian Association for Regional Cooperation</td>
</tr>
<tr>
<td>SAR</td>
<td>Search and Rescue</td>
</tr>
<tr>
<td>SSBN</td>
<td>Nuclear-Powered Ballistic Submarine</td>
</tr>
<tr>
<td>SSK</td>
<td>Diesel-Electric Submarine</td>
</tr>
<tr>
<td>SSM</td>
<td>Surface-to-Surface Missile</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
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<td>-------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>SSN</td>
<td>Nuclear-Powered Submarine</td>
</tr>
<tr>
<td>STOVL</td>
<td>Short Take-Off/Vertical Landing</td>
</tr>
<tr>
<td>SWATH</td>
<td>Small Waterplane Twin-hull</td>
</tr>
<tr>
<td>TEU</td>
<td>Twenty-foot Equivalent Units</td>
</tr>
<tr>
<td>TT</td>
<td>Torpedo Tube</td>
</tr>
<tr>
<td>UAE</td>
<td>United Arab Emirates</td>
</tr>
<tr>
<td>US</td>
<td>United States</td>
</tr>
<tr>
<td>USCENTCOM</td>
<td>United States' Central Command</td>
</tr>
<tr>
<td>USGW</td>
<td>United States' Guided Weapon</td>
</tr>
<tr>
<td>VA</td>
<td>Vulnerable Area</td>
</tr>
<tr>
<td>VERTREP</td>
<td>Vertical Replenishment</td>
</tr>
<tr>
<td>VLF</td>
<td>Very Low Frequency</td>
</tr>
<tr>
<td>VLS</td>
<td>Vertical Launch System</td>
</tr>
<tr>
<td>VP</td>
<td>Vulnerable Point</td>
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INTRODUCTION

Significance and Purpose of the Thesis

1. The seas surrounding the Third World countries, particularly in the Gulf, have become politically sensitive and these countries must now face the real possibility that new threats do not come across land borders, but rather from sea. Likewise, these countries are coming to realise that in the situation of tension, naval presence is much more flexible and efficient tool than for example, dispatching ground troops or aircraft, both likely to trigger unwarranted conflict. Access to the sea can mean access to the strategic assets all over the world. This capability has been demonstrated by the United States during the Gulf War. This is achievable only because of the unique qualities of flexibility and mobility in employment of ships and other assets of maritime forces at the disposal of a nation or group of nations.

2. The recent politico-economic and technological developments have encouraged the Third World countries to establish modern naval forces not only capable of defence but also of furthering their countries' broader maritime interests. All these developments have got either direct or indirect effect on Pakistan's maritime security.

3. The purpose of the thesis is to examine the recent developments in the region of our immediate concern i.e. 'The North West Quadrant of the Indian Ocean' with special emphasis on the maritime potential of Pakistan and implications of the current politico-economic and technological developments on Pakistan's security.

Assumptions

4. The thesis is based on the following assumptions:

   a. Definition of Smaller Navy. A smaller navy is one which has no ship bigger than a 'Destroyer' in its inventory. The
thesis mainly deals with the navies of the Third World countries. Though the Indian navy does not fall into the category of the smaller navies, yet it cannot be excluded from this study so as to determine the correct balance of power in the region.

b. **Scenario.** The North West Quadrant of the Indian Ocean; the area that includes the Arabian Peninsula, the Gulf and the Arabian Sea. The thesis primarily refers to the maritime interests and naval forces of the South West Asian countries, including India and Pakistan (Appendix I).

c. **Single Super Power.** US is going to retain the single super power status in the foreseeable future.

**Outline and Scope**

5. The thesis has been divided into five chapters and the scope has been outlined in the following paragraphs.

6. *Chapter One* deals with the Basics of Maritime Strategy and includes basic concepts, elements of maritime strategy and effects of the emerging world order. Maritime strategy is the conviction of a nation to put to use her political, social, economic and maritime assets with the aim to promote maritime interests. Scope and span of this strategy and means is directly proportional to maritime interests and a nation's will to pursue those. Various instruments of policy are put to exercise to achieve maximum dividends from power, politics, economics and alignments. No nations, whose shores are washed by sea can afford to neglect an evolutionary maritime strategy for a prosperous present and secure future.

7. Maritime strategy manifests compulsarily over the sea, and the degree of influence achieved by a nation is directly in relation to the seapower possessed by her. Seapower broadly encompasses all the military, civil and political potentials available to demonstrate a country's resort to safeguard her maritime interests. Through seapower, the
maritime nation contest the 'Command of the Sea'. Many strategists have deliberated upon the 'Command of the Sea' and terms like 'Sea Control' and 'Sea Denial' have been coined to specify the degree of ponderance enjoyed by a seapower. Seapower in turn draws strength from various elements, such as ports/harbours, merchant marine, shipping industry, ocean economic resources, combatant navy and skilled manpower etc. Size and shaping of seapower by any nation is subservient to the factors affecting the maritime environment concerning that country. Major powers may view the entire globe as arena for demonstrating seapower, whereas small littoral states may have concern about their immediate surrounding seas.

8. *Chapter Two* examines the geostrategic and geopolitical environments of the region of immediate interest to Pakistan. This region has dominant significance in the emerging economic oriented power pyramid in the world, mainly due to oil supplies emanating from the Gulf. All big economic as well as military powers are very sensitive to any interference in the flow of this oil from the Gulf. At the same time other regional interests compel these countries to have keen share in the affairs of the regional states. Despite receding trends in show of military force in the post Cold War era, substantial military presence is being sustained by US, France, and others.

9. The geostrategic and geopolitical environments of the region are still fluid in the post Cold War and Gulf crisis. The volatile peace milieu in the Gulf region is apparently gaining a stable character, however unpredictable Iran and Iraq continue to have reckonable military gut to ignite a crisis any moment. Along the loud rattles of Iran-Iraq conflict and the Gulf War many territorial disputes have also manifested amongst the Arab nations. Gulf War has brought out many valuable lessons for littoral states, as it has highlighted the fragility of GCC in military cooperation. US has found a firm siege in Gulf and a fertile arms market has ensued. With the new peace initiative sweeping across the Middle East, Pakistan is faced with the dilemma of sustaining her longstanding anti-zionist stance. At the same time impressive exterior manoeuvres by India are precipitating new axis in Indian alliance for bigger role in the region.
While Pakistan is struggling for breath in the aftermath of Pressler amendment and serious economic pressures, India is advancing for a bigger role in world scenario. At the same time she has the substantial capability in nuclear weapons and missile delivery systems, outrightly defying the NPT.

10. This chapter throws light on longstanding regional conflicts, interest of outside world, important issues having direct bearing on security of Pakistan including Kashmir issue and nuclear proliferation in South Asia.

11. Chapter Three examines the effects of politico-economic and technological developments on the role and shape of the smaller navies. Third world countries have become motherless children since their bargain chips have lost the cult after the Cold War. Resultant reductions in economic and military assistance have brought new dilemma in their struggle for survival. Exponential rise in hardware prices and rapid developments in military technology have further tighten the goose neck for these navies. Although oil rich countries can still afford the luxury of choosing arms and weaponry, small navies of the Third World countries are now becoming unsustainable. At the same time new Law of the Sea has imposed manifold responsibilities on these navies. New disputes are erupting over claims on the ocean economic resources and maritime territories. Devoid of any 'big brother' support to safeguard their interests, there is an ever more compulsion to maintain balanced navies by these countries. The problem is further compounded by the impact of new technologies. Every now and then a revolution is evolving in many facets of maritime technology. Gigantic leaps in propulsion machinery, electronics, optics and underwater acoustic technology have manifested in the last few decades. These smaller navies are further handicapped due to lack of skilled manpower and adequate industrial base.

12. Despite many constraints these navies endeavour to seek a best match amongst the roles, finances and suitable platforms to effectively execute the assigned tasks. Surface ships ranging from gigantic carriers and cruisers to fast attack craft, equipped with missiles, guns and
sophisticated sensors and weapons are available. Submarines are becoming more popular with smaller navies, due to their versatility and effective role in contesting sea control or sea denial. Mine warfare is by character poor man's strength and is retaining its credentials even with rudimentary arsenals. Naval air arm has added another dynamic dimension into the naval operations. Modern fixed wing aircraft and helicopters now form integral part of almost all the navies. Continuous improvements in electronic warfare and state of the art command, control, communication and intelligence systems are now appreciated by all navies.

13. The main areas of discussion in this chapter are the inter-states dimensions, vested interests of the arm-suppliers, effects of oil wealth, the new international Law of the Sea, and impact of new technology on the naval forces of the region.

14. Chapter Four deals with the roles of the smaller navies. Navy is the most poignant element of maritime strategy and provides security to maritime assets. Size and shape of the navy varies from country to country and is commensurate with their maritime interests, resources and dependence upon sea. These navies are called upon to perform various roles such as seaward defence, protection of sea lines of communication, protection of offshore resources and naval diplomacy. Navies are traditionally hailed to assist in natural calamities and distress at sea as well. Extent and severity in performing these roles locally and in remote seas depend upon the maritime strategy of the country concerned.

15. This region is studded with assortment of smaller navies. Very few medium regional navies are also struggling hard to match up to the requisite aspirations germinated by maritime interests. In pursuit of rivalries and arms race many navies are adding on to their arsenal. Navies in the Gulf and adjoining Middle East have had Israel as the dominant cause for their emergence and nurturing. The oil wealth has had its genuine impact in generating arms race. Saudi Navy is a reckonable force and Iranian Navy is keeping its significance despite isolation from the West. Other navies in the Gulf region are small and incapable of
performing any credible role. However their collaboration under the umbrella of GCC may give rise to a collective defence.

16. Indian Navy appears to be the sole player aspiring for dominance in the Indian Ocean and is clinging to the goal even with resource constraints. In our security context, size and shape of the Indian naval build up are both sinister and ominous. It has serious military, political and economic ramifications which we can ill afford to ignore. The enhancement of our maritime strength is an imperative, we can no longer treat with benign neglect.¹ Thus, Pakistan Navy ought to maintain a qualitative edge over the Indian Navy to be able to counter the threat posed to our maritime frontiers and assets.

17. Chapter Five deals with the maritime potential of Pakistan, with special emphasis on the roles and capabilities of the Pakistan Navy when seen as a medium regional navy. It also includes a brief discussion on some of the domestic constraints affecting Pakistan's naval power and maritime security in the prevailing politico-economic and technological environments.

18. Pakistan is situated in a key strategic location and her proximity to the mondial oil source and the newly liberated Central Asian States give her significance in the region. The country can afford a convenient warm water route for resource rich Central Asian States and demonstrate dominant effect on oil flow from the Gulf.

19. Pakistan has substantial maritime resources and interests. However lack of perception to appreciate the micro as well as macro economic and strategic gifts from the seas knocking our shores has been the major obstacle in development of maritime sector. All along the 540 miles of Pakistani coast, only Karachi port complex has been the sole fulcrum for trade and fishing industry. However development of naval base at Ormara and a deep water port at Gwadar will enhance the trade and seapower capacity of Pakistan. Merchant marine is carrying only 10-

¹ "Pakistan aware of need to develop maritime capability", The News International, January 3, 1995, P.4
15% of our sea trade and is in constant slum. There is preponderant dependence on flag of convenience, which may not be available during tension or war. Steps are in hand to increase numbers of modern ships in the national companies. Ship building has not been able to take off as industry in Pakistan. Presently KSEW is constructing only coaster size ships along with other structural works. Pakistan Navy Dockyard has broken the ice by constructing FPBs and future plans include partial construction of modern submarines.

20. New Law of the Sea has invoked enormous avenues for Pakistan to benefit from ocean economic resources. Most of these resources, including fishery are grossly under explored. There is a realisation to benefit from EEZ, the Fifth and the largest province of Pakistan. Upgradation of fishing techniques and harbours are in hand and require consolidation to derive expected dividends. Offshore oil exploration has been dormant since early 1980s. OGDC is now pursuing projects in this field as well. A well-developed maritime industry and clear demarcation of the EEZ, particularly with India and consolidation of maritime sector are dire needs at present. At the same time there is a compulsion on Pakistan to redress economic constraints, by reassessing the policy alignments with dominant economic giants around the globe and in the region. Re-evaluation of Pro-US strategy in view of the diminishing foreign aid and emerging economic openings in Central Asia and Far East. More crystalline significance has to be sought by Pakistan in ECO, GCC and relations with China.

21. Pakistan Navy at present forms the fulcrum of the maritime thought of the country. Confronted with marring policy and economic constraints since inception, the force has been striving to retain a deterrent edge over the arch rival Indian Navy. Despite meagre resources, the service can fulfill the roles imposed upon it with some difficulties. This four-dimensional force is in the process of restructuring after serious slashes in force levels due to invoking of the Pressler Amendment by the U.S. The service is setting trends for self-reliance by indigenous ships and submarines construction. Naval base at Ormara and viable defensive as well offensive capability render this service to a reckonable force and handsome maritime potential.
22. Finally the conclusions arrived at have been presented along with recommendations after taking into account the entire strategic, political and economic factors affecting the maritime scenario in the region, and its implications on security of Pakistan.
CHAPTER 1

BASICS OF MARITIME STRATEGY

General Concepts

1. The word 'maritime' is a composite term which has various components i.e. ports and harbours, merchant marine, ocean economic resources and naval forces. All these elements essentially contribute towards the national power of a littoral state. The maritime strategy is all about the sea and management of maritime assets in the best possible fashion, which brings riches and honour to the beholder.

2. Maritime strategy can be defined as the art of directing maritime assets to achieve the required political objectives. Maritime Strategy has never been determined in a vacuum but always in a real world of constantly changing conditions. The works of great naval strategists Mahan and Corbett can be seen, in fact as a record of the way in which maritime strategy has developed by those changes. The political, economic and technological environments have got a direct bearing on the maritime strategy of a nation. The maritime strategy uses the sea to exploit geography to the advantage of a littoral state and seeks to deny its advantages to the enemy. Thus the main playground of maritime strategy is the sea, and the possessor of this capability can be conveniently called a sea power. Sea Power is broadly defined to include all relevant aspects of national power, both civil and military. National naval capabilities and potential are seen in comprehensive terms as including merchant marine, fishing and oceanographic fleets, maritime outlook and tradition and other aspect of national power related to sea power, rather than in narrow terms of weaponry alone. A strategy to enhance national sea power accordingly promotes and coordinates all aspects of maritime activity, both civil and military in order to optimise the use of available

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resources. Larger, more developed states are clearly more able to pursue sea power strategies which promote and coordinate all these diverse elements of national power than are smaller and weaker states.3

3. Maritime strategy uses sea power in support of national strategies and policies. Serious discussion of sea power began no doubt long before Mahan in 1890s but it was he who articulated it. He wrote a number of books on naval history and strategy in the 1890s and early 1900s. Best known of these is 'The Influence of Sea Power on History 1660-1783'. In all his works he expounds his view that sea power is essential to national greatness. The other two traditional naval strategists included in this selection, Corbett and Richmond, both wrote rather later and tackled the problem directly building on the foundation laid by Mahan. Sir Julian Corbett has discussed these principles in his book titled, 'Some Principles of Maritime Strategy (1911)'. Similarly the famous writings of Sir Herbert Richmond are "Economy and Naval Security (1931)" and "Sea Power in the Modern World (1934)", which are authentic accounts on influence of sea power in modern time.

4. In their own ways they all make the notion of 'Command of the Sea' the centre of their strategic philosophy. Their definitions of this idea vary but generally relate to one's ability of the possession of command to use the sea for his own purposes and to deny this advantage to his opponent. All these writers regarded the destruction or neutralisation of the enemy's main fleet (which they took to be the only force capable of contesting command) as the necessary preliminary to having command at sea in great or small degree, though Corbett evidently was less sure about this than Mahan and Richmond.

5. They also all agreed that possession of the 'Command of the Sea' conferred the ability to use the sea to transport men and materials, and to hinder the enemy's attempts to do the same. Maritime nations could not only protect their own economies by this means but also damage those of their adversaries, even if they were primarily land powers. Had not the

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British done precisely this to Napoleon? Command of the sea also allowed maritime nations either to project their military power overseas or prevent their enemies from doing likewise. All three went into considerable detail in their attempts to show how, and in what circumstances such operations manifested in the past and, by inference at least how they should be in the future.

6. But there were always sceptics who believed that however interesting the observations of such classical strategists were, changing conditions soon rendered them obsolete. In this context, it is important to compare the more recent writings of Gorshkov, the architect of Soviet naval power, and the US Navy school of thought represented by Zumwalt and Stansfield Turner with each other and with their predecessors. The later viewpoint is distinguished by the attention given to the effects that technology has on the classical concepts of naval strategy - a concentration that goes back to the late 1940's when its leaders were then trying to show that US Navy still had decisive role to play in the nuclear age in the face of the suddenly glamorous appeal of the US Airforce. Perhaps their most notable endeavour has been the investigation of the notion of deterrence at sea. In his own way, Gorshkov has much the same preoccupation although his concentration on political purposes of sea power is also significant.4

7. Declaring the term 'Command of the Sea' as old-fashioned, Admiral Stansfield Turner, perhaps the leading figure in American naval thought in the 1970's, popularised the notion of 'Sea Control' as a deliberate attempt to acknowledge the limitations on ocean control brought about by the development of the submarines and the aeroplanes. He went on to justify his new term as follows:

"The new term 'Sea Control' is intended to connote more realistic control in limited area and for limited period of time. It is conceivable today to temporarily exert air, submarine and surface control in an area while moving ships into position to project

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4 "A Reader in Naval Strategy", Royal Naval College, Greenwich, PP.1-2
power ashore or to re-supply overseas forces. It is no longer conceivable, except in the most limited sense, to totally control the sea for one's own use or to totally deny them to an enemy".5

8. This dispute between 'Command of the Sea' and the 'Sea Control' has been resolved by the present day strategist and historian Dr. Geoffrey Till, the author of 'Maritime Strategy in the Nuclear Age' and 'Modern Sea power'. Dr. Till admirably defines this dimension:

"Being in 'command of the sea' simply means that a navy, in that happy state, can exert more control over the use of the sea than can any other. The degree of command varies greatly and is primarily illustrated by the extent to which it confers the capacity to use the sea for one's own purposes and prevent the enemy using it for his".6

9. This definition probably remains the best. In this sense modern naval operations are still about the command of the sea in a limited fashion in relation to time and space. It should be easy to understand this fact that command of the sea in today's scenario is relative and partial rather than absolute and general, because of the vastness of the sea with many adversaries possessing their numerous ships, submarines and aircraft of the modern era operating there-in.

10. Consequently, emphasis has shifted to a more limited concept; that of "Sea Control". This has been a largely American development, a rebuttal perhaps of those who regard American strategic thought as proceeding in too absolutist a way. Admirals Eccles and Stansfield Turner led the way, the former putting forward the best practical case as 'the ability to

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6 G. Till, Maritime Strategy and the Nuclear Age (London: Macmillan, 1984), P.16
operate with a high degree of freedom' and the latter defining control as being 'in limited areas and for limited periods of time'.

11. The limited areas referred to can, of course, be moving ones. 'Control' can then be sought in that area round a battle group, amphibious force or convoy where a threat could be expected to exist. Equally, areas can be geographically fixed; many medium or small powers would expect to exert control in coastal waters, at least over the surface and air spaces, by the use of quite limited resources aided by propinquity.

12. Denial of the sea to one's adversary has often been regarded as the obverse of sea control for one's own use, as in Roskill's classic definition. Yet history and geography combine to assert that this is an oversimplification. Whether one subscribes fully to Mackinderish notions of geopolitics, of heartlands and rimlands, it is clear that the curtailment or deprivation of sea use will affect quite differently the respective combatants in any geographically realistic conflict or confrontation. Germany versus Britain, Russia versus America, India versus Pakistan, Syracuse versus Athens, the examples from both historical and projected events are endless; even the most balanced recent example one think of, the Iran/Iraq war where both sides have an interest in sea use and some capacity for sea denial, still shows marked imbalance that makes Iran's sea dependence a good deal more critical than Iraq's. The vast coastline and scattered ports and island burden Iran to ensure sea control over large area. Iraq on the other hand has to deny small sea stretch to her adversary.

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8 RUSI Journal, September, 1981, P.26
10 Ibid., P.83
11 Ibid.
13. 'Sea denial', then, may be a policy embarked upon by any national actor at any stage of a dispute and does not depend on a complementary need for sea use or control. It may be used as a means of helping to secure sea use, either in the same geographical area or elsewhere; a sunk enemy cannot any longer threaten. Viewed in this light, the sinking of the General Belgrano in the South Atlantic campaign was a sea denial operation outside the Exclusion Zone declared by the British Government in order to secure sea use within it. But in general the notion of using sea denial as a means of sweeping the sea clear of enemies, so that unbridled sea use may take place, has not worked well against a determined and resourceful opponent. The failure of 'offensive' anti-submarine operations, in both World Wars, is a particularly cogent example.  

'Sea denial', therefore, tends to be the policy of the inferior naval power. Hence sea power will be the scie instrument of maritime strategy to ensure the desired use of sea by friends and deny the same to adversaries with varying degree. Sea power is the vital national asset of a state whose shores are washed by sea and is constituted by many elements.

Elements of Sea Power

14. The elements of sea power are many and varied as summarised by E.B. Potter.

"The elements of sea power are by no means limited to combat craft, weapons, and trained personnel but include the shore establishment, well suited bases, commercial shipping, and advantageous international alignments. The capacity of a nation to exercise sea power is based also upon the character and number of its population, the character of its government, the soundness of its economy, its industrial efficiency, the development of its internal communications, the quality and number of its harbours, and

12 Ibid., P.84
extent of its coastline, and the location of its homeland bases, and colonies with respect to sea communications".¹³

15. Notwithstanding the whole range of sources and elements, listed above, the most immediate elements are bases/ports and harbours, merchant marine, ocean economic resources, the combatant navy, and the skilled manpower.

**Bases/Ports and Harbours**

16. The possession of bases, ports and harbours is a significant attribute of a sea power. While smaller powers will contend with their home ports and harbours, the major powers would be keen to maintain bases worldwide to sustain their out of area operations and control. Hence the requirement and significance of the bases will vary according to the national policy and maritime strategy of a country. Naval bases range in degree of utility and importance from fleet anchorages at one end of the scale to main bases with supporting industrial establishments at the other. In varying degrees they support, and even make possible many forms of naval activity.¹⁴

17. The bases, ports and harbours provide berthing, repairs and numerous logistic facilities including recuperation of personnel, without which the sustained operations are not possible. The distant bases help increasing endurance and reach of combatants. Mahan said that the US Navy needed bases in the outer oceans where shipping operated if it wanted to defend, trade; otherwise the navy will be like birds, unable to fly far from their own shores.¹⁵ Commercial ports and harbours are focal

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points for economic development of any state. Modern ports' capability of handling large quantities of cargo and shipping are important assets.

The Merchant Marine

18. The capacity of a state to use the sea as a medium of transport is manifestly important and requires adequate merchant shipping to carry export overseas and bring in imports i.e. raw materials, food, oil and military hardware etc. A national merchant marine provides stamina and strength and is considered important particularly in times of national crisis for obvious reasons.

19. A merchant marine, under the national flag and nationally owned and manned, was generally considered by the classical writers to be an essential constituent of this aspect of maritime power. It enabled the state to ensure the continuance of its trade; it earned profits, created wealth and provided employment; it maintained a pool of trained seamen. All these traits were regarded as particularly important in times of national crisis, when in addition it might be desirable for a state to requisition merchant ships for naval or auxiliary purposes.\(^{16}\)

20. Despite numerous advantages, the developed world however has deliberately allowed decline in their merchant naval inventory. The British Merchant Navy, for example, with 1600 Ocean going ships in 1975 has come down to less than 300 in the 1990's. Such examples can also be found in the developing world. Pakistan merchant fleet, for example, has reduced from 74 ships in 1970's to 21 ships in 1994. The main governing factors towards the decline of merchant marine all over the world are economics, availability of flag of convenience, and other foreign carriers available at cheaper rates.

21. Flag of convenience (or, as it is now coyly called, open registry) states adopt a different stance, setting generally rather low standards for crews

\(^{16}\) J.R. Hill, Maritime Strategy for Medium Powers (London: Croom Helm, 1986), P.31
and equipment and thereby giving the opportunity for cost-cutting which owners find attractive. Liberua, Panama and Cyprus are worth mentioning in this regards. They readily open their registries to owners who wish to employ lower-cost crews than would be possible under national regulations, to avoid paying taxation, and to some extent safety regulations. The United States is one of the main beneficial owner of flag of convenience shipping.

22. Flags of convenience are unpopular with the developing countries as they feel that those developing nations which are flag of convenience states do not receive sufficient benefit themselves and that the system provides unfair competition for the fleets owned and flagged by developing countries. The merchant fleets of the less developed countries are being helped by the 'UN Convention on a Code of Conduct for Liner Conference', which intended to put trade into ships wearing the flags of the states from whose ports the cargoes originate. This is one part of a general pattern of political intervention in the merchant shipping business, especially the liner trades. According to one British study, up to 20 percent of the world's liner trade is affected by cargo reservation of one kind or another, about 10 percent or slightly over of world trade in general. Other ways of helping national shipping are by preferential berth assignment and demanding non-national ships to possess especially elaborate documentation. The United States does not live up to its free market ideology in its merchant shipping policy with cargo-sharing arrangements with Latin American countries and the forcing of all trade between American ports into American ships. The United States also pays considerable operating subsidies to its shipping lines. The Socialist countries, notably the USSR, do not, of course, work to Western notions of profit and loss: this allows rate cutting below the agreed 'Western' Liner Conference figures although service can also be correspondingly poor.

19 Ibid., P.41
23. Admiral J R Hill in his book titled 'Maritime Strategy For Medium Powers,' sums up the issue in the following words:

"An ocean going merchant marine is an excellent example of the dichotomy of maritime power and vulnerability. It does possess all the virtues claimed for it; it generally earns foreign exchange, it lessens dependency. Yet it can be unprofitable in domestic terms, can absorb valuable national resources for little immediate return, and can be a hostage to unfriendly powers. Even economically therefore, the size, shape, and employment of a merchant fleet is a matter for study by any state interested in the maritime component of its power".\textsuperscript{20}

\textbf{Shipbuilding}

24. A national shipbuilding industry used to be regarded as an essential component of maritime power (Sea power). The capacity to produce, more or less independently, the operational units of both economic and military power at sea was generally considered as vast financial asset in peace and a strategic necessity in war. But over the past two decades there has been a radical shift in the world shipbuilding pattern and far more fluidity in procurement. Nations, including medium powers, have accepted dependence they would never have countenanced before 1950, sometimes accompanied by catastrophic declines in their own shipbuilding industries. This must result in more vulnerability, but in modern economic and indeed operational conditions it may be less critical than in, say the 1930; and even then British ships depended on offshore procurement for side-armour.\textsuperscript{21} The developing countries however face a different peril; military platforms of choice may not be available due to political constraints, albeit high costs. These countries will also have a


\textsuperscript{21} Ibid., P.33
very fragile dependence on other nations for commercial vessels, particularly in tension and war time.

Ocean Economic Resources

25. Sea holds enormous resources for mankind apart from seafood and cheaper means of transportation. The economic uses of the sea consist of trade and commerce on its surface, and exploitation of resources in its depth and subsoil. \textsuperscript{22} The new Law of the Sea has given a large area of the sea i.e. EEZ and continental shelf, under the control of the coastal/island states for exploitation of ocean economic resources. The emerging technology has made easy for the human being to exploit, ocean economic resources which are lying in abundance in the sea. For centuries fish was recognised as the only economic resource of the sea. The new technology now opens the prospects of exploiting the depths of the seas extracting vast ocean economic wealth. Besides fish, sea offers oil, gas and increasing varieties of minerals, both for civil and military use. The emerging scenario has no doubt raised the level of attention paid to maritime questions by the general public as well as by special interest. The attention of developing littorals of Indian Ocean needs to be drawn to the fact that bauxite, cobalt, tin, platinum, manganese and industrial diamonds are all lucrative items to the industrialised nations. These materials are essentially needed by the developed countries in the production of weapons, airframes and other important industrial products that support their strong economic base. Most of the countries whose EEZ is rich in these resources are the developing littorals of Indian Ocean. They should guard their riches and use them for economic and strategic advantages.

26. The ocean economic resources can provide a viable opportunity to the developing nations to build up their economies. In order to protect their legitimate claim over the ocean resources developing nations need to follow a balance approach to avoid conflict situation while achieving their

\textsuperscript{22} Ibid., P.82
policy objectives. The ocean wealth lying in EEZ, continental shelf and the deep sea-bed has enhanced the importance of naval forces all over the world.

27. A lot, however, depends as yet on the progress of the United Nations conferences on law of the sea, in future. It is hoped that greater consensus would be achieved for collective betterment of the population of this planet, earth. It is only hoped that the developing world would be given access to the technology required for exploitation of ocean economic resources in order to rid the masses of poverty.

Combatant Navy

28. Possession of military force by a state is necessitated by the fact that preservation of peace and integrity is one most important task a nation is confronted with. The external aggressions have become multi-dimensional, it may be continental in nature or maritime in its implementation, it has to be blunted by a strong arm of a state. Therefore, in today's power oriented world, military might at sea has attained more importance since it can carry state's power anywhere during peace, tension and war periods.

29. The significance of a combatant navy lies in the fact that it provides security to the entire maritime spectrum. It also provides support to national and foreign policy objectives. May it be protection of trade, coastal infrastructure, projection of power or protection of ocean economic resources for achievement of national objectives, naval forces have and will continue to contribute largely in the power potential of a state.

30. Today navy is a three dimensional force with surface, subsurface, and air elements. The surface ships include; Aircraft Carriers, Cruisers, Destroyers, Frigates, Corvettes, Fast Attack Craft (FACs), Patrol Crafts (PCs), Mine Sweepers (MSCs), Amphibious Vessels and Support Ships etc. In the subsurface realm, there are nuclear as well as conventional
submarines, with effective weapon outfit including torpedoes and longer range missiles (e.g. Harpoons, ICBMs). The Naval Air inventory comprises Long Range Maritime Reconnaissance Aircraft (LRMR) with anti-shipping and anti-submarine combat capability in the form of air to surface missiles, torpedoes, and depth charges. There is also a fourth dimension of the navy i.e. amphibious landing capability. An ideal navy should have all the four dimensional capability - India is the only country in this region whose navy boasts all the four-dimensional capability.

31. The new technology has introduced very effective and sophisticated weapon systems which can be launched from surface, subsurface and air platforms. This diversity brings its own problems, both for individual ships, submarines and aircraft and for the overall size and shape of the navies. Proper balance has to be struck between competing attributes and requirements, within of course, the constraints of the naval budget. The way a navy reacts to this challenge depends in large measure on the circumstances in which it finds itself. Most obviously it will reflect the kind of navy it is. Perhaps four basic kinds can be discerned:

a. **The Global Navy.** The Global Navy will be able to deploy significant forces around the world's oceans simultaneously. Probably it will have organic air power of some sort, amphibious capacity, and distant water sustainability and can fight against sophisticated opposition for long periods of time. Requiring huge expenditure in defence resources, this category is effectively limited to the navies of the Superpowers. Such navies have the credibility for ensuring 'Sea Control' at own place and time of choosing. At present only the US Navy falls into this category.

b. **The Bluewater Navy.** The Bluewater Navy, to a certain extent, can do the same thing but has less resources and therefore, a much more limited capacity to conduct distant operations simultaneously, especially if against sophisticated opposition. The navies of Britain and France come into this category since they can,

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and do, operate regularly in waters far removed from their shores. Bluewater navies are expected to fulfill a limited 'Sea Control' in area of immediate interest.

c. **The Regional Navy** The Regional Navy needs to be strong in its own local seas. This is a very broad category into which a large proportion of the world's navies fall. To be able to exert an influence significantly beyond its own shores, the regional navy will need a number of major surface warships and modern submarines at least. Such navies will often have a modern amphibious capacity as well. Into this category would come such navies as those of India, Japan, West Germany, the Netherlands, Italy, Brazil, Argentina and so forth. These navies are capable of effective sea denial in near areas.

d. **The Coastal Navy** The Coastal Navy is the largest category of all. It comprises most Third World Navies, and many of the more modest European ones. The thrust of their policy is to do their best to protect coastal waters against all comers, and will be characterised by a concentration on fast patrol boats, mine warfare vessels, and perhaps coastal submarines. The range is wide and covers everything from the limited coastguard navies of the Third World to the quite sophisticated standards of the Swedish Navy, for example. Coastal navies when adequately equipped can exercise limited sea denial in proximity of own waters.

32. The above categorisation by Dr. Till broadly defines the different kinds of navies, which will help in our discussion about the naval forces in general. The thesis however deals specifically with the 'Smaller Navies' which generally fall into the category of Coastal Navies – but needs further division and elaboration. Eric Grove in his book titled, 'The Future of Sea Power', has bifurcated the smaller navies as:²⁴

a. **Adjacent Force Projection Navies** These navies have the capability to project force well offshore but within regional seas. Pakistan, Iran, Saudi Arabia and Israel conveniently fall into this category. Pakistan Navy, with her three dimensional capability aspires to be the Medium Regional Navy.

b. **Offshore Territorial Defence Navies** These navies have, relatively high levels of capability in defensive (and constabulary) operations up to 200 miles from their shores i.e. within the EEZ - Libya, Egypt, Nigeria, Bangladesh fall into this category. All these navies have the sustainability offered by frigate or large corvette vessels and/or a capable submarine force.

c. **Inshore Territorial Defence Navies** This category possesses the capability of the coastal defence and policing. Some of the navies which fall in this category are Oman, Qatar, Bahrain, Kuwait and Yemen.

**Skilled Manpower**

33. Like any other field of development, sea power is largely dependent upon skilled manpower. Proficient mariners, devoted researchers, determined fishermen and untiring builders are pillars of sea power. Navies cannot just keep their existing vessels forever, given both the fact that machinery wears out and manpower is an ever more expensive resource. The latter factor may even prevent continued procurement of new examples of the same designs. Navies usually lack men more than they lack ships or aircraft. Trained manpower of sufficient quality for modern naval operations is a scarce commodity the world over, and its price tends to increase at a higher rate than other commodities. There is thus a powerful incentive, as to reduce the ships' companies of modern warships. Modern vessels may be required to prevent units being laid up for lack of crews. Navies have to run even to stand still.\(^25\)

\(^{25}\) *Ibid.*, P.182
34. 'Skilled Manpower' factor is particularly relevant to the navies of this region and those of other Third World Countries. Most of the Middle East Countries are still dependent on the foreign expatriates and deputationists, in order to fill the gap of skilled manpower. Most of these navies have been organised and led by the naval officers of US, Britain, Pakistan, Egypt etc. Over the years most of these countries have come a long way in attaining adequate level of self-reliance as far as the skilled manpower problem is concerned. They have been able to establish national top naval hierarchy but still they have to depend on foreign advisers, instructors, experts and skilled personnel particularly in technical trades. It is heartening to see that the Saudi and Bahraini naval ships are manned by those officers who received their basic training in Pakistan.

35. Pakistan Navy maintains a very cordial relationship with the navies of Saudi Arabia, Bahrain, United Arab Emirates, Kuwait, Qatar and Oman, where Pakistani naval officers and sailors are serving on deputation to augment their skilled manpower. In addition, a large number of retired Pakistani naval personnel are also serving ashore and afloat in the Middle Eastern Navies.

Factors Affecting Maritime Environment

36. Maritime Environment holds enormous resources, unparalleled flexibility in military and economic influence and provides unbroken access to any area of interest. The limitations of land borders and sovereignty of air spaces are a serious handicap in applications of military instruments for guarding own interests. Hence maritime environment is becoming the centre stage for manifestation of interest and associated clashes. The latest US concept 'Operational Manoeuvre From the Sea' (OMFTS) is described as a single seamless operation extending from a secure sea base across a hostile shore to dominate a critical enemy centre of gravity. Next generation technology provides the opportunity to close the battlefield gap between ship and shore, and directly link manoeuvre in
ships with manoeuvre ashore. In the recent years, a number of factors have changed the nature of the maritime environment. These factors include:

a. The growing dependence of the Western Industrialised World and many emerging Third World countries on the seas for the transit of raw material. The sea provides the transport medium for the vast bulk of the world's international trade - about 80 percent by volume. Over 99.5 percent of the weight of cargoes carried over the globe goes by sea, less than 0.5 percent by air. The free flow of these supplies is of great interest to the whole world. The sea has also increased in importance as a source of useful resources. Food has always been obtained from the sea but now energy and to a growing extent, other minerals come from the ocean and its floor. This has given the ownership of the coasts and islands of the world a new importance as these now give sole exploitation rights to huge areas of sea. Although the precise legal regime for the world's oceans remains in dispute, the enclosure of large tracts of sea and ocean has already taken place. Countries need the means to assert their rights and carry out their duties in these newly-defined territorial seas and Exclusive Economic Zones, and this is perhaps the major reason for the proliferation of what might be called the institutions of sea power - the World's navies.

b. A new International Law of the Sea recognises the increased demands for the uses of the ocean, greatly increased possibilities for exploiting the sea economically and consequent occasions for political controversy and international dispute may well raise the level of attention paid to maritime questions by the general public as well as by special interest. The law of the sea, as it has developed and will continue to develop, affects maritime operations in two ways. First, its increasing complexities and pattern of claim and

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26 Mike Wells, "Operational Manoeuvre from the Sea", Navy International (November/December, 1993), P.341

c. Economic pressure combined with new technology has made the sea more competitive. It is not only in specifically military concerns that technology is changing the context of modern sea power. New techniques that promise to make the sea an infinitely more important economic resource than ever before will inevitably increase the importance of the sea as a source of both power and dispute. For centuries virtually the only important economic uses of the sea have been as a source of fish and as an economical and indestructible path for transport. While transforming these traditional uses of the sea, technology, now opens the prospects of using the depths and the bottom of the sea for a variety of new civil and military purposes.

d. The growth of sea denial capability by a number of developing countries of the Third World that have many unresolved conflicts with maritime powers and with their own neighbours over territorial demarcations and access rights.

e. With the end of Cold War and demise of the Soviet Union, United States of America has emerged as the sole dominant power in the world. Although US has recently become inward in her policies and her involvement in international problem areas is reducing. However for the time being, the monopoly of the West under the leadership of the United States of America has been established. This newly emerged geostrategic scenario has brought an end to the ideological rivalry between the capitalist and the communist blocks which overshadowed all global as well as

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regional conflicts. Some of the ambitious regional heavy-weights, like India, view it as an opportunity to further hegemonic designs in their respective areas.

37. There are also various conventional and strategic reasons for nations other than the traditionally large naval powers to acquire and sustain navies. Several of the smaller European nations - Spain, the Netherlands and Portugal, for example - still possess distant sovereign possessions for whose policing and protection they remain responsible. These and many other nations have incentive to maintain navies as contributions to the allied forces. Most of the Latin American and Asian countries would also appear to have the time - honoured reasons for possessing navies on purely national ground, long coastlines and active maritime neighbours. Besides these factors, navies are also well suited to constitute symbols of national prestige and honour.

38. With all the blessings and benefits widely understood by the nations of the world, yet it is not possible for every country to exploit the benefits and blessings bestowed by nature upon those counties which have a coastline, to its full. It is because of economic reasons. To become a sound and efficient sea power one requires a strong economic base at first place before being able to exploit the benefits offered by the maritime spectrum. Thus the maritime strategy of the littoral states would be based on their resources which ultimately dictate the size and shape of their sea power. Nowhere is the link between economic and maritime strength better illustrated, wrote Gorshkov, than in British naval history. A powerful economy he argued, provided England with the strongest navy operating on the world ocean .......... (and so with) .......... the leading position among the capitalist countries .......... for almost two centuries.29

39. Dr. Geoffrey Till sums up the economic strength versus sea power in the following words:

29 Ibid., P.77

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"Economic strength helps sea power in a range of ways. It provides money for defence, offers general support and gives maritime nation resilience in adversity. Industrial expertise and ship-building skills are major factors in the number and quality of warships, obviously a key ingredient in naval success...... Economic prosperity also usually leads to effective shore support and efficient, well-motivated personnel and a good operational performance".\(^{30}\)

40. Maritime strategy figures most prominently in the defence of traditionally sea dependent countries or coalitions. It encompasses both maritime aspects of war and security in time of peace. The structure and contents of maritime strategies must vary from country to country and even from situation to situation, but the nature and purposes of those strategies are generally the same. Command of the sea is contested by all aspirants to affordable degree as sea control or sea denial. Seapower draws its essence from numerous elements national in character. Compulsions and resources of a nation give size and shape to her navy; from global navies to rudimentary Inshore territorial navies. New International Law of the Sea has promised abundant bounties for the littoral states but has also triggered differences amongst states on oceanic resources rights. Their exploitation and guarding by navies are demanding new priorities. End of the Cold War and doctrine of crisis management on regional levels have germinated yet new challenge for smaller navies in particular.

41. The relationship among maritime strategy, and national military strategy, and policy can be applied to all countries, large and small, maritime or continental in orientation. Physical and political geography and their strategic relations mandate that maritime strategy will be studied and practiced as long as human race retains a need for strategic thinking. Thus economic pressure, notwithstanding, maritime forces will continue to remain a vital factor in the political order. Depending upon the capacity of the nation to invest them and its perception of the

\(^{30}\) Ibid.
importance of the various uses of the sea, military and civilian, to its overall policy, maritime forces will continue to absorb large amounts of resources. Thus victors are those who would achieve the best possible interplay of maritime elements based on their national compulsions, to bring about prosperity and prestige to their nation.
CHAPTER 2

GEOSTRATEGIC AND GEOPOLITICAL ENVIRONMENTS OF THE REGION

1. The north west quadrant of the Indian Ocean is of great significance not only to its littoral states but to the United States (the only remaining Super Power) and the industrialized West and Japan, because of its resources, mainly the Gulf oil which is estimated to be about 60% of the world's crude oil reserves. Over 90% of this oil is exported to USA, Western Europe and Japan. Approximately 200 tankers a day pass through the Strait of Hormuz bound for Europe, North America and Japan. The stoppage of the oil for any prolonged period will not only paralyse the economies of the industrialized West but also the industrializing producers dependent on foreign revenues, trade, and technology for their development. This gives the Gulf states a similar interest in safeguarding the sea lines of communications to ensure the flow of their oil to the outside world.

2. It is a region of great diversity in religions and cultural backgrounds, traditions, economic structures, resources, area, population and levels of development.31 There is hardly any industry in the area except for India and Pakistan and these countries are mainly dependent on oil in case of Gulf and others on agriculture and foreign aid. No geopolitical unit or alliance has been effective in the past in this region because of the longstanding conflicts and differences between the regional countries. For example Iran is opposed by Iraq and Oman and Saudi Arabia are faced by South Yemen and Somalia is confronting Ethiopia. In the subcontinent, the growth of Indian armed forces has traditionally encouraged Pakistan to build up its forces in response. Afghanistan is still burning even after the withdrawal of the Soviet troops. However its development as area of high commercial and strategic interests to the major powers and the complex global rivalry and competition for its

31 Chandra Kumar, "The Indian Ocean: arc of crisis or zone of peace?" International Affairs. (Spring 1984), 236
resources have encouraged movements towards some regional cohesion. The establishment of various regional and international organisations such as RCD, NAM, SAARC, OAU, OIC, GCC and Arab League of which most of these states are members, is indicative of the political awakening in this region. Besides, the Indian Ocean is a natural link amongst the Muslim states and with the control of Suez Canal by Egypt, the link is extended to the other half of the Muslim world in the Mediterranean.

3. Indian Ocean littoral states along with other Third World countries, are keen to make the whole of the Indian Ocean a Zone of Peace with the auspices of the United Nations. Following a call by the Non-aligned summit in Lusaka in September 1970, the United Nation General Assembly passed a resolution on 16 December 1971 calling for the banishment from the Indian Ocean, of warships and military aircraft that might represent threat or be used against the sovereignty, territorial integrity and independence of any littoral or hinterland states. However there are mixed feelings of the littoral states regarding the naval presence of the major powers. But certainly all agree that there is a need for restraint and balanced reduction in the extra-regional naval build up in this part of the world. No nation, people or country is dear to any super power, but their own interests. To safeguard their interests these powers are ready to take any stance; ethical or outrightly blatant. This region has vested interests of all economic and military powers dominating in the world at present. Pakistani perspective cannot be better explained than what Admiral Mansurul Haque NI(M), S.Bt, Chief of the Naval Staff did while briefing former chiefs of the Pakistan Navy at the site of Ormara Naval Base, on 2 January 1995.

"The Admiral said that the Indian Ocean today was neither an uncontested western lake nor a neglected frontier. In the changing geopolitical and geostrategic environments the Indian Ocean had

32 Ibid.
now become a focal point of rivalries and conflicts with direct implications for Pakistan".33

United States and Allies' Interests

4. The United States has a number of major interests in this region. These interests involve access by the US and allies to the resources of the area, most notably the Gulf oil - to include:

a. Protection of the Sea Lines of Communications for the flow of the oil and other resources to North America, Western Europe and Japan.

b. Protection of their investments in the area and establish markets for their products including defence sales. The pattern of trade in this region is generally based on that of the colonial era i.e. raw material out and the manufactured goods in. The EC trade to the area is much greater than the US.

5. The US objectives call for a greater military presence, a capability to surge additional forces into the region, and access to facilities sufficient to support both, peacetime presence and contingency operations. Since after the Gulf War, the US must continue to promote the active participation of European countries in the defence of Western security interests in the Gulf for several reasons. First, the multilateral efforts provide intrinsic legitimacy that unilateral actions may not. The cooperation of other states dependent on energy resources from the Gulf can help American leaders justify a continued US presence. Second, while the European allies (particularly Britain) made powerful contributions to the Desert Storm Force, it seems unlikely that this will be repeated in future; given the large scale reductions in European armed forces. Still

33 "Pakistan aware of need to develop maritime capability". The News International, January 3, 1995, p.4
Britain and France can (and do) make substantial contributions to Gulf security through forces (particularly air and naval), military planning, exercises and training programmes. In addition, the sale of British and French military equipment to the members of the GCC will help in the creation of at least a minimal ability by these states to protect themselves. Lastly, historic contacts between Britain, France and the Gulf states will result in the continued involvement of European states in the militaries of the region and the maintenance of excellent intelligence and analytical skills.\textsuperscript{34} The logic behind the Western involvements in GCC defence is that the Arabian peninsula states require enhanced force strength, collective security arrangement and international backing, to be able to match the power of Iran and deter a resurgent Iraq. The USA has developed a new strategy for containment of Iran and Iraq by denying Iran's access to weapon technology where possible, by exerting pressure on international suppliers and by calling for the regime in Tehran to improve its human rights records and desist from aiding revolutionary and militant Islamic groups abroad in the interests of improving its own international standing.\textsuperscript{35}

**Other Major Powers' Interests**

6. **Russia.** Russia has emerged as a major power amongst the Commonwealth of Independent States (CIS) after the demise of the Soviet Union. The Indian Ocean route is critical to Russia from Sea Lines of Communication (SLOC) point of view. It costs less than half as much as to ship goods from European Russia to her Far Eastern provinces than by using Trans-Siberian Railway or the icebound Arctic route.\textsuperscript{36} There is belief in Moscow that Russia will not make the grade as a fully-fledged member of the democratic, free market, Western World. The alternatives for Russia are to accept permanent second class status, or to regain world


\textsuperscript{35} The Middle East, New Defence and Security Issues RUSI Journal, (June 1994).

influence through exploitation of its raw materials, political leadership of the Third World, and military strength. The evidence points to Russia taking the second course. Russia is in fact seeking a leading role in a have not alliance. Russia has rejected an alliance with Turkey in Transcaucasia and Central Asia in favour of an appeasement policy towards Iran - the one country that could upset Russian influence in Central Asia and Wider Islamic World.

7. **China.** For China South Asia, West Asia, Africa and even Europe through the Indian Ocean are closer than the American west coast across the Pacific. China may face the Pacific Ocean but to set to Europe or to Third World countries which are her future markets she has to look towards the Indian Ocean - particularly the South West Indian Ocean. In Asia, for the first time since the founding of the People's Republic, China faces no imminent threat from any neighbour. This can be expected to continue in the near term; however, by the turn of the century, it is quite likely that regional rivalries will emerge between China on the one hand, and Japan, Vietnam, India - and perhaps Russia - on the other. China's growing economic and military strength, central geographic location in Asia, enormous population, assertive nationalism and desire to become the pre-eminent power in Asia all suggest that in the medium and long terms, international politics in Asia will again become conflict-ridden. China may be at the centre of these conflicts.

8. **Japan.** In Japan's case three-fifths of her trade passes through the Indian Ocean. As mentioned earlier, she is heavily dependent on the Gulf oil. Japan's financial contributions to Third World economic development, human and social needs and environmental protection are expected to be increasingly aimed towards Africa, South Asia and the Middle East compared with previous support which was largely

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37 "The Big Trends to Watch in 1994", *Intelligence Digest* (December, 1993), 1


39 David Shambaugh, "China's Security Policy in the post - Cold War era" *SURVIVAL* (Summer 1992), 105
concentrated on East and South East Asia.\textsuperscript{40} Japan is also preparing to take a more active military role in the world scenario. Various newspapers in the region have expressed concern about Japan's decision to send minesweepers to the Persian Gulf in 1991; and about Japan's recent moves to pass legislation that could allow the SDF (Self Defence Forces) to be sent abroad.\textsuperscript{41}

9. **India.** India has substantial interests in the Indian Ocean. India by virtue of her geostrategic location, size, population, excellent harbours, rapidly developing industrial and commercial base and military muscles aspires to become the regional policeman with an ultimate aim of achieving a global role. Towards this end, India is heavily investing in the naval build-up, and is actively conducting diplomatic manoeuvres to achieve ingress in the Middle East and the Gulf, besides maintaining closer relationship with the West and Russia. At the same time she is mending fences with Peoples Republic of China. India's rapprochement towards Iran is also note-worthy.

**Politico - Strategic Issues**

10. There are numerous issues plaguing this region and this study merits the mention of few selected issues affecting politico-strategic scenario in the region.

**Territorial Disputes in the Middle East**

11. There are substantial territorial disputes between the States of Gulf and Arabian Peninsula. Out of these only four disputes have been active within the past several years. These are: Arab - Israel, South Yemen-North Yemen, Iran - Iraq, and Iraq-Kuwait conflicts. Each of these disputes has raised questions not merely over border adjustments but for

\textsuperscript{40} Inoguchi Takashi - "Japan's role in International Affairs" - *SURVIVAL*, (Summer 1992), 79

\textsuperscript{41} Ibid., p.75
significant loss of territory or even complete takeover, having far-reaching consequences including direct involvement of the US and other Western Powers.

**Arab-Israel Conflict**

12. Arab-Israel conflict date back to May 1948 when Jewish settlers proclaimed state of Israel and war broke out with Arab neighbours, and Israel annexed large tracts of Arab land. Palestine Liberation Organisation (PLO) was created in 1964 and then onward, the conflict shaped into continuous battle situation between Arabs and Israelis. In July 1967 Israel attacked Egypt, Syria and Jordan. In a six-day war Israel grabbed Sinai Peninsula and Ghaza strip from Egypt, Golan heights from Syria, and West Bank and East Al-Qudus from Jordan. In November 1967, UN Security Council passed resolution 242 calling for Israeli withdrawal, recognition of all states in the area, and a just settlement of refugee problems.

13. On 6 October 1973, Egypt and Syria attacked Israeli forces in Sinai and Golan Heights on the Jewish fast of Yom-e-Kippur - that is why this October war is known as Yom-e-Kippur war. Once again UN Security Council passed Resolution 338 calling for a cease fire, implementation of Resolution 242, and immediate negotiations to establish a just and lasting peace. Then a breakthrough came in September 1978 when Egypt, Israel and the US signed Camp David Accord offering limited autonomy to Palestinians in occupied territories - the accord, however, did not work. Then in 1979, Israel and Egypt signed a peace treaty in Washington under which Israel agreed to hand over Sinai to Egypt and to keep Ghaza strip. Arab states disapproved this treaty and imposed boycott on Egypt.

14. Peace - War - dialogues continued all these years until on 13 September 1993, Israel and the PLO signed peace agreement outlining plan for Palestinian self-rule in the occupied territories. PLO Chief, Yasser Arafat and Israeli Premier Rabin ended decades of enmity with hand shake. A month later Israel and PLO began talks in Egypt on implementing self-rule and Israeli troop withdrawal from Ghaza and
Ariha. Due to insights and disagreement within the ranks of both sides, the ups and downs created dismay, however, the diplomatic activity continued when on 4 May 1994 Israel and PLO signed the historic agreement giving Palestinians their first measure of freedom in the occupied West Bank and Gaza strip since the 1967 Middle East War. Both sides are hopeful; Arafat hopes the accord will eventually bring a Palestinian state while Rabin had hoped that it would secure peace between Israel and all its neighbours.

15. Syria and Lebanon rejected the accord on the plea that it would not lead to a comprehensive Middle East Peace. The trio; Mr. Warren Christopher, the US Secretary of State, Mr. Rabin, the Israeli Prime Minister and Mr. Arafat, the PLO chief, however, seem determined to find a comprehensive settlement of this burning and long-standing issue in totality. No better word could be found than what Mr. Rabin said after the signing of the agreement.

"A year ago a meeting like that of today would have been unthinkable, yet today it is reality......If we do what we must, we can make it into a brilliant future".42

16. The United States is determinedly pursuing her peace initiative and has made considerable headway with Jordan, and Syria. While Syria-Israeli rapprochement is in offing, the cessation of hostilities between Jordan and Israel has been achieved. With the cessation of hostilities between Jordan and Israel, Syria is the only frontline state which is still in a state of war with Tel Aviv. Syria is demanding total withdrawal of Israel from the Golan Heights which it captured during the 1967 Arab-Israeli war, while Israel wants first to sign a peace treaty with Damascus before returning that area to Syria. One positive aspect regarding Syrian-Israeli relation is that the latter has categorically accepted Golan Heights as Syrian territory which should be returned in due course of time. The problem is: before withdrawing from the Golan Heights, Israel wants guarantees from Syria about the protection of Jewish settlers there and

some sort of demilitarised status of that strategic area. Syria also wants the withdrawal of Israeli troop from the so called security zone of south Lebanon. Because of the complicated nature of Syria - Israeli conflicts, it will be difficult to make an early breakthrough in their ties.\textsuperscript{43} Syria is however under severe international pressure to negotiate peace with Israel. This became apparent from the last meeting between the Presidents of United States and Syria, a country on US terrorist list.

17. On PLO - Israeli front, the struggle is yet not over, the Palestinian self rule in Gaza Strip and the town of Jericho is simply the first step implemented in a complex agreement. Key issues remain to be worked out and the PLO and Israel are way behind schedule. What was accomplished in Cairo, was scheduled for December 1993. The PLO must step up the pressure to keep world attention focused on what the Israelis still have to do. Allowing themselves to get caught up in the microcosm of Gaza and Jericho will give Israelis time to manipulate events to avoid implementing other parts of the deal. Final negotiations still have to be held on the future of occupied Jerusalem and the return of refugees who fled during the 1967 war. The status of those who were forced out in 1948 has also been put off until final negotiations. Palestinians must ensure that this deal does not become the final settlement. The other critical issues must be kept alive and not allowed to fade away with time. The deal on self-autonomy is simply the first implemented step in a long journey that still lies ahead - the journey to an independent state of Palestine. A long lasting peace between Israelis and the Palestinians will depend on how amicably a multitude of issues encompassing everything from national traumas and psychoses to micro management of policing and administration, border identification and its security, control and management of water resources, territorial waters etc are resolved.\textsuperscript{44}

Some of the major points of anxiety are the security risks to personnel and property of both Palestinians and Israelis during the interim phase and the role of the forces in handling these aspects. The Hebron massacre and


\textsuperscript{44} A S Khalidi. Points of Tension in the New Israeli - Palestinian Nexus, \textit{RUSI Journal}, (June 1994), 51.
the bomb blasts in Israel are examples of internal opposition to the peace process by the fundamentalist on both sides. It therefore becomes essential that leadership on both sides, handles the situation with prudence, deeper understanding and mutual cooperation in order to fail those elements who are destined to sabotage the ongoing peace process.

18. What has worked in the Middle East peace process is the marginalisation of fears, suspicions and concerns between the Arabs and the Israelis. Both parties abandoned their rigid positions and adopted a flexible approach. The acceptance of Israel's right to exist and the granting of an autonomous status to Palestinians is the outcome of confidence building measures (CBMs) adopted by the parties concerned. The crux of the Middle East crisis has not been resolved but a way has been found to reduce tension and promote peace and cooperation between Israel and its Arab neighbours. Needless to say Arab - Israeli rapprochement gives a message to those states where there is a total lack of political will and understanding to settle conflicts peacefully.45

North Yemen-South Yemen

19. Unrest between the two Yemens originally stems from their imperial division under the Turks and the British at the turn of the century. Later the Imam of Yemen was unsuccessful in their attempts to expel the British from Aden and unite the two Yemens after the collapse of the Ottoman Empire at the end of World War I. The Yemens, thus remained divided, with the South under colonial rule. After the British withdrawal from Aden in 1967 a radical Marxist regime consolidated in the south. Culmination of the civil war (1962-70) in the North overthrew the Imamate and brought a republican regime to power. Ever since the two Yemens attempted through subversion in the 1970s to undermine the republican regime in the North, while the North Yemen has aided


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dissidents in the South. These attempts have not succeeded however, and both Yemens periodically espouse interest in unification.\(^{46}\)

20. Ultimately South Yemen merged with the North Yemen in 1990, and started building their armed forces with the help of ex-Soviet Union. However the armies of the North Yemen and the South Yemen never merged completely despite unification of both states and finally this uneasy merger was disrupted on 4 May 1994 when fighting between supporters of President Ali Abdullah Saleh and Southern troops loyal to Vice President Ali Salam al Baidh broke out. The fighting in Yemen sent a shock wave across Saudi Arabia and other Gulf countries which are still recovering from the 1990 Iraqi invasion of Kuwait and the Gulf War that followed. Saudi Arabia, in particular is affected by the current spate of fighting. Both Saudi Arabia and Yemen have been holding negotiations since the summer of 1992 to settle a long-standing border dispute centering on the provinces of Najran, Jizan and Asir, currently under Saudi control under the terms of the 1934 TALR agreement. Before the unification, North Yemen had strong backing from Saudi Arabia while South Yemen was supported by ex-Soviet Union because of ideological connection.

21. Notwithstanding the outcome of the present fighting, the unity of Yemen remains doubtful and this piece of land remains a trouble spot in this volatile region having immediate implications for the Gulf states, particularly for Saudi Arabia and Oman. A unified Marxist Yemen would be a potential threat to the Saudis. A resurgent Yemen could reassert revanchist claims for the Asir buffer region and would generally threaten the Saudi Red Sea Coast, including the ideologically sensitive holy places of Mecca and Medina. Yemen could possibly reactivate a Dhofar rebellion which could in turn threaten the key Omani air base at Thumrait to which USCENTCOM has access.\(^{47}\) The recent forcible overrun of the South by North has however made the spot more volatile and unstable.

\(^{46}\) Quarterly Economic Review, No.2 (1984), P.23

Iran - Iraq

22. The border conflict between Iraq and Iran reaches back over 300 years. The three areas of the 730-mile-long frontier that have been pressure points for border conflict are the Kurdish areas in the north, the central area in which a projection of the Iranian border lies within less than 100 miles from Baghdad, and the Shatt al-Arab waterway in the south. The Shatt is Iraq's commercial link to the Gulf and is shared by Iran. In the Algiers agreement of 1975, the parties compromised their claims over all the three areas. This settlement then broke down in 1980 when Saddam Hussein invaded Iran's oil rich province of Khuzestan. Hussein's territorial objectives were not clear. The invasion may have sought at least to have regained control over the Shatt and even to have seized Khuzestan. In any event, Hussein's military initiative was timed to take advantage of what Iraq perceived as Iran's weakened state after its revolution. It also sought to counter Khomeini's appeals to the Iraqi Shi'ites to revolt and the Ayatollah's portrayal of Hussein as an infidel.48

23. The outcome of the war is well known and needs no repetition. President Saddam Hussein could not achieve anything out of this eight-year war, except causing devastation to the economy of Iran as well as Iraq. However Saddam Hussein proclaimed himself as a victor. During this eight-year war, most Arab states, and specially Iraq's oil rich neighbours supported Iraq for his role as strongman of Arab States. But soon this notion met its death when their so-called strongman invaded Kuwait on pleas which were rather immature.

Iraq - Kuwait

24. Iraq's original claim over Kuwait goes back to the year 1871-99 when the Sabah family accepted the rule of Turkish governor of Basra. The British then offered protection to Kuwait in return for which Sabah family promised not to give or lease their territory to any other foreign power. Iraq has since regularly claimed Kuwaiti territory, even insisting that the whole of Kuwait belonged to Iraq under the terms of the 1871-99

48 Ibid., P.12
Ottoman rule. Later, Iraq's interest in Kuwait was expressed first by King Ghazi in the 1930s while the British still controlled Kuwait. These claims were then revived by Iraqi strongman Qasim's threat of a takeover immediately after the British withdrawal from Kuwait in 1961. Resistance first by the British then by collective action of the Arab League dispelled the threat and in 1963 the Ba'athist regime which overthrew Qasim recognized Kuwait and its frontiers. After the Ba'athist coup of 1968 in Iraq and the buildup of Iraqi forces with Soviet assistance in 1972, Iraq turned its interests to acquiring the Kuwaiti islands of Bubiyan and Warba, and some adjacent coastline, which command the entry to Umm Qasr, Iraq's only port on the Gulf. These Gulf islands became the objects of renewed disputes. A series of incidents at the Kuwaiti frontier with Iraq occurred in the 1970s. These were followed by less blatant but equally persistent Iraqi pressure for concessions from Kuwait for the use of the islands in the early 1980s.49

25. The crisis that erupted from Iraq's invasion of Kuwait is also rooted in the political and strategic context of Iran - Iraq War. This was hailed by most Arab states as a collective struggle that Saddam was spearheading for their defence. This assertion was further invigorated by Iran's unconditional acceptance of cease-fire which Iraq assumed as victory.

26. As a consequence of Iran - Iraq War, Iraq confronted the problem of not having a safe and secure access to the Gulf. Its sole functional port in the Shatt al-Arab was blocked by the wreckage of the war and her other access was controlled by the Kuwaiti islands of Bubiyan and Warba. Finding itself bottled-up, Iraq requested Kuwait to lease the islands to ensure safe passage for its trades specially the oil export. Obviously the reaction of Kuwait could not be in favour of Iraq's proposition, Iraq then accused Kuwait of stealing US $17 billion worth of its oil from the disputed oil wells of Rumaila bordering the two countries. Iraq also accused Kuwait and UAE of exceeding their oil export quota limits. Saddam further asked Kuwait to write off its share of the US $

49 Ibid., P.11
15 billion, out of the total US $80 billion, he had borrowed during Iran-Iraq war.

27. Despite help from her wealthy neighbours, eight-year war with Iran had left Iraq bankrupt. Saddam surmised that the Iraqis had sacrificed themselves for the Arab cause by fighting Iran and were now being victimized by their wealthy neighbours. Thereby his attitude hardened and having a preponderance of force - 4th largest Army in the world - he contemplated to bulldoze his way through. Iraq presented a list of consolidated demands which he expected to be met. These included:

a. Lease of two Islands of Babiyan and Warba to Iraq.

b. Handing over of the disputed Rumaila oil fields to Iraq, payment of US $17 billions oil revenue which Kuwait had earned from these fields.

c. Reduction of oil production to boost up the prices in the world market.

d. Writing off US $15 billion Kuwaiti loan and generous donations to help payment of debts to outside world.

28. Obviously the response to these demands couldn't have been favourable. Ultimately Iraq invaded Kuwait in the early hours of 2 August 1990. The consequences of the ugly episode are fresh in the memory of the world community. The Iraqi invasion of Kuwait afforded the golden opportunity to the US and allies to establish a foothold in this resource-rich region and eliminate chances of any threat to Israel's security in future. It may also be known that US Central Command had been war gaming the Gulf War settings at least six months prior to the Iraqi invasion. Likewise the then American Ambassador to Iraq almost gave a "go ahead" to Saddam Hussain few days prior the attack.

29. The imposition of blockade by the US led forces clearly demonstrated that by denying the essential supplies, Iraq could be forced to negotiate peace on their terms. It was the ardent desire of the coalition
forces to destroy the war potential of Iraq including weapons of mass
destruction held by her so that Iraq is no threat to Israel. In achieving
this aim the coalition forces went beyond their mandate of liberating
Kuwait. The brutal massacre of the retreating elite republican guards on
the Busra highway was a hair raising sight. The subsequent no fly zone
and military assistance to Kurds till 37th parallel almost amounted to
occupation. It may be remembered that the land campaign lasted only 40
hours and air power took just over three days to achieve the military
objectives. The blockade however started almost six months earlier and is
virtually continuing today. Otherwise with the blockade alone and
cutting of Iraq's US $16 billion imports and US $12 billion exports alone
could have achieved the desired results.

30. Iraq's massing of troops again on Kuwait's border on 7 October
1994 may be considered as a diplomatic move to achieve lifting of
sanctions. Saddam's latest gamble may have brought greater gain for the
USA by paving way for its permanent military presence in the Arabian
peninsula and Persian Gulf. Besides drawing the oil rich states even
deeper into the net of military dependency, the October crisis would
further enhance Washington's massive economic dividend in the region.50

**Lessons From the Gulf War**

31. Since the end of the Gulf War, things have changed and the US
and its allies have developed new interest outside NATO's area of
operation. Gulf region has attained ever greater significance primarily
because of its oil wealth. In view of the new interest of the US Navy in
littoral operations, the smaller navies ought to maintain a degree of
deterrence and preparedness to contribute to the maintenance of state
sovereignty against any regional or extra-regional aggressors. Once
committed against a super power or blue water navy/navies, a smaller
navy may be interested in delaying defeat and attriting enemy's will
and means. This should buy time for the world's conscience to wake up and to
rectify the situation.

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50 Suroosh Irfani, Troop Diplomacy and Change in the Gulf, *The News International*,
November 2, 1994, p.7
32. The Gulf War offers numerous lessons for the littoral states including Pakistan, of which only a few are being reviewed here. In the maritime theatre, the effect of naval blockade has been demonstrated/rejuvenated. The littorals, including Pakistan heavily dependant on the sea-borne trade, need to evaluate this aspect seriously. In Indo-Pakistan scenario, India may venture blockade forcing an economic collapse on Pakistan. Therefore, the implications of this option need to be seriously addressed to. Similarly mine warfare, with its increasing sophistication offers a potent threat in the maritime scene and demands serious attention.

33. In the air warfare, the Gulf War clearly shows how crucial airpower both from sea and land was in the final outcome of the war. In our scenario, cooperation between Navy and Airforce to deter the enemy surface forces coming close to the coast would be absolutely essential for successful operations at sea. Besides strengthening of naval air arm, dedicated fighter squadrons meant only for maritime operations are a must.

34. Finally the use of modern technology in the form of the latest missilery and use of electronic warfare by the US led forces has clearly spelled out the need for modern state of the art weapon systems to ensure maritime defence and safeguard state sovereignty.

Gulf Cooperation Council and Security of the Gulf

35. The Gulf Cooperation Council (GCC) was created in 1981 largely in response to the Iran - Iraq war, but its charter made no specific reference to defence cooperation. However, security matters pertaining to common defence were separately discussed by their respective military top brass soon after the creation of the organisation. Nothing concrete materialised during all these years except a GCC brigade-sized force stationed in Saudi Arabia. Iraqi invasion of Kuwait in August 1990
exposed the inadequacy of GCC's military collaboration. The result has been implicit dependence of the Gulf States on the West for their security and the creation of a tacit alliance.

36. Since the end of Gulf War, the GCC members' reaction regarding the military presence indicates some disagreement but generally they all support presence of western forces in principle. At one extreme, Kuwait is the ardent supporter of western military presence since she lacks a geographic depth that makes it vulnerable to quick take over. The Kuwaiti Defence Minister described his country's security solution as, "a protection is the friends you have, not the weapons you have". A Kuwaiti political scientist described this relationship even more starkly. This is the deal that was presented to us: "we liberated you; you buy our weapons". We could dissolve our Army and depend totally on the West but the West does not want that; They say, "Buy our weapons and we'll come and help you".\(^{51}\) At the other extreme, Saudi Arabia prefers the West to provide arms and expertise and an over-the-horizon presence. They are extremely sensitive to internal criticism despite massive defence expenditures before the Gulf War, the kingdom had to depend on the US-led forces for its defence. Besides, the Saudi government is also wary of the destabilising effect that the presence of large number of 'infidels' might have.

37. Other smaller members also favour military presence of the West. The Qatari Oil Minister, for example observed that the "industrial world will protect the oil, we believe this is a proper exchange of interests and benefits".\(^{52}\) The smaller states' preference for policy of Western dependence is also the result of their concern that Saudi Arabia will dominate the GCC, and various territorial disputes among its members colour their scepticism that greater security can be obtained from closer integration. For example, Bahrain and Qatar had a serious dispute in 1986 that nearly resulted in war over access to coral reefs. More recently

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\(^{52}\) Ibid.
in 1992, Saudi Arabia and Qatar were involved in an armed border clash that resulted in three Qatari casualties. This imperiled the GCC meeting scheduled for December that year. Furthermore, Iran quickly announced its support for Qatar and offered to sign a joint defence agreement.\textsuperscript{53} It is only one of no less than 40 points of disagreement over frontiers involving most of the states of the region and suggests the degree to which they desire their independence and remain suspicious of each other. Such disputes are obstacles to closer military cooperation and make the proposal by Oman to expand the 'Peninsula Shield Force' from 10,000 to 100,000 highly unlikely.\textsuperscript{54} In addition some smaller GCC states appear to favour closer ties with Iran while Saudi Arabia remains intensely suspicious of the Tehran government, and Iran will continue its attempts to exploit this variation in GCC policy.\textsuperscript{55}

38. The GCC, as such remains a weaker and ceremonial link between the member states who have failed to achieve agreement on common security despite having common governmental and economic philosophies. On the contrary, these states decided to seek bilateral ties with the West. For example, Kuwait, Bahrain, Qatar and Oman have all concluded defence agreements with the United States. Such agreements provide for frequent joint military exercises, upgraded facilities and expanded training and technical exchanges. These states have ordered modern weapons worth of billions of US dollars. Saudi Arabia alone has ordered new weaponry amounting to 25 billion US dollars since the end of the Gulf War. The sphere of agreements and bilateral cooperation is being expanded to include Russia and China as well, Kuwait, the leading exponent of defence treaty with major powers, has 10 year bilateral agreements with the USA, UK, France and Russia and is expected to sign a similar accord with China soon. The emirate is also spreading its arms acquisitions around as it seeks broader ties with the five permanent members of the UN security Council - a significant shift from its

\textsuperscript{53} Ibid., PP.75-76

\textsuperscript{54} Ibid., P.76

\textsuperscript{55} Ibid.
traditioned position of basing its armed forces entirely on Western systems. Russia, which is increasingly to resume influence in the Middle East, is expected to conclude arms deals in a major breakthrough for Moscow in the Gulf market.56

39. This scenario is highly favourable to the US to justify the active participation of her European allies and their continued presence in the Gulf to protect their strategic interests. The Gulf countries however, must carefully examine all aspects of the future security requirements rather than just opting for Western presence or dependence on extra regional powers. Following points merit consideration:

a. The West with all their might took five months to be in a position to fight against Iraq - only one country that too poorly equipped as compared to the hi-tech forces of the West.

b. The emerging defence cuts have significantly reduced the armed forces of the US and the European countries. The ability of the West to create military forces capable of projecting a balance military power rapidly may be questionable in future.

c. This quick victory may not be possible in future with minimal casualties of the allied troops. This will all depend on the likely adversary's preparedness for such action. Iraq or for that matter any other country would take the lesson from the Gulf War into account for structuring or restructuring its defence forces to meet the futuristic contingencies.

d. In this war, the entire world community served as interested observer and more or less supported the action. The emerging geopolitical and geostrategic scenario may be entirely different. It is beyond any doubts that the end of the Cold War only made it possible for the US-led forces to embark on such action. Soviet Foreign Minister Eduard Shevardnadze, for example, remarked in

56 Jane's Defence Weekly, Vol. 22, No.4 (July 30, 1994), P.27
Tokyo on 7 September 1990, that if Gulf crisis had occurred during the Cold War, the USSR would have backed Iraq, which could have led to the Third World War. During the crisis Mr. Shevardnadze actually suggested the deployment of Soviet troops to help enforce UN resolution, and the Soviet Foreign Ministry received full briefings on American military plans.\textsuperscript{57}

40. In short, the GCC states remain highly vulnerable despite the large scale arms spending. They have consistently failed to develop a common defence structure and probably never will.\textsuperscript{58} As a foundation for a military alliance the GCC is seriously flawed. Its member states are riddled with rivalry, border disputes and a deep fear of Saudi domination. There is clearly a serious lack of political will to overcome these problems. On top of this, the small population base and the large area that has to be defended does not allow a credible or coherent regional military structure. Without Iranian participation any such structure cannot function.\textsuperscript{59} The future crisis and wars in the Gulf can only be effectively deterred or confronted through improved security relationship among the GCC countries. The option of extending the membership to Iran and Pakistan could create a viable defence structure to enhance the security prospects of the region. An open-minded and pragmatic approach can only help evolve such an arrangement.

\textbf{An Over-view of Pak - Arab Relations}

41. The emerging scenario around Pakistan involving rapprochement between friends and foes is a source of serious concern but more so it serves as a last warning for our foreign relation experts and economic strategists, responsible for the fortune of Pakistan. The fact is that Pakistan cannot and should not depend on its special relations with any country or any regional group, as such relations cannot stand the test of

\textsuperscript{57} Adelphi Paper- 282 (November 1993), p.3

\textsuperscript{58} Jane's Defence Weekly, Vol 22, No 4 (July 30, 1994), p.27

\textsuperscript{59} Ibid., 30
time when conflicting interests are emerging in various regions of the world with new concepts and strategies of trade and economic cooperation. Pakistan's experience with the Gulf countries should be an eye-opener. Although Pakistani foreign relations and trade strategies are yet to realise, the Gulf countries are increasingly going to be dictated by the group interests alone which the GCC would be compelled to serve in its relations with the countries of EC and NAFTA which have already asked the former to settle terms of future trade and economic cooperation on a group basis under the cover of GCC. The GCC countries are also trying to develop group relations with the ECO countries including Pakistan in their bid to have an access to the Central Asian States.

42. This leads us to have a close look at our special relations with Arab countries. Since inception, Pakistan's policy makers have devised the foreign policy vis-a-vis the Arab world in the context of Pan-Islamism, whereas the policy of Arab states has been based on their national interests. Without going into many details which have become part of history, let us examine two aspects which are confronting the Arabs and Pakistanis since many years i.e. Arab-Israel conflict and Kashmir issue.

43. As far as Arab-Israel conflict is concerned, Pakistan has staunchly supported the Arab cause vis-a-vis UN resolution 242. Despite recent agreement between PLO and Israel, Pakistan government has not taken decision to recognise Israel. This approach is because of the fact that Pakistanis have seen Arabs in terms of their spirit of Pan-Islamism. Whereas the Arabs have treated Pakistan like any other country in terms of national interests. It is abundantly clear by the fact that contrary to our stand on Palestine issue, Pakistan has never received similar support in terms of Kashmir dispute with India. The reluctance of Arab states to openly support Pakistani cause could be owed to the fact that many Arab states fear secessionist movements being inspired in their own backyards. Similarly, Pakistan in dealing with its Arab friends could learn how to emphasise national interest as opposed to Pan-Islamist solidarity.

44. In fact, it is high time for Pakistan to formulate a nationalistic policy rather than depending on special relations only. The foreign policy
experts and authorities in power must consider the emerging world order sponsored by the only remaining super power i.e. US. In this respect Turkey and Egypt are vivid examples; these two Muslim countries in our region have always followed the policy which suited their national interests. Egypt did not wait a single moment to recognise Israel when she thought it appropriate vis-a-vis its national interests. Egypt was the first among the Islamic countries to establish normal diplomatic relations with Israel after PLO-Israeli Accord. Pakistan should seriously evaluate its position vis-a-vis the timings for the recognition of Israel. Otherwise it may be too late to derive any political benefits. Israel, under the dynamic and pragmatic leadership of their Prime Minister, Yitzahak Rabin is making all out diplomatic moves to expand their ties with the Muslim countries since the September accord with PLO.

45. The best course for Pakistan to meet new regional challenges is to make itself economically and militarily strong so as to be able to compete successfully against others for its share of the world market. To achieve this capability it must concentrate on scientific education and on building up a broad industrial base. Domestic policies must be consistent and not changed with every change of government or else credibility is lost. Only a strong and stable Pakistan, capable of contributing towards the economic development of the countries in the region, can face new challenges.

India - Pakistan Perspective

Strategic Compulsions for Pakistan

46. The pulls and pressures to which Pakistan has been subjected from its inception are numerous. They have been both internal and external as well as traumatic and tragic. Pakistan is located in the key strategic position linking the Middle East with South Asia. It is surrounded by three major nuclear powers; Russia, Peoples Republic of China, and India. Pakistan's geostrategic position creates special perils and problems. The Arabian Sea lies to the south where Pakistan has about 540 miles long coastline with only one developed harbour, Karachi - Port Qasim can only
be called as an extension of Karachi harbour. The location of Pakistan links the country with the Middle East and Gulf States which are oil-rich, and further west the Arab countries of North Africa. There is one continuous block of Muslim countries from Indus Basin to the Atlantic and most of these countries have sea as the only link. This emphasises the importance of not only Straits of Hormuz but also the Red Sea route, during the period of hostilities through which any possible aid from Saudi Arabia, Turkey and for that matter from any western countries could be transported. However, Pakistan has had a bitter experience during 1971 war and cannot therefore, depend on anyone because such help is never guaranteed:

a. Despite the political sympathy and existence of pacts and treaties, whether USA was mobilised partly by itself or partly by ex USSR, the result for Pakistan was the same.

b. China's capacity to act was neutralised by the threat to its own Western borders.

c. The only major power which could and did move swiftly and capitalised on its gains was ex-Soviet Union - which was obviously in favour of India. Russia, the successor of the Soviet Union is likely to continue to outrightly support India economically as well militarily.

47. The present and the emerging situation is no different to our past experience. The US position vis-a-vis Pakistan since after the demise of the Soviet Union is very clear. The changed international circumstances have placed Pakistan in a vulnerable situation. There is no Cold War driving Americans to a frantic search for allies in South Asia. Obviously the measures being contemplated by the US are designed to break the will of the government and people of Pakistan to force them to cap their nuclear programme and to sign NPT unilaterally. Stoppages of aid under Pressler Law bears testimony to America's biased approach towards Pakistan.
48. On the other hand, India is using all the cards at its disposal to isolate Pakistan even in our own region, by making friends with the close friends of Pakistan. In this context two very recent politico-economic manoeuvres are briefly discussed in order to further highlight the strategic compulsions for Pakistan.

**India - China - Iran Axis**

49. India was successful in the postponement of voting on the Pakistani resolution on human rights violations by India in Kashmir, with the help of China and Iran - both considered to be close friends of Pakistan. Indian media has since been propagating the concept of regional power axis between India, Iran, and China, possibly materialising within next five years. This issue has become a source of serious concern for Pakistan. It is clearly understood that after development of this power axis, Pakistan would not only be finding clash of interests among its close friends China and Iran, but would also be economically affected. Not only this, it can ultimately clash with the existing regional organisations, i.e. SAARC and ECO. SAARC is already a doubtful case.

50. If such a grouping is let to happen it will encourage India to march ahead with greater enthusiasm to foster similar relationships with other countries in the region to isolate Pakistan completely. This possibility is very much there in Gulf countries where the Indians are making in-roads in a manner that Pakistan is already facing difficulty in manpower absorption, trade, and economic cooperation. Notwithstanding closer and long-standing relationship between Iran and Pakistan, Iran has maintained wide ranging relations with India since the days of Raza Shah Pehlvi.

51. China and India have recently come closer and are mending fences. This emerging cooperation suits all the three parties in a big way. Iran is facing isolation from the West at the time when it is busy building itself after the 'Revolution'. It needs an outlet and India can partially serve it. While an access to China would be source of strength economically as well as diplomatically in the days ahead. Similarly China wants markets for its
booming industrial products. Its access to the western markets is often threatened by sanctions. China, therefore, could not ignore a vast market like that of India just next door. In short, the India-Iran-China Axis would be based on their cross-purpose and cross-interest which would serve all the three countries’ economic, trade and diplomatic interests rather than just maintaining cordial and friendly relations between Pakistan, Iran and China.

52. In the event of an India-Iran-China Axis gathering momentum Pakistan will have to do some re-thinking. It could take no notice of such a grouping in keeping with the principle of the sovereign right of independent state to form alliances and enter into economic or military agreements. This would be idealistic as no nation would remain inactive if its national interests are likely to be harmed by the action of its neighbours. Pakistan could raise a hue and cry when the time comes and make this alliance to be against the interests of the United States and other regional countries. Given the great interest western nations have in the markets of India and China and even Iran, our shouting would not be heard in their corridors of power.

53. It could follow the maxim ‘if you can’t beat them join them’ - President Hashemi Rafsanjani has indicated his desire of including Pakistan in such a grouping. A consumer market of over two billion people would indeed be a strong challenge to the rest of the world. But until the core issue of Kashmir is not peacefully settled an association where India and Pakistan would sit together would not make any meaningful progress.

India-China-Russia Axis

54. Yet another proposal came from Boris Yeltsin, President of the Russian Federation, during his last visit to India. The President of Russian Federation proposed an axis between India, China and Russia to ensure stability in the region. This is again a bias proposal and cannot stand to its objective. Mr. Yeltsin could not have been unaware of the continuous tension between Pakistan and India. Without resolution of the
problems between India and Pakistan, stability in this region cannot be achieved. According to media reports first reaction came to this proposal from Bangladesh, which has taken up the position that Pakistan with its "developed nuclear capability" should be included in any such exercise. The Bangladesh proposal makes sense and merits due attention by the Russians as well as other interested parties. Pakistan on its part, should not let any such attempt succeed which is meant to isolate her. This demands a concerned and committed diplomatic effort to win new friends and cementing old relations.

**Indo-Israeli Relations**

55. Though full diplomatic relations between India and Israel were established in 1992, India had recognised Israel as early as 1950 when Israel opened its consulate in Bombay. A quiet but progressive cooperation between the two countries has since been on its way. Both countries signed an agreement for nuclear cooperation in 1962. In 1963 Israeli General Shateel visited India and signed a secret agreement whereby Israel could supply arms to India and the two countries would exchange training facilities. Israel also supplied military equipment to India during Indo-China war of 1962. This was reported by the correspondent of Le Monde, Paris. The Indo-Israel military collaboration continued after 1967, assuming greater significance during 1971. Hand in hand with their military collaboration, India and Israel have determinedly pursued cooperation to develop nuclear capability. The Atomic Reactor at Kalpakam near Madras and the Tarapur Atomic station were installed with the help of Israel.\(^{60}\)

56. After the end of the Cold War, India, with her endeavours to move closer to the US, has come open as regards her relationship with Israel. The years 1992-1993 have seen official contacts gaining momentum between India and Israel. The Indian Foreign Secretary Mr. J N Dixit, visited Israel in March 1992 and the Israeli Foreign Minister Shimon Peres visited India in early 1993 to expand relationship between

\(^{60}\) *Stockholm International Peace and Research Year Book 1972*, Quoted in *DAWN*, May 27, 1993, P.17
their two countries. These visits should go a long way in further strengthening and expanding the collaboration between India and Israel.

57. So far as Pakistan is concerned, it is necessary to take cognizance of certain commonalities between India and Israel that impinge directly on our security interests:

a. Both are engaged in suppressing movements for self-determination and human rights for the past 45 years, India in Kashmir, and Israel in Palestine.

b. The two of them find it expedient to fan the bogey of Islamic Fundamentalism, since the populations they are engaged in suppressing are largely Muslim, and enjoy the backing of the Islamic world.

c. They are opposed to the acquisition of modern technology by Muslim countries and have been trying to create a scare about the "Islamic Bomb".

d. They have been conspiring in moves to have Pakistan dubbed as a terrorist state - moves that may increase political and economic pressure on Islamabad with a view to affecting our peaceful nuclear programme.

e. Although the threat of a pre-emptive strike by Israel against Pakistan's sensitive installations has always been there since 1990s, the growing cooperation between New Delhi and Tel Aviv would certainly increase that threat. This means that security precautions for the safety of these installations would have to be intensified.

Kashmir Dispute

58. Kashmir, as always, will remain a flash point of broader conflict in South Asia. The emergence of Kashmir dispute and the lack of its resolution is often explained in terms of the attitudes and policies of
Indian governments, the partially of the last British Viceroy Mountbatton, and the UN Security Council's inability to enforce its resolutions on Kashmir. In addition, there may be numerous slips, lapses and mistakes committed by other players over the years i.e. All India Muslim League, and successive governments in Pakistan. These details have, however, become part of the history which is beyond the scope of this study.

59. History confirms that three factors are essential for any independence movement to be successful. These are; the will of the local people, the recognition at international level and lastly the military and economic support of a strong ally, preferably a neighbour. Its classic example is the dismemberment of East Pakistan in 1971. We have seen that the previous two attempts (1948 & 1965) by Pakistan to conclude Kashmir issue have failed because the movement lacked will of the local people. The present uprising in Kashmir has an important component which was missing in the previous struggles for freedom. The Kashmiris have now taken their destiny in their own hands and want to exercise their right of self-determination. Its solution only now lies in the hands of the Indian government. Pakistan is always ready to participate in a dialogue to find a peaceful political solution of this burning issue. India requires a very bold and pragmatic leadership to leave their usual stance on Kashmir. They must understand and admit that Kashmir is a disputed territory and not an integral part of India. This is the only and only way which can help resolve this longstanding issue. However, it may be realised that with the passage of time the Kashmir cause is gaining in international recognition and Pakistan has to support the Kashmiri people by compulsion.

60. It should be understood that the Kashmiris have reached a point of no return in their just struggle. It is incumbent upon the world community headed by the United States to use their clout in South Asia and get India and Pakistan to meet at the negotiating table and sort their

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61 Dr. Inayatullah, "Why was Kashmir lost?", The News International, May 5, 1994, P.6
differences. If an agreement can be reached on how the people of the disputed territory should be allowed to exercise their right of self determination, it would help restore peace and stability in the subcontinent and subsequent resolution of many other issues including nuclear non-proliferation question in South Asia.

South Asia's Nuclear Issue

61. Like our principled stance on Kashmir, it is also impossible to sever our legitimate security concerns from the question of non-proliferation in South Asia. US policy manifested in the Pressler Amendment, has singled out only Pakistan for punitive action - may be as a reward for our whole-hearted support to the US during the Cold War era? This policy has been disfunctional not only to Pak-US relations but to the non-proliferation policy of the United States. Such a discriminatory policy offers no incentives for resolution of issue amicably. Pakistan however, remains committed to non-proliferation and has come forth with concrete proposals to address this issue during last several years:

a. The establishment of a Nuclear Weapons Free-Zone in South Asia, proposed in 1974.

b. A joint Indo-Pakistan declaration renouncing the acquisition or manufacture of nuclear weapons, in 1978.


d. Simultaneous adherence to the NPT by India and Pakistan, in 1979.

e. Simultaneous acceptance of full scope IAEA safeguards, in 1979.

f. A bilateral or regional nuclear test ban treaty, in 1987.
g. Most recently, in 1991 a proposal for the convening of a five-
nation conference on the question of nuclear proliferation in South
Asia.

62. Each time however, its efforts were frustrated by Indian
negativism. Indians are demanding that the nuclear disarmament
should be addressed at global level and not at regional level. This
proposition obviously is not acceptable to the United States. It seems that
Americans are trying to exploit the Indian obsession for global
prominence in one form or the other. Many Americans feel that
alternative courses such as economic incentives, a seat in UN Security
Council, helping them in transforming their navy to a bluewater navy
etc., leading to the attainment of a global status should be employed. If
neither of such approaches and propositions pay dividends, then
concentration on arms control measures be focused upon. From the
outcome of the shuttle diplomacy of US Deputy Secretary of State Strobe
Talbott, it seems that Americans would now pursue a three-step strategy
towards this issue i.e. capping, then reducing, and finally eliminating
weapons of mass destruction and ballistic missiles in South Asia.

63. This step by step approach is more flexible than asking Pakistan to
roll back its nuclear programme unilaterally. India and Pakistan can
benefit from the experience of Argentina and Brazil who achieved nuclear
de'tente through a chain of bilateral security and confidence building
measures i.e., a regional nuclear test ban treaty; simultaneous freezing of
fissile material production; agreement against targeting each other's cities;
simultaneous announcements of non first nuclear strike, and; non-
deployment and employment of ballistic missiles etc. These measures
have to be integrated with the larger effort to remove sources of volatility
in the region. So long as South Asia is unstable, whether because of
Kashmir weapons of mass destruction cannot but be part of its
geostrategic landscape.

64. All depends on India who in many ways is employing quiet
diplomacy with regards to its quest for a seat in Security Council and
vociferously emphasising a global approach towards its nuclear policy. In
no way India would be willing to accept a regional solution. On the other hand US officials seem to have suggested Pakistan a swap; the release of F-16s, in return for a verifiable capping of its nuclear capability. Such a proposition is never acceptable to Pakistan. It is in Pakistan's interest to maintain a certain veil on the vital defence capability. Successive Pakistani governments have repeatedly asserted the goal of non-proliferation in South Asia. The Americans must respect Pakistan's principled stance and should not demand to either sign NPT or agree to verifiable capping unilaterally.

65. It should be well understood that the problem in the subcontinent is regional and, therefore, the solution has got to be regional without any discrimination. Pakistan sincerely wants peace in the region and is ready to negotiate out issues anytime and anywhere for finding honourable solution on regional basis. The solution can be well founded with an open minded and pragmatic approach by the concerned parties - US can and should play a definitive role to save the region from a catastrophic future.

66. If the United States is truly committed to an equal and even-handed approach to the two countries, then the application of Pressler Amendment to Pakistan will have to be re-examined since balanced US initiative could go a long way in defusing the tension in this volatile region. In a worst case scenario, Pakistan should, however, be prepared for further biased and discriminatory treatment including coercion and use of force as done in case of Iraq.

**Indian Ocean as a Nuclear Weapon Free Zone (NWFZ)**

67. The Indian Ocean has become an area of acute tension, with conventional and nuclear naval vessels of the major powers plying its waters at will. Large scale maritime exercises are conducted annually within its precincts, involving some of the major Western powers and their treaty allies of the Indian Ocean littoral.
68. At Lusaka in 1970, a chorus of non-aligned nations called upon all states to consider and respect the Indian Ocean as a zone of peace from which great power rivalries and competitions as well as bases conceived in the context of such rivalries and competition - either army, navy or air force are excluded. They agreed that the area should be free of nuclear weapons. At the Commonwealth Conference in 1971, the Prime Minister of Sri Lanka, Mrs. Sirimavo Bandaranaike, proposed that the Indian Ocean be converted into a Nuclear-Free-Zone. In 1972, Sri Lanka sponsored a resolution at the 26th General Assembly of the UN calling upon the littoral and hinterland states of the Indian Ocean, the permanent members of the Security Council, and other maritime users of the Indian Ocean to support the concept that the Indian Ocean be a zone of peace. The resolution, which called upon the Big Powers to "negotiate with Indian Ocean States for the elimination of military installations, nuclear weapons and great power rivalry in the zone", was favoured by 95 votes; but 23 nations, including the important ones of the USA, ex-USSR, Britain, and France abstained. Indeed, the division was not ideological. It was dictated solely by what the Lusaka declaration called 'Big Power rivalries and competitions'.

69. It is now claimed that the aftermath of the 1974 oil crisis was the instilling of grave concern among the Big Powers for the safety of their oil supplies. To this reason is attributed the enhancing of their naval presence in the Indian Ocean, which is their centre for oil supplies. The fact that these naval forces cannot only protect oil routes but also intervene powerfully in various local situations is conveniently glossed over. The glaring truth is that the Big Powers are pursuing, with cold-blooded resolution, policies counter to the interests of the non-aligned littoral states of the Indian Ocean despite repeated protests from the latter.

70. The only possible manner in which Indian Ocean region can be saved from the consequence of nuclear proliferation is to establish it as a

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NWFL. Pakistan and other Indian Ocean states have demanded the establishment of the region as a NWFL, which implies that the regional states abjure their sovereign rights and completely prohibit the manufacture, deployment and possession of nuclear weapons.

71. The issue however became more complicated when India exploded a nuclear device in 1974. This negated the stand of non-aligned movement altogether. As long as India remains opposed to the idea of turning the Indian Ocean into a NWFL, regional non-proliferation is doomed to influence through regional hegemony. Such a scenario would suit the interests of the extra-regional powers.

72. The demise of the Soviet Union followed by the Gulf War have created an altogether different situation. US has almost self-assigned herself a role to keep her presence in the region - prompted at times by littoral states i.e. Kuwait etc. There are other voices emanating from the regional states calling for the presence of US forces in the region in order to stop the hegemonic designs of India. India already aspires a bluewater navy - smaller countries feel that withdrawal of extra-regional forces from the Indian Ocean shall give a free-hand to India to pursue her hegemonic designs.

73. The US, is fully entrenched in the region, besides other bases, she has a base at Diego Garcia. This is the biggest base outside the United States whose sovereignty is disputed. The base is plumb in the centre of what neighbouring countries want to be a zone of peace and Mauritius wants the Chagos Archipelago, in which Diego Garcia is situated, returned. The US, however, is unlikely ever to give up the base. It lies midway between the Middle East and South East Asia and has several times played a crucial role in American global operations. It was from Diego Garcia that President Jimmy Carter launched his unsuccessful attempt to rescue American hostages in Iran, and it was Diego Garcia again from where B52 bombers took off to drop tones of explosives on Iraq during the Gulf War. Diego Garcia has a runway capable of taking the World's biggest military planes and the calm waters in the middle of
the horse shoe, form perfect anchorage for aircraft carriers, support ships, and nuclear submarines.63

74. Thus the chances of success of Nuclear Weapon Free Zone seem unlikely. One way in which littoral states could prevent Big Power interference or influence is to solve the existing differences bilaterally or with a regional approach. Pakistan has made several proposals to India designed to start talks on regional basis to make Indian Ocean a nuclear free zone. She has lent its support to the concept of Indian Ocean regional co-operation concentrating in the economic and social fields. But all depends on the Indian leadership who is only obsessed with the aim of achieving a global role.

75. In conclusion, the North-west quadrant of the Indian Ocean holds the main artery of world's oil supply emanating from the Gulf. The region is rife with intra and transborder conflicting issues. Arab - Israel conflict is now reaching its golden jubilee, but despite the recent giant leaps an ever lasting peace is yet a far cry. The resulting military build up in the neighbouring countries have further fuelled instability in the region. In fact Iran - Iraq War and the Gulf War have kept the Gulf area on the sharp edge of the knife; giving carte blanche to US and other western powers to hold firm anchor there.

76. Many alliances have emerged to strengthen the bleak sense of security amongst weaker nations; albeit the fears of total dominance by the powerful members. Arab states have recently grabbed the opportunity of a workable place with Israel while Pakistan is continuing as a firm anti zionist fortress. On the other hand, India is claiming a leading role in the region. Her outright defiance of nuclear non-proliferation moves and recent initiative of accentuated ties with Israel and Russia coupled with staunch stance on Kashmir issue have posed new challenges for Pakistan.

77. Gulf War has once again reiterated the importance of safe sea lines of communication and a credible Naval Force to safeguard maritime interests. At the same time firm stand on Kashmir issue and nuclear programme are dire compulsions for Pakistan today.
CHAPTER 3

EFFECTS OF POLITICO - ECONOMIC AND TECHNOLOGICAL DEVELOPMENTS ON THE SMALLER NAVIES

1. Politico-economic and technological developments, are constantly affecting the role and shape of the navies all over the World. All these factors have had a considerable impact on the navies of the developing countries too. The main factors which have altered the naval picture in 'North West quadrant' of the Indian Ocean are discussed in the following paragraphs:

Inter - States Dimensions

2. Need to replace old ships by already existing and well organised navies is an important contributory factor in naval expansion. India is one of the examples in this region. Once begun, the process of creating a new navy from scratch or re-equipping a navy with modern ships, has triggered mini naval races between countries with conflicting claims or potential differences or which dislike having their neighbours' armed forces better than their own.

3. There are numerous sources of conflict in the region and these tend to spur local naval expansion. Arab - Israel, India - Pakistan, Iran - Iraq, Iran - Bahrain, South Yemen - North Yemen, Kuwait - Iraq are well known disputes which have led to instability and as a consequent to militarization and naval expansion in the region. Iraq - Iran conflict led to eight - year war between the belligerents, while Iraq - Kuwait conflict led to the Gulf War in the recent past. This Scenario has encouraged further militarization and naval build-up in the region, but at the choice of the US and Western Europe-the main source of naval inventory.

4. Though overall naval growth has been considerable, much of this expansion has been in Patrol Craft and Fast Attack Craft (Missiles).
There has been steady growth in surface warships. Excepting India, the number of submarines has remained stable. While other navies in the region are modest but upcoming, Indian Navy stands into a clear position of primacy not only in South West Asia but also amongst the entire navies of the Indian Ocean. Unlike many countries of this region, India has pursued a policy of diversification in order to avoid total dependence on one source. The main sources include Russia, Germany, United Kingdom and Sweden.

5. In the prevailing scenario, it seems that states opting for naval expansion are unable to prevent naval expansion and militarization. The cost of weaponry, most of which is acquired from abroad, continues to escalate but new acquisitions are often seen essential in order to match those of hostile neighbours. This is likely to result in an uncontrollable upward cycle of spending and consequently affecting civic life of the people. India, Pakistan, and Iraq are few countries which are already badly suffering on this score. Naval expansion however is not always bad. Such expansion can facilitate greater control of ocean space and resources conferred by the new law of the sea, for example, in the case of EEZ patrol and enforcement and thereby at the same time assist both economic development and national security.

6. Great powers naval intervention in the regional conflicts and otherwise because of their own interests has also caused naval expansion in this region. The demise of the Soviet Union has given a somewhat free hand to the US and allies to play their cards as they wish. Iran - Iraq War and Gulf War bear testimony to this effect. The recent developments have granted greater ingress to the Western nations in the region, of course against the liking of most of the regional states.

7. This scenario has generally been responsible for uneven offensive capabilities and has often proved provocative and disturbing for neighbours. Thus naval expansions in this fashion has only contributed to the increasing prominence of conflicting maritime relationships.
Vested Interests of Arm Suppliers

8. Third World naval expansion has been closely associated with its relations with developed states. Both, the West, the main source, and to a lesser extent, the East are prepared to support the strengthening of Third World countries by selling ships, training etc., for strategic, political and economic reasons.

9. Sometimes, the prime motive has been purely commercial, particularly in case of developed states whose domestic markets are not sufficient to support a viable arms industry. In other cases, political motives lead developed states to manipulate arms transfers either to assist development or to start it. The great powers have frequently used arms transfers for political purposes to promote relations with friendly states or to curb the military development of hostile ones. In either case there is a tendency to accentuate the dependency of important cases. Israel and Argentina for example, great power pressure or arms embargoes have triggered the development of a domestic arms industry. On the other hand, the former Soviet Union encouraged as well as assisted India in establishing domestic arms industry for political as well as economic reasons.

10. Similarly nationalism has spurred naval expansion in an effort to counter the tendency of the maritime powers to rely on pressure and intervention to elicit acceptable behaviour from arms suppliers' vested interests and other dimensions. In rare cases, some of the Third World countries have opted to develop nuclear weapon capability for their survival.

11. It is, therefore, not easy to generalise about the question to what extent Third World naval development is or can be autonomous and to what extent depends on the developed states - far too many states are involved on both sides and there are so many varieties of naval dependency. In conclusion it should be sufficient to note that out of

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64 M. A. Morris, Expansion of Third World Navies (London: Macmillan, 1987), P.12
120 Third World countries, including the region under discussion, 107 are considered to possess navies of varying size and shape.\textsuperscript{65}

**Oil Wealth**

12. Oil is one of the key factors which has encouraged and contributed in the naval expansion in the Middle East. The very marked dependence of the oil producing countries of this region on export of oil has heightened the maritime awareness. These countries have become aware of the need to protect their offshore oil reserves and to secure sea lanes for their oil exports at least in their immediate environs.

13. Indigenous naval power has become all the more important in an environment that is both prone to conflict and rich in resources. As regional and international concern about the security of on-shore and offshore oil and access to it has escalated and the ownership rights to these areas have assumed new importance, local maritime disputes over boundaries and/or resources have increased in significance. A case in point is the war between Iraq and Iran which, though mainly conducted on land, was triggered off by a dispute over Shatt al-Arab waterway involving access to the oil-rich Gulf.

14. Such considerations here tended to encourage Middle Eastern states, which have long been very security minded and have been big military spenders, to plan for naval expansion. The continuous and sharp increases in the price of oil have given oil-producing countries large financial resources to fund important defence programmes without many difficulties.

15. Oman (a minor oil exporter) and Bahrain (non oil exporter only benefits from oil refineries) have also embarked on naval build-up in response to the current trend in the region. This lack of petrodollars did not prevent them from importing a variety of small but potent crafts.

\textsuperscript{65} Jane's Fighting Ships, 1994-95
16. Besides individual naval capabilities, the conservative monarchies of Saudi Arabia, United Arab Emirates, Bahrain, Kuwait, Oman and Qatar joined in establishing Gulf Cooperation Council (GCC) in 1981. Saudi Arabia aspires to be the major partner in this coalition and has been able to undertake some joint planning and naval manoeuvres. All these navies are clearly upward mobile, and large revenues can sustain future expansion. The West, main supplier of the naval weapons and equipment, continues to benefit by exporting arms to these countries.

The International Law of the Sea

17. The oceans of the world traditionally have been classified under the broad headings of internal waters, territorial seas, and high seas. In recent years, new concepts have evolved, such as the Exclusive Economic Zone (EEZ) and continental shelf, which have dramatically expanded the jurisdictional claims of coastal and island nations over wide expanses of oceans previously regarded as high seas. The phenomenon of the expanding maritime jurisdiction and the rush to extend the territorial sea to 12 nautical miles and beyond were the subject of international negotiation from 1973 through 1982, in the course of the United Nations Conference on the Law of the Sea (UNCLOS). On the very first day, 10 December 1982, 117 states signed the 1982 UNCLOS treaty. Such an enthusiasm was never witnessed before to sign a treaty on the first day. The emergence of the new law of the sea conferred on the coastal and island states, control over territorial seas, contiguous zones, exclusive economic zones and continental shelves.

LEGAL REGIMES OF OCEANS

![Diagram of Ocean Zones]

Figure 1
18. Let us look at the definitions of some of the demarcations depicted in figure 1.⁶⁶

19. **Territorial Sea.** The territorial sea is a belt of ocean which is measured seaward from the baseline of the coast or island upto 12 nautical miles. International law provides the right of innocent passage to ships of all nations.

20. **Contiguous Zone.** A contiguous zone is an area extending seaward from the territorial sea upto 24 nautical miles in which coastal or island nation may exercise the control necessary to prevent or punish infringement of its customs, fiscal, immigration, and sanitary laws and regulations that occur within its territorial sea.

21. **Exclusive Economic Zone.** Exclusive Economic Zone (EEZ) is resource - related zone adjacent to the coast and extending beyond the territorial sea upto 200 nautical miles from the base line used to measure the territorial sea, for the purposes of exploration, exploitation, management, and conservation of the natural resources of the waters, seabed and subsoil of zone, as well as for the production of energy from the water, currents, and winds. However in EEZ all nations enjoy the right to exercise the traditional high seas freedom of navigation, of laying submarine cables and pipelines, and all other traditional high sea uses by ships which are not resource - related.

22. **High Sea.** The high sea includes all parts of the ocean seaward of the exclusive economic zone, when coastal or island nation has not proclaimed an exclusive economic zone, the high sea begins at the seaward edge of the territorial sea.

23. **Continental Shelf.** The juridical continental shelf of a coastal or island nation consists of the sea-bed and subsoil of the submarine areas that extend beyond its territorial sea to the outer edge of the continental

⁶⁶ *Naval Officer's Guide on International Law of Sea*, (Naval Headquarters, Islamabad, 1993), PP.1-2 to 1-5
margin, or to a distance of 200 nautical miles from the baseline used to measure the territorial sea where the continental margin does not extend to that distance. The continental shelf may not extend beyond 350 nautical miles from the baseline of the territorial sea or 100 nautical miles from the 2,500 meters isobath, whichever is greater. Although the coastal or island nation exercises sovereign rights over the continental shelf for purposes of exploring and exploiting its natural resources, the legal status of the superjacent water is not affected. Moreover all nations have the right to lay submarine cables and pipelines on the continental shelf.

24. **The Deep Sea Bed.** The sea bed beyond the continental shelf as defined in the 1982 Convention is called 'The AREA' and is in effect the deep sea bed. Under the Convention, no state can claim or exercise sovereignty or sovereign rights over any part of the deep sea bed or its resources. The rights to these resources are vested in mankind as a whole, and all states including those without being a littoral have a right to a share of the resources. As regard a regime for the regulation of deep seabed resources, preferences differ. The 1982 Convention establishes the International Sea Bed Authority which will administer the deep sea bed, producing a formal plan of work and licensing states to exploit the resources. In issuing licences the Authority will ensure that the gain from exploiting the deep sea bed is to the benefit of all nations. The Third World States have preferred the idea of a strong International Sea Bed Authority, while developed countries have insisted that powers of the Authority be carefully circumscribed. A key feature of the Authority's responsibilities is to acquire technology and scientific knowledge relating to activities in the Area and to promote and encourage the transfer to developing states of such technology and scientific knowledge. The transfer of technology aspect of the convention is of great concern to the USA and other nations with a strong technological base and it is the principal reason for the USA, UK and some other nations refusing to sign the convention so far.

25. These provisions - many of which embodied concepts new to international law were acceptable, if not welcome, to most countries. What was not found acceptable by some, the regime proposed for the deep
sea-bed beyond the limits of national jurisdiction. The setting up of an International Sea-bed Authority for managing and exploiting this common heritage of mankind was not acceptable to the United States and her several close allies thus incompleteness of accession to the 1982 Convention is of major source of dispute. This conflict leads to the interpretation of the law differently, which is a great hindrance on the way of those states who wish to share this wealth of oceans reserved for humanity.

26. All aspects of maritime power, whether economic or military, are influenced by international law. Indeed, were the code of international law comprehensive, fully agreed and universally respected, maritime power would be governed by law to the extent that the need for its military component would be much diminished. Regrettably, neither code or respect is strong enough to bring this result about.67

27. Nevertheless, the Third World countries which were poor in land-based resources, realised the potential importance of maritime resources conferred by virtue of the new law of the sea and seem determined to exploit to its maximum in order to rid their people from the clutches of poverty. The maritime powers, however, continue to regard Third World ocean basins including EEZs as high seas and thus consider themselves to have the right to deploy naval power freely in offshore zones of Third World states. The Third World states generally desire to exclude foreign naval activities, or at least to regulate them both in national waters and in contiguous ocean basins and to back up this aspiration with naval power and political initiatives such as peace zones.

28. Thus domestic, regional and extra-regional factors have all contributed to Third-World naval expansion. Nationalism has helped to fuse external and internal factors by propelling Third World states to claim large offshore zones as part of the national patrimony and to build up navies to protect this offshore wealth.

Impact of New Technology

29. Navies around the world have passed through various phases in time. The sailing ships were the mainstay, both as merchant marine and warships till the middle of 19th century with cannons being the main armaments and flags/light being used for communications. Then came the age of steel ships and now it is the age of steel and composite materials. The advent of electricity and its use on naval ships has radically transformed all facets of naval warship design. The classical navy comprising surface fleet with the addition of submarines and aviation wing make her a multi-dimensional force with surface, sub-surface and air capability.

30. Effect of technology is a vast subject, which encompasses, platforms, propulsion machinery, weapons, sensors, command and control and electronic warfare in a three dimensional naval environment. Spread of high technology weaponry all over the world has given new dimension to the naval warfare. The availability of the most modern weapons and growth of indigenous arms industries add new horizons to the security calculations of regional powers and smaller countries. Today around 40, Third World countries collectively possess 250 attack submarines, 102 have antiship cruise missiles, 41 have a sophisticated naval mining capability and 40 are arms producers.68

31. The spread of arms technology becomes even more sobering in view of the development of nuclear and chemical weapons by emerging regional powers. By the year 2000, at least 15 nations will be producing, or will have acquired ballistic missile technology, and at least 6 are actively developing nuclear weapons, 14 now possess chemical weapons or the capability to produce them, and 11 more are suspected of developing the capacity. As the use of chemical weapons in the Iran-Iraq War shows, some of these nations are willing to employ such capabilities despite international condemnation.69

32. A first class navy is exceedingly expensive and generally difficult to acquire and maintain by everyone. Even second class naval capabilities, frequently adequate for regional pre-eminence, are not easily obtained. But many countries of the region have resorted to building up their naval inventory by selecting the potent weapons and platforms to achieve at least sea denial capability. In doing so, these countries have to keep abreast with the effects of technology on essential components of naval warfare.

33. Whatever is the range and scope of a navy; it mainly depends upon the propulsion systems, platforms, sensors, command, control, communication and intelligence, electronic warfare and mine warfare. Technology is affecting all of the above in varying degrees; but pace is fast and expensive.

Development in Propulsion Systems

34. Over the years warship propulsion has seen significant changes. What once used to be bottom heavy ships with huge propulsion plants are now top heavy. This change has been brought about to accommodate variety of modern weapons and sensors to combat the multi-dimensional threat from a single moving platform. Mobility is now taken for granted, it is availability, reliability and size of the propulsion plant that is desired. An unmanned, fully automated and compact propulsion plant would be an ideal choice for future generation ships and submarines. This concept has been successfully tried in the field of space technology and is almost at the door step in the marine world.

35. Until early 1960's, steam plant dominated the propulsion in major warships. Diesel propulsion despite offering a much better specific fuel consumption over a wider power range but being noisier could not find place in warships mainly because of its vulnerability against submarines. The later half of the decade however saw a remarkable switch from steam

69 Ibid.

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turbines to gas turbine in warships propulsion. There were many advantages associated with the use of gas turbines, the most notable of which was the very high speeds obtainable with very low specific fuel consumption. The other major advantage was that the gas turbine could be started from cold and the ship be at sea within a few minutes of an alert, where in the past both steam and diesel engines required time to prepare and run up and settle down before proceeding to sea, to prevent possible damage to the engine.

36. Another factor of importance was the turbine's light weight, although this gave rise to stability problems when top weight with extra armament and electronics increased considerably which was resolved by use of aluminium super structures like in case of British Type 21s (Amazon class Frigates).

37. But while the gas turbine has undoubtedly been a high performance system in the higher speed ranges, at cruise and low speeds, its efficiency drops off and specific fuel consumption rises. For this reason many navies have tended to adopt a dual propulsion system combining gas turbines and diesels to provide a cost effective solution across the desired speed spectrum for warships.

38. Because it developed very high RPM, the gas turbine required complex reduction gearing to reduce the high speed of rotation of the turbine to a rate which could be safely transmitted to the shaft and propellers. In addition, because the turbine could rotate in one direction, it became necessary to install a reversing system. The most popular method for achieving reverse motion with a gas turbine has been the use of controllable pitch propeller (CPP) or fluid couplings. The limitation of the CPP has been that no matter how carefully designed and engineered, it still tends to develop a rather higher noise signature than the fixed pitch propeller. Nevertheless, the light weight of the gas turbine, combined with its high power output and relatively low fuel consumption made it a very attractive proposition for a propulsion system.
39. To overcome the limitation of both the gas turbines and diesel, and to provide a cost-effective propulsion system over the entire speed range a variety of systems combining both type of plants have since been availed. There are two main ways in which diesels and gas turbines have been combined. In one, power from the gas turbine is added to that provided by the diesel (CODAG) to develop high sprint speed. In the other the diesel is disconnected from the shaft and the power for sprint is provided solely by the gas turbine (CODOG). As with any system, each of these methods has its limitation. The combine power from two different types of power plant requires large and complex gearing arrangements. The system which selects one or the other type of engine suffers from the disadvantage that it is not able to fully utilize the whole of the power output available. Currently most systems use the latter alternative, selecting the type of engine according to whether cruise or sprint speed is required. The major exception to this generalization relative to systems which use one type of gas turbine for both cruise and sprint speed, all turbines being combined to provide maximum power for sprint speed. British Type 23 Frigate also being an exception using still a more complex system called CODLAG, combining diesel-electric and gas turbine, (Appendix II).

Propulsion Control and Surveillance

40. Apart from such devices as automatic feed regulators for steam generating plant, pressure governors, speed governors and other localized control instruments, there was little use of automatic overall propulsion plant control equipment in warships before the advent of nuclear weapons. Whatever controls were fitted were operator supervised and manually adjusted to suit conditions prevailing from time to time.

41. Nuclear fallout presented a severe problem to such a situation because huge quantities of air contaminated by radio-active particles would be ingested by the combustion systems of main propulsion plant with harmful effect on watchkeepers. Similar hazards were presented by conditions of chemical and biological warfare. A pressing operational
need for remote control of such machinery was thereby established. Other factors like predicted shortage of suitable manpower, cost of manpower, trend towards smaller ships containing relatively more equipment, shorter reaction times encountered in modern plants, together with reduced safety factors in design and a need to establish a modern environment for engineering staff also greatly influenced remotely controlled and subsequently automated propulsion plants.

42. Pneumatic control system successfully served the steam plants for nearly two decades, but with the advent of gas turbines, solid state electronic control systems forced their way into the propulsion plants. Today, microprocessors are used to provide sequential control of starting and stopping, surveillance and data collection functions of the machinery control and surveillance system. While the West has made tremendous progress in the field of naval technology, the developing countries with smaller navies particularly in the Middle and South Eastern countries have found it difficult to keep pace with the advancement made by the larger navies.

Electronics, Weapons and Sensors

43. The technological development in the area of electronics i.e. from valve to microelectronics and metals to composite materials has been outstanding during the last four decades. The advances in the field of weapon engineering from analog to microprocessor based digital systems and hybrids have revolutionized the design of sonar, infrared, electronic warfare, radar, and other sensors greatly increasing their operational capacity and capabilities. At the same time the ability to react and counter air, surface and sub-surface threats has also significantly improved with better missiles, torpedoes and guns etc. The system/equipment thus being manufactured are compact, reliable and highly capable.

44. The development of composite material and application to propulsion systems and super-structures is improving performance, reliability and reducing radar signature of the platforms. These materials
are also being used for making submarine quieter and improving the stability of the surface ship.

45. The rapid advancement in technology and application on naval systems and equipment has greatly influenced the sea power. Therefore, today a much broader approach is necessary to co-ordinate the activities of surface, sub-surface and air assets. Precision guided weapons and increased capability of surveillance systems is also to be catered for. The naval planner, therefore, has to take these factors into consideration when structuring a naval force. Additionally the planner has to keep in mind the role/mission and deployment of the naval force when selecting newer technologies and its impact on other navies in the area. New technologies have opened various avenues and offer versatile ships, submarines and aircraft to the naval planner of today. These platforms are fitted with compact state of the art weaponry, sensors and other equipment/machinery for single or multiple roles. These aspects relating to surface, sub-surface and air elements influence various ship types with varying degree commensurate with their roles.

Surface Warships

46. The surface warships have always been a symbol of show of force and projection of power ashore due to the gun power and long range missile systems. French Admiral Moinewille has aptly described the surface ship as the foot soldier of the sea. It has the same ubiquity in naval operations as the infantry does on land. These ships are, however, vulnerable to three dimensional threat i.e. air, surface and sub-surface. This is primarily because they can be detected regardless of their size due to the thermal, radar and acoustic signatures. These platforms, therefore, need to be equipped with specialized weapons and electronic systems to counter these threats. Moinewille argues that being at once under the surface of the sea, on it and above it, the surface ship can receive all kinds of data and can make the best possible assessment of any given situation

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and so participate in all types of action. The surface ship's versatility means that it can act effectively in a whole range of possible actions at sea.\textsuperscript{71}

47. The average life of a surface ship is between twenty to thirty years, while the systems fitted onboard would normally become obsolete much sooner considering the pace of new developments. The dilemma the naval planner, therefore, faces is to either update the existing platform or to go for new platform keeping the older one for the best suited role. It is, therefore, essential that a balance is struck between older and new technologies to achieve best possible combination of surface ships.

48. The terms warship covers a very wide range from the patrol craft to the super-carrier, depending upon the role for which these vessels are designed. The classification of various type of naval vessels is elaborated below, it will be noted that displacements overlap between the various types, (Appendix III):

a. \textbf{Cruiser}: Large combatant with a comprehensive range of capabilities including area air defence: usually about 7,000 tons in standard displacement to give sufficient room for all required systems. Only the largest navies, effectively the super power, can afford cruisers which combine all three capabilities, Anti Air Warfare (AAW), Anti Submarine Warfare (ASW) and Anti Surface warfare (ASuW) in adequate proportions.

b. \textbf{Destroyer}: Medium-sized combatant of between 2,750 and 7,000 tons with the speed and capabilities of the most demanding combat operations, including participation in fast carrier battle groups. Large frigates usually differ from small destroyers primarily in terms of lower speed and more austere engineering arrangements, e.g. single as opposed to twin screw. Modern destroyers are indeed hard to distinguish from small cruisers and usually capable of AAW, ASW and are ASUW operations.

\textsuperscript{71} Ibid. PP 84-85
c. **Frigate**: Combatant of about 1,750 to 3,000 tons usually optimized for ASW but with air/general purpose capability. A frigate is essentially intended for the escort of non-combatant shipping, although useful for patrol and limited offensive operations; capable of ocean-going transits and tasks.

d. **Corvette**: Small sea-going combatant of 500 to 1,750 tons of limited endurance and capability; best employed in coastal escort and patrol duties and relatively low-level operations, although with some potential for higher endurance operations in the absence of more capable units; not usually air capable.\(^{72}\)

e. **Fast Attack Craft (FAC)**: These craft range from 50 to 500 tons in displacement are in itself, a familiar component of modern naval warfare. In the Second World War, it took the form of the Motor Torpedo Boat (MTB). MTBs were used in narrow waters like the English Channel to attack enemy merchantmen or warships with torpedoes. They were fast, being capable of dash speeds of up to forty knots, and though noisy were often able to take advantage of darkness or bad weather to pose a significant threat of sea denial even against much larger ships.\(^{73}\) FACs cannot be ignored in the modern warfare, however there is always a problem of space limitations for weapon systems, propulsion machinery, fatigue of hull at sea and endurance.

49. The smaller warships are initially designed with a single role capability and adequate means of self defence in other areas. However, with the advancement in the microprocessor based systems and data processing techniques, compact weapon systems, sensors and the equipment are now available. This has made it possible to put a wide range of weapons, sensors and Electronic Warfare (EW) outfits onboard these vessels thus providing capability to counter a variety of threats.

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Within these broadly defined roles the frigates and corvettes may be tasked with a wide ranging duties which may include escort, independent patrol, direct or indirect protection of other major warships and most particularly merchant ships, as well as providing a capability to conduct operations against hostile shipping both merchant and naval.

50. A destroyer/frigate usually forms the backbone of smaller navies. Such a vessel can easily be equipped for both ASW and AAW with additional ASUW capability, for which it has to be armed with a light or medium calibre gun and short or long range SSMs. To provide adequate capability to fulfill these roles, the vessel must be capable of meeting the following general design requirements.

a. Sea keeping capability to operate in anticipated natural environmental conditions.

b. Sufficient endurance for EEZ mission out to ranges of approximately 500 miles from own coastline or base.

c. Adequate command and control facilities to operate in a multi-threat environment.

d. ASW capability to counter conventional submarines at ranges out to 10-15 nautical miles.

e. Medium range light weight Surface to Surface Missile (SSM) and Surface to Air Missile (SAM) systems.

f. Small calibre automatic gun.

g. ESM/ECM equipment for self defence.

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74 Navy International (September/October 1993), P.279
75 Ibid

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51. Today, with the compactness of missile and automated gunnery system, FACs are equipped with surface to surface missiles (SSMs) and possess a high rate of power enhancing their offensive capability. These craft with high speed advantage, light draught and stealthness can be effectively used against larger ships. The sinking of Israeli destroyer Eilath by Egyptian FACs armed with 'Styx' missiles in 1967 and sinking of Pakistani destroyer and minesweeper with the same missile in 1971 by the Indian FACs (OSAs) proved their worth. The technological development in propulsion and weapon systems, light weight guns, missiles, torpedoes and sensors has greatly improved the range of operation and lethality of FACs. The use of composite material and shape of super-structure has also effectively reduced the radar signature making FACs difficult to detect. Unconventional hull designs are being used in order to increase the speed, some examples are 'Hovercraft', 'Hydrofoils' and 'SWATH'. Speeds upto 80 knots are expected to be achieved in future.

52. The additional role FACs can easily handle is the policing of EEZ which may extend upto 350 miles from the coastline. The operators of FACs are, however, to keep in mind their vulnerability against bigger ships, antiship missiles and their inability to carry out antisubmarine and escort duties. A recent example, Iraqi FACs were destroyed by ASMs fired by helicopters during the Gulf War.

53. To summarize a small ship/corvette because of its increased size has the capacity to carry the balanced outfit of weapons, sensors and EW equipment as compared to FACs. Moverover, corvettes are built with a multirrole purpose i.e. ASUW and AAW with limited ASW capability. This has given option to the naval planner to boost the effectiveness of naval force for a wider range of operations. This situation is less favourable for FACs which were relied on earlier, but does not completely undermine the importance of FACs due to enormous increase in EEZ and the need for more platforms to cover this area. Nevertheless, Frigates and Destroyers remain the backbone of a reckonable navy to constitute a strong escort force during war.
Submarines

54. A submarine is essentially a weapon of surprise. The most important and distinguishing character is its ability to operate submerged and silently, thus concealed from the enemy giving it the strategic edge. The advantage exists till such time that her movements are concealed, but once its presence is known it becomes extremely vulnerable to the anti submarine forces. Main damage to submarine, can have cumulative effect and result in her sinking or surfacing which is her major disadvantage.

55. Submarines have been effectively used in disrupting the sea lines of communication. During the Second World War the German U-Boats sank a large number of merchant ships other than warships. In addition, the submarines can be deployed to support blockade, minelaying, intelligence gathering, clandestine operations and launching of sub-surface version of antiship missile against surface targets and cruise missiles/ICBMs against pre-determined shore targets.

56. The improvement in submarine design and advancement in propulsion system and compact weapons and sensors has greatly reduced noise and improved her endurance, cruising speed and manoeuvrability. At the same time better knowledge of oceanographic conditions and the ability to exploit them by using data processing techniques gives advantage to the submarines. The combination of nuclear propulsion with 'tear-drop' hull shaping and life support system has led to the creation of a submarine whose deployment period is limited by the physical stamina of the crew only. Nuclear propulsion has also made submarine faster with longer duration which helps in quick/prompt deployment. There also comes a disadvantage with the nuclear propulsion. The need to keep cooling water pumping around the reactor makes it noisy. They are larger in size and hence cannot operate in shallow waters. These type of vessels are presently operated by major powers as part of their nuclear deterrent strategy. These vessels also carry ICBMs with nuclear warheads.
57. Diesel electric submarines are the main under water force of the smaller navies. There are approximately 425 diesel electric submarines (SSKs) in service today with 45 navies. Despite the end of Cold War and the reduction in warship orders, the number of navies operating submarines continue to increase. The reason is quite simple, SSKs have a strategic impact out of proportion to their numbers and basic cost, especially for smaller navies.\(^{76}\)

58. It was seen during the 1982 Falklands war that enormous efforts in ASW operations were made by the Royal Navy to counter the only Argentinean submarine. After the Second World War, Pakistan Navy's submarine HANGOR is the only conventional submarine that has sunk an Indian Navy frigate during the 1971 war. Therefore, presence of submarine alters the complexion of naval operation in an area as it requires a lot of assets to counter the threat. The recent induction of submarines in Iranian Navy has changed the strategic situation in the Arabian Sea and particularly the Strait of Hormuz. Other navies of the area have to re-assess the composition of their naval forces.

59. The diesel electric submarines being built these days are highly sophisticated due to marvel of microprocessor based systems, compact and powerful weapon systems and sensors. This has enhanced the capacity to carry offensive weapon load, both torpedoes and sub-launched missiles. Towed array sonars have increased the ability to detect targets at much greater ranges. The submarines can also be used to lay mines carried either strapped on or through the tube.

60. The diesel electric submarines like French Daphne, Agosta; and German 209's are small and have adequate endurance. Because of their smaller size, they can operate both in open oceans and shallow waters. This makes them suitable for smaller navies in the Gulf region and other maritime choke points in the Indian Ocean. Their deployment can keep a check on other navies operating in the area.

\(^{76}\) David Miller, "The Silent menace", International Defence Review, Vol. 26 (August 1993), 615
61. The technology has made possible, construction of strong hull. It has also been possible to reduce the magnetic signature which makes it difficult to detect. Anechoic quoting on the outer hull of the submarines and improvement in propeller design has made them quieter. Finally the shape of submarines and even what they are painted with makes modern nuclear and diesel propelled submarines relatively faster than they used to be. Since 1945 the speed and endurance ratio below water between submarine and surface ship has moved considerably to the latter's disadvantage, a factor which has a considerable bearing on their relative fighting power.77

62. The weakest point of diesel electric submarine is that they are powered by batteries and have to snorkel at regular intervals. This makes them vulnerable to ASW operations. Development of non-air breathing, non-nuclear propulsion system is currently in progress. There are three Gotland Class (1,300 tons) submarine's under construction for Swedish Navy with air independent system. This will revolutionise the operation of diesel electric submarines making them more quieter with longer endurance under water.

63. Considerable development work has been done to improve the torpedo performance by providing it with wire guidance, increasing speed and range. The capability to launch anti-ship missiles while submerged has also been incorporated. An example is Harpoon sub launched version which has a range of approximately 75 nautical miles. The problem areas where much work is going on is tracking and real time gathering of targeting data if long range weapons are to be used without the submarine being exposed. A gap in its long distance target acquisition can only be filled by external means i.e. air-borne over-the-horizon-targeting or (OTHT) using shore based VLF communication system.

64. In the Indian ocean, India, Iran and Pakistan are operating submarines, with Pakistan operating mini submarines also. The coastal

Navies of the Gulf region can operate small submarines due shallow waters of the Gulf to enhance their naval capability. Saudi Arabia is presently considering buying submarines to strengthen its naval force. Israel has already got submarines in her naval inventory.

65. The modern submarine has become a major actor in all aspects of naval warfare. It is now no longer simply a weapon of sea denial, but fundamentally one of sea control and sea use, and much more important in relation to other weapons of sea control than it used to be. These submarines pose a considerable threat to even the most sophisticated surface vessels. The fighting capability is continuously improving with better noise reduction techniques, more endurance and more effective sensors and weapon systems.

Naval Air Arm

66. Fixed Wing Aircraft: The advent of Naval Air Arm has added a new dimension to the naval warfare. This third-dimension of the navy has extended the reach and effectiveness of the naval forces. The naval aircraft are employed in surveillance as well as combat roles. The missions flown by the naval aviators at sea are: ASUW, ASW and AEW.

67. More conventionally, large fixed-wing aircraft will certainly remain a valuable asset both for surveillance and warning duties, against three dimensional threat, and for attack against surface and underwater targets. Although the combination of relatively simple airframe with relatively unsophisticated radar is adequate for constabulary surveillance duties, capability at a higher level of maritime warfare demands much more sophistication and expense. The specialised maritime patrol aircraft (MPA) has evolved as a highly expensive combination of electronically coordinated and analysed radar, sonar electromagnetic sensors, combined with the ability to deliver depth charges, lightweight homing torpedoes and anti-ship missiles. These aircraft are currently best represented by

78 Ibid., P.70
the American P-3 Orion and British Nimrod, both based on Airline frames, the Electra and the Comet respectively.\(^{79}\)

68. French Breguet Atlantic was specially designed for maritime patrol and ASW role. The Atlantic II is a highly sophisticated aircraft designed for this role. The next generation ASW, US Aircraft LRAACA, with even more sophistication, reliability and effectiveness, should be in production until year 2001. The ASW aircraft like Breguet Atlantic can perform multipurpose role i.e. ASW and ASUW and hence they are expensive.

69. The simpler anti-ship role can best be accomplished by long range bombers and other aircraft equipped with less expensive sensors. Indian Navy is employing Jaguars with ‘Sea Eagle’ missile in ASUW role, similarly Pakistan Navy has equipped Mirages III with Exocet missile for this role. The effectiveness of missile equipped combat aircraft in ASUW role was well demonstrated in Falklands campaign.

70. Eric Grove, in his book titled 'The Future of Sea Power' has admirably summarised the role of aircraft in support of naval operations in the following words:

"Aircraft are inherently fast: they can cover great distances in short time spans, and strike rapidly and surprisingly. Aircraft can carry sensors to a height where they are not limited by anything other than their inherent technical characteristics, either to find targets for other platforms to address if communications are adequate, or to attack targets themselves they can carry a wide range of weapons for the latter role; long range missiles and bombs for ASUW, depth charges and lightweight torpedoes for ASW, missiles and guns for AAW; In the ASW battle they can even look beneath the waves with the help of sonobuoys or magnetic anomaly detectors or, in the case of aircraft that can hover, active dipping sonar".\(^{80}\)

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\(^{80}\) Ibid., P.139
71. **Helicopters.** Having begun its days as a somewhat esoteric vertical flight technology, the helicopter has now matured into a potent and highly capable weapon and sensor platform for naval operations. Anti-Submarine Warfare (ASW) and Anti Surface Ship Warfare (ASUW) applications are now widespread, along with more general Search and Rescue (SAR) and Vertical Replenishment (VERTREP) tasks. Some more specialised missions such as Airborne Early Warning (AEW) and Airborne Mine Countermeasures (AMCM) have also emerged. The demands of ASW and ASUW require increasingly sophisticated mission equipment. ASW helicopters armed with lightweight torpedoes or depth charges typically embark acoustic processing suites interfacing with active dipping sonar and active/passive sonobouys; magnetic anomaly detection (MAD) equipment for threat localisation; a forward-looking infra-red (FLIR) sensor; radar; and electronic support measures (ESM). Many of these sensor systems can equally fulfill the needs of long range surveillance and surface strike in tandem with antiship missile.81

72. Some of the well known names in today's naval inventory are Westland, Lynx and Seaking, US, SH-60B (Seahawk) and SH-2G (Sea sprite). The latest name in this game is EH 101 - Anglo - Italian joint venture, which will ultimately replace Seaking helicopter. The EH 101 will be carrying sophisticated mission suite to confer a fully autonomous capability.

73. The older generation helicopters i.e. Lynx and Seaking have proven their worth in various roles. It is perhaps the ASUW role which has earned most attention in recent years. The performance of Royal Navy Westland Lynx HAS Mk.3 helicopters during the Gulf War won the type widespread acclaim from allied commanders. Operating from the flight decks of RN frigates and destroyers deployed in theatre, the Lynx in combination with the British Aerospace Sea Skua antiship missile is credited with the destruction of a major portion of Iraqi Navy. This helicopter has been inducted in the Pakistan Navy to be embarked on their Type-21 ships, recently acquired from Royal Navy.

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81 Richard Scot, "Naval Helicopters for the 90's", *Navy International* (September/October 1993), 304
74. Similarly, the Seaking helicopter is known for a variety of naval applications i.e. ASW, ASUW, AEW, SAR, Commando Assault and Tactical Support. The helicopter 's in service with Pakistan and India in this region.

75. The Indian Navy, in the shape of the Seaking Mk. 42B can perhaps claim the most advanced autonomous ASW and ASUW helicopter in service anywhere in the world today. In ASUW role, the Indian Mk. 42B carries the British Sea Eagle long-range antiship missile. Pakistan Navy on the other hand operates Westland built Mk. 45 Seakings in the ASUW role with the Aerospatiale AM-39 Exocet sea skimming missile. The utility and effectiveness of helicopters can be appreciated since it is becoming essential part of a force at sea. The helicopters are increasingly becoming an integral kit of Frigates and Destroyers to extend their AEW, ASW and ASUW arm, and any sacrifice of such abilities is considerable degradation in ship's capability.

**Naval Missilery**

76. In World War II, the main weapons of naval power were guns, torpedoes and bombs of various kinds. These weapons were usually not very accurate and so multiple attacks were needed to ensure a hit; they were usually rather short range and so the launching platform, whether it was ship, aircraft or submarine had to approach its targets quite closely, often making it possible for the target to fire back, or indeed to fire first. It was rare moreover for one hit to destroy a ship.

77. The advent of missile has changed the entire scene in maritime arena. In 1967, Egyptian FACs sank an Israeli destroyer with Soviet Styx missile. Again in 1971, the Indian FACs sank a destroyer and a minesweeper of Pakistan Navy by the same missile. The missile accuracy and effectiveness has since come a long way. The new technology has given birth to smart, accurate, effective and lethal

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82 Ibid., p.305

missiles which can be launched from surface, sub-surface and air platforms, remaining outside the range of many of the targets' defensive systems. Modern missiles fall into three basic categories i.e anti air missiles, anti surface missiles and continental missiles. Although the continental missiles aboard SSBNs are the most authoritative strategic deterrence tools; these are the ball game of big ones. Smaller navies are only accustomed to the use of the first two categories.

78. Anti surface missiles, generally known as Anti Ship Missiles (ASMs) are most common and important missiles in current maritime milieu. Choice of ASMs is given at Appendix IV. Based on launch platforms, anti surface missiles can be divided into following categories:

a. **Surface to Surface Missiles (SSMs).** These missiles are launched from surface platforms against surface ships. SSMs are now considered a standard outfit of the warships of size of corvettes and above. Some common names are; French Exocet, US Harpoon and Tomahawk, Italian Otomat, Israeli Gabriel etc., with ranges upto 200 Kms and over.

b. **Sub-Launched Missiles.** The modern submarines have been configured to carry antiship and cruise missiles. Some examples of sub-launched missiles are US Harpoon and French Exocet with ranges upto 130 Kms. Additionally, the US, Russian and British nuclear submarines are equipped with ballistic missiles with ranges over 120,000 Kms.

c. **Air to Surface Missiles.** Air launched antiship missiles have made the surface ships very vulnerable at sea because of the limitation of surface platforms to detect missile launching platforms prior to launching of the missile. In the Falklands war of 1982, the Aerospatiale AM.39 Exocet, which was launched from Argentinean Super Etendards, immobilised the Type-42 destroyer 'Sheffield' on May 4 and destroyed the container ship 'Atlantic Conveyor' on May 25. Some common names in this category are; German Kormoran, Italian Otomat,
British Sea Eagle and US Harpoon, with ranges over 100 Kms. The range advantage gives the aircraft stand off capability enabling it to launch its missiles while remaining outside the effective range of ship's defence systems. Prevailing aircraft and missiles have made it obligatory for the surface ships to have this defence extended to over hundred miles and is usually termed as missile defence.

Missile Defence

79. It is the offensive missile which has changed warfare at sea rather than the defensive. And for all the changes which have taken place during the last twenty years, it is important and fundamental to realise that change is still occurring; that the revolution which will come in the next one or two decades may be just as that which took place when the missile first went to sea.\(^{84}\) There is therefore, a straightforward lesson to be learned that the offensive missile will always get through provided it is fired in sufficient numbers with good coordination. Moreover the cost of providing even today's defence is astronomical; as the offensive missile develops, defence will become more and more marginally effective and will always lag behind what is required. Nevertheless the technology continues to provide answer to achieve effective defence of the surface ships operating at sea. Using the Falklands as the most up-to-date experience, most would concede that the ideal layered defence should embrace the following:

a. Long range airborne early warning.
b. Long range airborne air defence (fixed wing or V/STOL)
c. Shipborne radar/EW surveillance.
d. Medium range shipborne air defence.
e. Short range shipborne air defence.
f. Short/close range EW defence.
g. Close in ship borne air defence.

80. Clearly as stated above, it is not always practical to provide all these assets in one platform. Not even carriers such as the 'Invincible' class provide all these equipments individually, although they can be said to cover all aspects in one form or another, the Sea Harrier for example being capable of providing both the long range airborne air defence, and also providing cover for the shipborne air defence - although in reality this is usually provided by Type-22 Sea Wolf armed frigates. Certainly all modern naval platforms should at least provide some form of air defence covering items c, e, f and g. If affordable and if space permits d would also be of enormous benefit but it may have to be restricted to a limited number of hulls.\(^5\)

81. Thus the most of the ships will have to rely on shipborne weapon systems which include; Hard Kill Measures i.e SAMs and CIWS and Soft Kill Measures i.e EW:

a. **SAMs.** These are basically the anti air missiles launched from surface ships. This category can be divided into two types; anti aircraft and anti missiles, missiles and used for area defence and point defence respectively. Some examples of Area Defence SAMs are British Sea Dart and US Standard with Aegis system, etc, which have ranges in excess of 70 Kms. The point defence systems are relatively numerous but the British Sea Wolf is the only one designed to deal with small fast missiles; all of the remainder are adaptations of missiles designed to deal with aircraft or have other shortcomings. Seawolf missile is considered to be the most effective weapon of its type in service around the world. During the Falklands war three Argentine aircraft were downed with Seawolf missiles and in trials it has destroyed 4.5 inch shells in mid-flight and successfully intercepted and destroyed Exocet anti ship missiles.\(^6\) Choice of SAMs is given at Appendix V.

\(^5\) *Navy International* (November 1985), PP.676-677.

\(^6\) Ibid., P.682.
b. **CIWS.** A rapid firing gun system such as the American Phalanx system is called Close In Weapon Systems (CIWS). These are fully automatic unmanned compact systems, having the advantage of quick reactions, high rate of fire and high degree of accuracy. Phalanx system can fire 3000 rounds per minute at the incoming missile with a very high percentage of kill probability. In order to avoid any possibility of damage to the defending ship, the systems are so designed that the missile is destroyed at ranges not much less than 1000 m, to avoid any possibility of the missiles momentum enabling it to reach its target. CIWS has made possible to destroy a target traveling at 0.9 Mach at an altitude of 3-5 metre above the sea surface, where sea clutter can effectively mask a missile target which has a radar cross-section of 0.1 square metre. Choice of Close In Weapon Systems is given at Appendix VI.

c. **Soft Kill Measures.** Soft Kill Measures use state of art electronic systems to obtain threat warning at long ranges and employ electronic counter measures i.e jamming, use of decoy and chaffs (Chaff is the bursting of metallic foils of sizes compatible with the missile radar wave length to give false return echo to the missile) to confuse enemy's radar to off-set its fire control solution. The chaff rockets fired during the Falklands war did confuse the attacker's radar picture in the same way as it did in World War II. Modern Soft Kill Measures are certainly the most refined, state of art extension of the Electronic Warfare.

82. Notwithstanding the effectiveness and versatility of Anti-Missile missiles and Close In Weapon Systems, the offensive missile may always get through since no defence is perfect. Despite, however, the shortcomings of each system they can, in combination, provide a good level of defence if they are widely fitted anti-missile point defence with electronic warfare is likely to yield the most worth-while and cost-effective
The Electronic Warfare is a vast subject having far-reaching effect on battle at sea and is being termed as fourth dimension of the navy and thus merits special mention.

**Electronic Warfare**

83. In the modern naval environment, systems are electronically powered depending on electromagnetic means for receiving and transmitting data, for command links, communication, weapons and sensors. The principal elements of naval weapons and sensors are guns, missiles, torpedoes and mines for hard kill and inflicting damage; surveillance and fire control radars, sonars and infrared devices are used for detection and targeting purposes.

84. The increasing use of electronic emitters has opened up a new field to be exploited. It is basically denial of use of electromagnetic spectrum to the enemy while using it to own advantage. In essence, electronic warfare is the practice of technical opportunism and expediency, in exploiting weakness in enemy's use of electronics in her weapons and sensors, and cleverly taking advantage of features of enemy's equipment design or use of electronic equipment. The nature of electronic warfare is quite different; it is reactive i.e. dependent on emissions of emitters. Effective interpretation of the electromagnetic emission allows quick assessment about the threat environment, by using Electronic Support Measures (ESMs) which is monitoring the electromagnetic spectrum and Electronic Counter Measures (ECMs) is denial of use of the spectrum.

85. Electronic warfare is a dynamically changing field trying to keep pace with the continuously changing threats. This is evident from the progress/development of the EW systems. Electronic warfare is a vital element of naval operations, which when used with other naval assets provides a method of neutralizing an enemy force, i.e. force divider effect,

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while enhancing power of own forces i.e. force multiplier effect. It also concentrates on the neutralization of enemy's command, control and communication system while maintaining the capability of own systems.

86. Electronic warfare systems are employed by modern navies to provide two important tactical information; warning and identity of the potential threat at long ranges. No other shipboard sensor can provide such long ranges. ESM techniques are of immense value against hostile aircraft, radar, active missiles both high flies and sea skimmers, infrared seekers, airborne surveillance aircraft and helicopters by providing enough warning to take evasive measures.

87. The progress in ESM techniques has been dependent upon the advancement in the naval weapon systems, and missile technology. The speed of the missile, both in the supersonic and subsonic ranges, has reduced threat warning time. Faster reactions to the threat are therefore required. To achieve this, present day equipment are software based micro-processor systems. This gives the advantage of auto correlation to identify the threat and input to command and control system for decision. Selection of weapons and their firing can also be integrated into these command systems. Electronic counter measures are used to disrupt surveillance and communication, denying the enemy information it desires and to reduce the ability of its weapon systems. At the same time these systems are flexible and can be programmed to changes in weapons and sensors likely to be encountered.

88. The technological development in digital data processing technique, components and circuit design is continuously improving the configuration and capacity of EW systems. Some of the important areas in electronic warfare where technical improvement are being made include:

a. Radiation, detection and sorting in dense signal environment by using high speed, real time spectrum analysis by use of acoustic-optic processing for 100 to 1000 simultaneous speculate outputs.
b. Stand-off jammers for wide area of penetration of enemy radar with minimum risk to the attacking force is achieved by using programmable high power broad band microwave amplifiers.

c. Extension of ECM spectrum coverage to millimeter and optical wavelength can be achieved by development of tunable components of suitable power covering millimeter and optical wave length.

d. Decoys in the form of expendable jammers, chaff and pyrophonic planes.

e. Warning of illumination is achieved by using laser receivers.

f. To counter optic and laser guided systems obstruction aids or aerosol, smoke effective over optical and infrared spectra.

g. Radar and infrared cross-section reduction is accomplished by using stealth concepts, such as absorbive coating, paints and structure geometric that avoid high reflection.

89. In view of the rapid expansion in EW and extensive coverage in all major areas of warfare, victory in any future war will go to side that can best exploit and control the electromagnetic spectrum. This has been amply proven in the recent Gulf War. Electronic Warfare played an extremely vital role during this conflict. The Allies virtually blocked out Iraqi usage of the electromagnetic spectrum. Having determined the position of various electronic equipment the Allies used active and passive electronic counter-measures, and radiation missiles and laser guided bomb against them i.e the Allies systematically mounted soft/hard kill operations against them. The ease with which the Allies were able to neutralise the air defence sensors has highlighted Iraqi susceptibility to concerted ECM and has also shown the helplessness of an Air Defence System (ADS) when its key detection sensors are knocked out. The Allied aircraft, on the other hand, were well protected through their self protection suit and, as such,
had much greater survivability. Furthermore, the disruption of the Iraqi military command and control system by Allies' use of ECM devoid them even routine communication facilities and intelligence, turned their erstwhile defeat into a complete rout.

90. Most of the smaller navies possess missile launching capability by surface, air or sub-surface means. Missiles are, therefore, the most potent threat to naval and merchant marine as well as strategic onshore sites. In this scenario, the requirement of smaller navies to adequately equip themselves with EW systems and associated weapons is critical to counter the missile threat.

Command, Control, Communication and Intelligence

91. The concept of command and control in the broadest sense is defined as the exercise of authority and direction by a commander over his assets in accomplishment of his mission. The basic elements of any command and control system, whether strategic or tactical are:

a. Sensor subsystems which gather information about the location, movement and activities of enemy and friendly assets.

b. Navigation subsystems which inform friendly forces of their own location.

c. Command and fusion centres which assemble, integrate and display enemy and friendly force activities to decision-makers, who then assess the threat and command the appropriate response.

d. Communication links between the sensors and the command centers and between the command centres and the forces to permit the transmission of information and commands.

92. Command, control and communication (C³) systems naturally divide into two general classes, which support either a strategic or a tactical mission objective. The strategic mission primarily involves protection of

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89 D. Curtis Sehleher, Introduction to Electronic Warfare (Dedham, Artech House, Inc, 1986) P.311
a country's national assets from attack, while a tactical mission involves the use of operational forces during combat operations. Strategic systems are generally characterized by large fixed installation whose location and characteristics are well known. Tactical systems are highly mobile and dynamic involving a mix of equipment suitable for the operation at hand. In addition, tactical systems must be able to respond to the complexity and rapid variation associated with a tactical conflict, which imposes severe limitations on the ability of the commanders to perceive the overall situation and reach an optimized decision.\textsuperscript{90}

93. The requirement of command and control system is equated with the pace of modern warfare. Mobility of the platforms, range and lethality of the weapons and sensors is continually increasing, therefore, it demands electronic means of controlling the application of weapons, assessing their effectiveness and overall management of available weapons within the force.

94. In the modern navies command, control and communication has been revolutionized by the integration of data being received from equipment, sensors and data link. This provides a much faster response of weapon systems. As navy operates in a three dimensional environment hence an increasing number of electronic sensors are integrated to provide a complete picture in the operations room. The data handling and collation has come a long way from manual to automated systems. Various automated action information systems are currently in use, such as CAAIS, ADAWS and CACS in the Royal Navy, besides similar systems are being used in other navies also.

95. The manifold limits to the human capacity to respond adequately on a consistent basis, the sheer data problems created by effective modern sensors, and the inherent complexities of modern three dimensional naval warfare, mandate ever greater mechanization of tactical and command functions. 'Intelligent', knowledge-based systems displaying options to

\textsuperscript{90} Ibid., PP 311-312
commanders will allow them to concentrate wholly on decision making rather than procedure management. Even certain decisions may be increasingly taken out of their hands. Already a degree of automatism is built into weapons control to cope with the rapidity with which threats can be presented. The human role will be increasingly to veto rather than to take the initiative. A major problem here will be that the ship may well be in a situation where the degree of discrimination required is beyond what can be fed into a computer, however advanced. Only when unlimited hostilities have begun can the man be left out of the command loop. Even then there might be inflexibilities in the command system's programming that an enemy can exploit. The human commander with his 'human faculties', such as complex forms of recognition, scepticism, realising the significance of apparently unrelated occurrences and exercising initiative and judgment will be required at sea for a long time to come.\footnote{Eric Grove, \textit{The Future of Sea Power} (London: Routledge, 1990), P.92}

96. Data link is an important element of the command and control system within the fleet and with shore base authority. It helps to weld the scattered units of the fleet be it ships, submarines or aircraft into one cohesive unit. This helps the units to respond to activities in their own area of operation or as required by the central command. Data link, besides other communication systems has become part and parcel of the modern ship's command and control systems.

97. The Intelligence system forms an integral part of Command, Control and Communication systems. The system comprises electromagnetic and imagery sensors fitted on satellites and aircraft, eavesdropping devices, human resources (agents/informers) etc. The intelligence data is collected, integrated analysed and information regarding location, movement, identity of and other activities of the enemy's forces extracted. This information is critical for planning and mobilisation and allocation of resources to own forces. C3I set-up is also of vital importance to the navies due to the vastness of the ocean vis-a-vis movements/activities of naval forces. The advanced navies rely on an
effective intelligence gathering set-up in the form of sensors mounted on satellites and aircraft besides listening devices. This provides them the capability of real time updation of information and planning operations. However, smaller navies do not possess these facilities hence their major source of intelligence is human resources, which makes the information stale. The smaller navies may opt for using aircraft and helicopters mounted with sensors for monitoring the movement, location and communication traffic of enemy’s naval forces to determine the threat level. This is critical, in view of the rapid advancement in the weaponry which has reduced reaction time. Furthermore, the information will also help in allocation of resources, deployment of own forces and utilisation of other assets to counter potential threat.

98. The integration of intelligence with the command, control and communication systems provides the real time operational capability where all units of the forces and the ‘Command Headquarters’ of a navy can be data linked. The information can also be linked to the other services for joint operations. To sum-up C^3I systems play vital role in planning, allocation of resources and operations in any future conflict and its outcome. This becomes all the more important if a regional defence organisation is formed as likely between the GCC countries, after the Iraqi invasion of Kuwait, such an organisation is a likely possibility. In such case, C^3I systems will increase the area of operation of these small states and provide them the depth which they are lacking otherwise. Pakistan and Iran with their large coast and having three dimensional naval forces require real time C^3I for adequate protection against potential threat.

Mine Warfare

99. Mine is termed as poorman’s weapon and thus most suited to Third World navies. The use of mines and mine countermeasures assumed greater significance during the Iran-Iraq War and the recent Gulf War. The application of modern technology has transformed the mines into intelligent ones with magnetic, acoustic and pressure or a combination of these programmed into it. Additional features can be remote arming and disarming. The use of composite material in
manufacture of mines makes their detection difficult. Mines are rugged and simple to deploy with devastating effect. These can be easily deployed by surface ships, submarines, small boats, merchant ships and aircraft. This weapon has a lot of deterrent value even against the most advanced warships. Two US Navy ships were damaged by mines during the Gulf War and several of merchant ships have been damaged in the Red Sea and Arabian Sea during Iran-Iraq war. Deployment of mines by smaller navies is a deterrent which could keep the most advanced ships away. This aspect was amply demonstrated during the Gulf War when the US Marines who set on amphibious assault ships while land based forces monopolized the head-lines during Operation Desert Storm may have the itching for action but an attack on heavily mined Kuwait coast could well have been suicidal.92

100. Mines, inspite of the technological advancements are still cheap when compared to other weapons of equivalent destruction power. These can easily be afforded by low budget navies and used effectively for sea denial. The Iranian Navy is reported to have bought 1800 tube-launched mines for delivery from its Kilo class submarines hence increasing the risk of mine warfare in the Gulf and the Strait of Hormuz region.93

101. The smaller navies of the region will have to make substantial investment in Mine Counter Measures to maintain the sea lines of communication open. This is critical for all littoral states, after the experience of Gulf War when French, British and Japanese Naval Mine Counter Measure Vessels were deployed for clearing mines at a high cost.

Manpower and Technology

102. The technological development in the field of engineering sciences and application to the military has left a big gap between the developed and developing or under-developed countries. This gap continues to grow

92 John Boatman and Mark Hewish, "Naval mine countermeasures", International Defence Review (July 1993), 559

93 Ibid.
wider. The primary reason for this is the low literacy rate in most of the countries of Indian Ocean and the less number of scientists and engineers available, who are the backbone of research and development and industrial base within the country. At the same time there is a tendency among them to shift to developed countries causing further depletion.

103. Navy is a highly technical service, it requires a base of highly skilled crew to operate and maintain the complex weapons and sensors, command system and propulsion machinery. The requirement of manpower to support these ships are also similar. Smaller navies with poor skilled manpower base often have difficulty in maintaining and operating state-of-the-art systems. A huge investment is, therefore, made to train personnel at a high cost. Moreover, the diversification of equipment in the navies also leads to difficulty in their upkeep and maintenance and to have adequately trained personnel for all systems. The smaller navies, to overcome this problem, has to maintain a sustained programme to training personnel to maintain and operate the equipment/systems at optimum level, a task difficult to achieve and at a very high cost. This difficulty is further compounded by the low educational standard of the sailors. Presently all the navies in the Indian Ocean are dependent on developed countries for training their personnel and technical assistance to support the navy.

104. Automated systems has reduced the manning requirement of ships but at a high maintenance cost, as their upkeep is by exchange or repair by replacement. Modern technology has reduced the manpower requirement but increased the need for operation and maintenance training of personnel both onboard and ashore. A sustained effort in training is, therefore, required to operate and maintain the ships at optimum level but this will be at a high cost.

105. The Arab countries by virtue of their unlimited oil wealth, have been able to train their manpower abroad from scratch and have maintained their fleets in a reasonably healthy state. For a long time these navies have been acquiring trained manpower from either the Western world or from Pakistan, India, Bangladesh and Sri Lanka to fill in the
gap. These Arab countries have taken longer leaps into technology and kept abreast with the modern navies by spending a large sum of their wealth in training their manpower. Today, they are on the way to self-reliance.

106. In contrast the other South Asian navies have no dearth of skilled manpower, yet they are not able to run the modern technology equipment, to the standard set by the modern navies. Due to very limited financial resources only a handful of officers and men get an opportunity to train on the latest technology. Blessed with tremendous potential these countries have, over the years, been training their men on the job onboard ships. Neither their training establishments are equipped with adequate training aids to cater for the entire range of equipment of different technologies, some of pre World War II era and some being the most modern and that too spread over fifteen different countries of origin. Despite being in possession of high skill and craftsmanship, these men do not find a place in today’s technology, potential or talents of individuals cannot meet the objectives alone.

**Industrial Base**

107. Perhaps except for India, no other country in the region has a strong industrial set up to back up their armed forces, particularly the navy. India had been lucky in a way that during the British Rule a large number of industries and shipbuilding yards were established which of course have been consolidated with Soviet assistance. Today, Indians have the capability of indigenously building ships and submarines. In contrast Pakistan’s economy has always been held by its agriculture base. In 60’s Pakistan had developed the capability of building commercial ships for the merchant navy. But due to political instability in the country the country’s only shipyard in Karachi lost business through trade union and could not retain the skilled manpower who found better job opportunities in the Middle East. Similarly, the Middle Eastern Arab countries do not also have a worthwhile industrial set-up. Smaller navies like Pakistan, in the absence of a meaningful industrial set-up have been struggling hard to fulfill their requirement by establishing own facilities
which has not been possible due to stringent financial constraints, besides it is not also practically possible to train manpower and equip different facilities in all the technological spheres and specialisations. Even the most advanced navies cannot efficiently function without the help of Original Equipment Manufacturers (OEMS).

108. The continuing development in maritime technologies is having far-reaching effect on contemporary maritime strategies and on the roles and activities of the navies around the world. The implication of these developments are too vast, particularly in this region. It is clearly appreciated that:

a. In the first place, and despite views to the contrary that were quite widespread a generation ago, at the onset of the nuclear age, there is a very little sign that technological development has reduced the relative value of sea power. While some of its more traditional roles may have been fundamentally changed, or reduced in importance, other new ones have risen to take their place. Nor does this apply only to the great and established maritime powers. The proliferation of naval weaponry around the world, suggests that acceptance of the continuing, and may be even increasing, importance of sea power is effectively global. Secondly, and for all that, there remains much diversity of view about more detailed questions of how new technology has changed the way in which these roles, both old and new are best performed.94

b. Technology has increased the range of choice but reduced the resources available, due to high costs. It is thus increasingly becoming difficult for all navies to match resources and commitments in an uncertain world.

c. Major sea powers are fully benefitting from technologies for their own superiority; they are further penalising smaller navies with numerous strings in releasing and use of these technologies.

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d. Maritime combat zones have become fiercer with increasing capabilities of various missiles. Survival in such intensive zones demands equally elaborate and advance defensive measures. This necessitates continuous upgradation of weapons/sensors and plateforms. The disparity between the life of a vessel/planner vis-a-vis obsolescence factor of high-tech equipment becomes critical. A suitable option for smaller navies is to maintain a navy which is a blend of new and old technologies.

e. Availability of technical manpower, educational standard and industrial base of the country also has a direct bearing on her navy's ability to operate and maintain state of the art equipment/technologies. It is, therefore, essential for naval planners to induct technologies which can be effectively used and their operating cost can be met from available resources.

109. In short smaller navies are faced with numerous constraints emanating from renewed security concern, more crystalline stances of the West, weak industrial and technological base and above all ever increasing technology impacts. Balance has thus to be sought between modern state of art weaponry, sensors, ability to operate them and the expected role to be performed.
CHAPTER 4

THE ROLES OF THE SMALLER NAVIES VIS-A-VIS THEIR NATIONAL MARITIME STRATEGY

1. The most important element of maritime strategy is a combatant navy. It is this component of the maritime spectrum which provides security to all the other maritime elements. In addition, it has the potential to support broad national objectives, particularly the foreign policy and economy. Navies have always been used as direct instrument of a country's foreign policy and many of their activities in peace and war were more diplomatic than military in character.  

2. Increasing number of less developed countries perceive a requirement for larger maritime rivalry with their neighbours. Most of these rivalries are long-standing and existed before the current spate of conflicts over offshore resources. The best evidence of this trend is to be found in the statistics of arms transfers to these countries for maritime missions. The data show that the transfer of Fast Patrol Craft, Maritime Patrol Aircraft, Inshore Submarines and smaller Destroyer-type vessels is growing and is part of the overall trend of an increased military build-up in the developing world.

3. The quality and size of the maritime forces of these countries vary greatly from region to region. Some countries, such as India, boast a large naval inventory that in microcosm, reflects the similar equipment and organization of the Western navies, including aircraft carriers with a complement of strike aircraft. Other navies e.g. Saudi Arabia, Oman, are smaller but emphasize missiles and Fast Patrol Craft and have their primary purpose as sea control in the event of war. While the navies of

95 G. Till, Maritime Strategy and the Nuclear Age (London: Macmillan, 1984), P.17

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Southern African States, with the exception of Nigeria, are primarily designed for coastal patrol.

4. The use of the sea for military and commercial communication is much a valuable and commonly indispensable amenity that indeed if efforts to deny it to others had not become a classic weapon of war and diplomacy. In present maritime milieu the use of the sea is gaining prominence. States, large or small are interested in use of the sea for three purposes: 96

-- Passage of goods and people.

-- Passing of military force for application at desired place and time.

-- Exploitation of resources on and under the sea.

5. Navies exist as means to further such ends. They exist as an instrument of a state's maritime strategy, whose objective is to attempt to use the sea for own purposes, while being in a position to attempt to prevent others from using the same to own disadvantages. Navies thus are continuously exerting to meet the national goals in peace, tension and war time. Bigger navies are poised to answer the call anytime and anywhere on the globe. However, the smaller navies are limited to local area for meeting much limited national tasks.

6. Broadly speaking the modern navies can be assigned following roles under the purview of the use of the sea.

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K. Booth, Navies and Foreign Policy (London: Croom Helm, 1977), PP. 15-16
Diplomatic Role

7. Diplomatic role of the navies is concerned with the management of foreign policy short of the actual deployment of force. Diplomatic applications support state policy in particular bargaining situation on general international inter-course.\(^97\) The diplomatic role of navies can be divided into:

a. **Showing the Flag** Under this role the navies project a favourable general image of own country and display image of impressive naval forces to demonstrate support and strengthen ties with allies/friendlies. Navies with ocean-going ships can play a very effective ambassadorial role and hence the phenomenon has become wide-spread in twentieth century. The objectives of these port visits can be to foster goodwill, to gain intelligence, to exchange information, to demonstrate a way of life or ideology, and last but not the least to carry out joint manoeuvres with friendly countries. Several of the new navies, notably those of India and Pakistan are known for undertaking good-will visits for flag showing to strengthen friendly relations with other nations.

b. **Naval Diplomacy** Naval diplomacy involves the use or threat of limited naval force for some specific purpose. Also known as 'Gunboat Diplomacy' the term implies for authoritative use of naval forces to secure foreign policy objectives, short of war. It can be divided into four kinds:\(^98\)

1. **Definitive** - 'when a fait accompli is created'.

2. **Purposeful** - to induce 'someone else to take a decision which would otherwise not have been taken': to

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\(^97\) Ibid., P.16

do something or to stop doing it or to refrain from a contemplated course of action'.

(3) Catalytic - 'a situation arises pregnant with a formless menace or offering obscure opportunities. Something it is felt is going to happen, which might otherwise be prevented if force were available at the critical point. Advantages, their nature and manner of their achievements still undetermined, might be reaped by those able to put immediate power behind their sickle. These are situations peculiarly favourable to the exercise of limited naval force'.

(4) Expressive - 'to express attitudes, to lend verisimilitude to otherwise unconvincing statements or to provide outlet for emotion'.

8. Naval diplomacy has been admirably summed up by Dr. Till as follows:

"Naval diplomacy is a label attached to the whole range of peacetime naval activities whose purpose is to influence the behaviour of other countries. At one end of the scale it might be quite coercive and involve the limited use of force. For examples of this, we may cite the recent activities of the United States Navy's 6th Fleet in the Mediterranean against Libya and certain interests in the Lebanon. Some recent analyses have identified over a hundred clear examples of the coercive application of force (or to give it its old title 'gunboat diplomacy') since 1945. At the other end of the scale would be the gestures of support and friendship implied by routine joint exercises with other peoples' navies or courtesy visits to other peoples' ports. Because coercive naval diplomacy is so much more dramatic, it commands far more attention than standard exercises in showing the flag. But for all
that, it is a far less common way of using naval power in peacetime as a way of influencing people". 99

9. In such diplomatic use of naval forces, the intention is invariably to avoid violence. However the possibility of violence may always exist. Hence a prudent naval presence must include an ability to be able to fight for control of the air as well as the sea, and possibly to project military forces ashore as well.

Policing Role.

10. The policing role is internally as much externally oriented. 100 It is concerned with extending sovereignty over states' own maritime frontiers. The main aims and policy objectives of this role are:

a. **Maintenance of Sovereignty and Good Order.** Policing is concerned with the maintenance of public order in a broad sense and takes place mainly in territorial waters. Navies, with readily mobile units of energy and discipline, have traditionally played a frequent part in rescue and the alleviation of disaster. Such activities range from mishaps at sea to relief to those stricken by flood, earthquake and other calamities on land and, where the disasters are foreign, the rapid sending of such aid can be a diplomatic asset. Use of the navy is also often the easiest way in which to evacuate or cover the evacuation of citizens from politically disturbed areas. 101

b. **Protection of National Resources.** Sea is rich with abundant resources, such as oil, minerals and sea food. The new

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100 K. Booth, *Navies and Foreign Policy* (London: Croom Helm, 1977), P.16

International Law of the Sea has further defined the EEZ and contiguous zones for littoral states. This has also given rise to conflicting interests amongst neighbours and bigger powers. It has now become more important to extend and demonstrate writ of the state to the very boundaries of such sea frontiers. Their protection still remains the role of navies. Coast Guard or Maritime Security Agency etc are more preventive resorts. Over one-third of world navies coast guard is their main function. Nations with developed offshore structure and installations are compelled to ensure their adequate defence and in most cases such areas are declared as national VAs/VPs. The creation of the 200 NM EEZ and the increasing political, strategic and economic importance of the search for raw materials in this zone has confronted many countries with the reality that however many international treaties and agreements are concluded, sovereignty only has a true meaning when it can be enforced. In fact, a country's offshore interests in such a wide area in some cases larger than the very national territory - can only be claimed if there is a suitable means to protect them; and this has to cover many fields - fishery, sea-bed oil drilling, anti-smuggling and anti-infiltration in all weather conditions, day and night. This very serious requirement calls for the establishment of a complete surveillance and law - enforcing network.\textsuperscript{102}

\textbf{c. International Peace Keeping.} International countabulary role necessitates provision of a military agreed International Law or Order to ensure safe-guarding broad common interests. The implementation of such a law or order will further require consensus at international level, though UNO or other organisation of authoritative standing. UN resolution 661 enforcing embargo against Iraq in 1990 is a good recent example. Navies with adequate sources and standing can perform this role. Smaller navies can only offer a token participation. This role may broadly

\textsuperscript{102} A Look at the Third World Naval Affairs (1983), PP.15-19
cover mine clearance, fighting marine pollution or even arresting a natural calamity at large scale.

**Military Role.**

11. The essence of navies is their military character. Actual or latent violence is their currency. It is a navy's ability to threaten and use force with the aims of security objectives of the maritime strategy. The main aims and policy objectives of this role are:

a. **Strategic Deterrence.** In 1965, Mr Robert McNamara, speaking of nuclear weapons described their essential qualities as reliability, readiness, survivability and capacity to penetrate enemy defences. Nuclear propelled submarines were ideal platforms for meeting above requirements. Navies snatched the ponderence from airforce as strategic deterrence forces in early 1960s by equipping the nuclear submarines with intercontinental ballistic missiles. The survivability in first strike and second strike credibility of the missile submarines make them the force of last resort. Potential destructive and evasive power of the nuclear submarine is very high while progress in ASW is very slow. Nuclear strike carrier always has a more integrated role in naval deployment and planning and supplement the war theatre with nuclear advantage on rather tactical level than purely strategic. Hence the role of strategic deterrence is only confined to major navies like US, Russia, UK, France and China only.

b. **Projection of Power Ashore.** Sea power plays a major part in projecting power both by direct support of operations on land and by independent action at sea. The great

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103 Department of Defence Appropriations, 1966, Hearing before House Appropriations Sub-Committee, March 1965, P.39

advantage of the sea is that it offers a neutral medium through which national power can be projected to protect friendly states or maritime interests located at a distance. The distance and the degree to which power can be brought to bear will, of course, depend upon the extent to which sea power is developed. If power is to be exercised locally at all, it must be first brought to the scene of action. Second, it may be necessary to introduce a fighting force, ready for immediate action. Third, once operation is established, it must be supplied and maintained.\footnote{105} Hence this role encompasses capabilities of lift, capacity for air or seaborne assault and sustained long range lift. This role is hence particularly limited to major and very few regional navies. This role is gaining more prominence in prevailing US doctrine where 'From the Sea' is the strategy for containing probable regional challenges/conflicts in the coming years.\footnote{106}

c. **Maritime Defence.** Basic maritime defence in the contiguous seas is the mission of just under two-thirds of the worlds' navies. This role also encompasses the conventional deterrence aspect which varies from size and shape of one navy to another. The objective is to extend metropolitan defence and possibly offensive potentialities into adjoining sea areas. 'Contiguous Sea' defence is a more appropriate phrase than 'Coastal' defence. Area defence zones have become so extended with the growing range of naval weapons that the word coastal now gives false impression of the potential scope of the weaponry of the warships of even quite small navies.\footnote{107}

d. **Protection of Sea Lines of Communication.** This entails protection of trade and commerce by escorting vital cargoes or by maintaining sea control in the area of interest. It includes not only

\footnote{105}{Ibid., PP.51-52}

\footnote{106}{Sean O'Keefe "From the Sea" Proceedings (November 1992), 93-96}

\footnote{107}{K.Booth, Navies and Foreign Policy (London: Croom Helm, 1977), P.22}
the defence of own merchant shipping and but also where necessary, the provision of safe passage to neutral vessels willing to continue trade with a state during period of stress or conflict. Protection of sea lines of communication becomes increasingly vital as well as difficult. Depending upon the geography, this role would require escorts capable of combating three dimensional threat i.e. the threat emanating from surface, sub-surface and air platforms. The enemy action may develop from quarantine, to blockade and finally the attack on the shipping by all means at the command of the enemy. This entails a capability to ensure defence of vital supplies by providing adequate defence of sea lines of communication. This role falls into the purview of almost all the navies with varying degree and is directly proportional to the dependence of the nation on sea lines of communications and their interest. USN deployed her ships in the Gulf in 1987 Iran - Iraq war to protect US flagged ships in 'Operation Earnest Will'. Likewise Pakistan Navy may only be required to ensure protection of the Karachi - Gulf route during crisis.

12. For meeting the whole spectrum of the aforementioned roles, a navy has to have requisite assets backed by a strong national will and international recognition. Hence following roles are solely the domain of major navies and smaller navies rarely venture into such gigantic aims:

a. Strategic deterrence  
b. Naval diplomacy  
c. International peace keeping  
d. Projection of power ashore

13. Smaller navies however are called upon to ensure maritime defence, seek protection of sea lines of communication and protect national resources as primary role. Policing EEZ, ensuring sovereignty and good order and flag showing are undertaken as secondary roles by the smaller navies. The roles for smaller navies may seem to be limited, but these impose varying degree of influence in their shape, depending upon geopolitical situation confronting each nation.
Maritime Interests and the Naval Forces of the Littoral States

14. Having briefly discussed the 'roles' of navies in general, we now look into the maritime interests and the naval forces of the littoral states of this region of great geostrategic and geopolitical significance.

15. Individually the countries are weak and incapable of defending themselves against the might of the great powers. Most of these countries have smaller navies chiefly designed for coastal operations. However, recently these countries have stepped up their maritime efforts backed by Western technology. As mentioned earlier there have hitherto been no significant navies amongst these countries. Countries like India who already had their naval forces, started replacing their aging cruisers, destroyers and frigates of Second World War vintage in early 1970's and now boast major/medium regional navy with aircraft carriers. About same time countries like Saudi Arabia with less experience and with large financial resources which faced strategic and political problems have taken the unprecedented step of ordering a whole naval fleet from abroad contracting ships of different kinds, spares, training and logistic support etc.

16. Though naval affairs have been of secondary importance, there are a number of factors which have encouraged naval expansion in the Middle East. Oil is a key factor. Extended offshore zones in the Middle East include large oil fields already under production and even larger unexploited reserves. The very marked dependence of Middle Eastern oil-exporting states on this one product and the increasing importance to them of offshore oil has heightened their maritime awareness. They have become aware of the need to protect their offshore zones and to secure sea lanes for their oil exports, at least in their immediate environs.108

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17. The vessels being acquired by most of the Middle East/Gulf States are modern and consist of smaller ships, mainly missile carrying Corvettes and Fast Attack Craft (FAC). By choosing the smaller ships, they have also solved their manning problems; the use of FACs can help circumvent lack of trained personnel as can modern technology e.g. Exocet, Harpoon, which are essentially prepacked rounds not depending on local servicing. This is further helped by the environments and terrain in which these navies operate; shallow waters, narrow straits, and shore-based aircraft will discourage deployment of hostile task forces in the region. Besides, the capabilities of these coastal sea powers have further been enhanced by shore-based facilities. Accurate long-range surface to surface missiles will deter intruders and shore-based long range aircraft with stand-off missiles e.g. Exocet, have further given strength to these coastal sea powers.

18. Statistics on selected navies of this region are given at Appendix VII. These statistics are primarily based on the latest addition of Jane's Fighting Ships and Military Balance. A comparison of assets of naval forces of the region is given at Appendix VIII. It is evident that composition of navies of the region are biased towards smaller missile fitted ships i.e corvettes, missile craft and fast patrol boats. The larger navies of the region are adding submarines, maritime reconnaissance combat aircraft and helicopters to the fleet.

**Iranian Navy**

19. Iranian Navy with her 3 Destroyers, 3 Frigates, 2 Corvettes, 11 Fast Attack Craft (Missile) and 3 Submarines and many Patrol Craft, Minesweepers and Support Ships, has an impressive 'Maritime Defence' capability and some ability to project force well offshore. Once aspiring to be a bluewater navy, Iranian naval expansion, was halted by the overthrow of the Shah in 1979. Besides, Iranian Navy has been adversely affected because of their 8-year protracted war with Iraq. The navy has embarked once again on her way to stability and progress - but all depends on the eventual political outlook which seems to be favourable.
because of their realisation of geostrategic importance of Iran. The Iranian Navy still is the largest in the Gulf and has the capability to influence the flow of trade through the Strait of Hormuz. The development of the Iranian Navy had acted in the past and will continue to act in future also, as a catalyst towards the development of other navies in the Gulf. At present, however, the Iranian Navy is handicapped because of their isolation from the West. However, the navy has come out of choppy waters with success. It has almost achieved self sufficiency in repair and upkeeping of warships, aircraft and other equipment. The merger of normal navy and the revolutionary guards was perhaps the biggest hurdle in professional progress, which seems to have been overcome. This service enjoys the unique privilege that the present service chief heads both factions of the navy i.e. normal navy and revolutionary guards. The service has thus made progress leap by leap. Acquisition of three 'Kilo' class submarines from Russia against an open opposition from all corners is a great fait accompli. Presence of these three submarines has posed new challenge to the West. USN and RN ships and submarines are since making regular sorties into the Gulf to master operations in shallow waters for possibly countering the Iranian submarine threat.

**Iraqi Navy**

20. Iraqi Navy with 1 Frigate, 2 Corvettes and 1 Support ship can be characterised to have 'Inshore Territorial Defence' capability. It cannot match the Iranian naval strength and Organisation. It may also not be possible for Iraq to plan any effective expansion of their navy because of the embargo imposed under the UN resolution 661 as consequent of Gulf War. The navy has suffered a heavy battling defeat and will take some time to recover. Nevertheless it must be appreciated that the navy had combat experience. Iraqi navy laid very intelligent and effective mine fields, albeit
with primitive mines, during the Gulf War (see figure-3). These mine fields claimed two USN ships namely USS Princeton CG-59 (Aegis Cruiser) and USS Tripoli LPH-10 (Landing Ship).\footnote{109} Above all the mines prevented an amphibious landing on Kuwait and thus paralysed the strongest force on the theatre. Therefore Iraqi navy will retain her option of influencing any future military activity in the Gulf.

\begin{center}
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\end{center}

\textbf{Figure 3}

\section*{Saudi Arabian Navy}

21. Saudi Arabia has got an impressive Surface Fleet in the Middle East region. With her 4 Frigates (with Otopat & Harpoon Missiles), 4 Corvettes and 9 FACs (with Harpoon Missiles) and two Support Tankers,

\footnote{109} Capt J.M. Martin, USNR (Ret), "We Still Haven't Learned", \textit{Proceedings} (July 1991), 64
Saudi Arabian Navy aspires to be 'Credible Maritime Defence Navy'. Saudi Arabia has naval responsibilities in both Red Sea and Arabian Gulf. Saudi Arabia plays a pivotal role not only in the Arab but Muslim World as well. The United States programme was planned in 1972 to match the Iranian Navy with a view to having a capability only in the Gulf. However, during the late 1970's the ex Soviet naval presence in Dalak Islands and off the Horn of Africa increased the Soviet supply to the South Yemen Navy. In view of these developments, the Saudi Arabian government clearly saw a need to have a naval presence not only in the Gulf but also on their other sea board in the Red Sea. Saudi Arabia ordered four French frigates (F 2000) and two replenishment tankers in 1981. These ships were delivered between 1984 and 1986. The inclusion of tankers in her naval inventory enabled her to maintain naval presence in the Red Sea from base at Jeddah and have the flexibility to rotate them as required. Now Saudi government, on 19 November 1994 has signed a contract worth 3.6 billion US Dollars for two French frigates (F 3000 S). These ships are slightly modified version of the French Navy's Lafayette Class frigates. The sensors and weapons fit include modern surveillance radar (V 26), MM 40 Block 2 antiship missiles, Crotale NG air defence missiles, modern gun systems and latest EW suite. In addition, the ships acquired during 1984-86 are also being refurbished/overhauled by the French industry under terms of a separate, 1.7 billion US dollars contract awarded in January 1994.110

**Omani Navy**

22. Oman occupies a strategic position in the Arabian Sea and the Gulf. The build-up of the Omani navy is of particular interest because of the country's location at the Straits of Hormuz, the entrance to the Arabian Gulf. Oman's limited number of FACs and other small craft constitute a modest force for its key mission of guarding the strait as well as patrolling the extensive Omani coastline. Although the force has gained the reputation for efficiency, at present the main weakness is the difficulty of operating the patrol craft off the Dhofar coast during the monsoon. This is considered essential in order to be able to cover any threat from South Yemen. The top hierarchy of the armed forces, and particularly that

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110 Giovanni de Briganti, Lafayette's To Give Saudi Navy French Accent, *Defence News*, (December 5, 1994), 6
of the navy has been recently taken up by the local officers and the navy is making very fast progress. British dominance in ships, weapons/equipment and training and tradition is very distinct. The navy has a very clear perception of her role in the strategic mosaic of Gulf oil protection. Recently the navy has made overtures by participating in exercises with USN, FNN ships in local waters and with PN overseas.

Other Gulf Navies

23. Similarly Bahrain, the United Arab Emirates, Qatar and Kuwait have modest navies with limited number of Corvettes, Fast Attack Craft and/or Patrol craft, but are clearly upward mobile and can sustain future expansion. Bahrain benefits from oil refineries and financial transfers from her oil rich neighbours. It has also benefitted greatly from US military assistance, possibly because the Central Command's regional base is there. It is seeking acquisition of FFG 7 ASW Frigates and MCM capability.\textsuperscript{111} The UAE, mindful like its Gulf neighbours of Iran's acquisition of three Russian 'Kilo' submarines is considering purchasing up to eight ASW-capable frigates to augment its two German-built Lurssen 62 corvettes and eight Lurssen FACs (missiles). The UAE, also wants minehunters and ASW helicopters for its upcoming naval force.\textsuperscript{112} Similarly Qatar Navy has recently ordered four Corvettes sized ships to be built by Vosper Thornycroft. These ships would be equipped with modern missile systems and other state of the art weapons and sensors.

24. Saudi Arabia, the United Arab Emirates, Kuwait, Bahrain, Oman and Qatar formed Gulf Cooperation Council (GCC) in 1981. Saudi Arabia aspires to be the major partner in this coalition. The member countries' navies have been able to undertake some joint planning and naval manoeuvres which should be a source of strength for all of them. Being the exporters of the most important single component of maritime trade i.e. crude oil and petroleum products, GCC countries need to

\textsuperscript{111} Jane's Defence Weekly, Vol 22, No.4 (July 30, 1994), PP.28-29

\textsuperscript{112} Ibid., P.28
cooperate to assert their position as the main source. The oil nexus may well draw these states into more naval cooperation to meet any challenge collectively. The establishment of GCC is a step in the right direction which should ultimately transform into NATO-like cooperation on regional level, of course, with additional members like Pakistan, Iran etc. Through such a cooperation they should be able to create a balanced naval force to pose a viable deterrent to regional and extra-regional aggressors. GCC navies are already maintaining closer professional ties with Pakistan Navy and sharing their experience and expertise.

**Yemeni Navy**

25. The Yemen Arab Republic and the Peoples Democratic Republic of Yemen joined to form the Republic of Yemen on 22 May 1990. A major re-organisation of the armed forces was in hand, when the recent spate of fighting brought an end to the ongoing re-organisation of Yemeni armed forces. Before this conflict their Soviet supplied navy was concentrated in Aden and included Corvettes, Missile Craft, Patrol Craft, Mine Countermeasures Vessels, Amphibious Vessels etc.

26. The Yemeni Navy as a united force was capable of maintaining regular patrol of the area of interest at any time should the need arise. The amphibious vessels provided them with a reasonable amphibious capability in local region. The demise of the Soviet Union and now the split between North and South Yemen will have adverse effect on their futuristic programme, however Russia may come to their rescue, at any later stage. Their proximity to 'Bab-Al-Mandeb' choke point make them crucial despite meagre strength.

**Israeli Navy**

27. Israeli Navy with 3 Submarines (Missile equipped), 2 Corvettes, 19 Missile craft, 34 Patrol craft and Amphibious crafts has the considerable 'Territorial Defence' capability and some ability to project force well ashore. Israel is also believed to have a nuclear capability with upto 100 warheads with effective means of delivery. In addition, United States
stands guarantor for the security of Israel. Though operating on the periphery of the region, Israeli Navy has a very poignant effect on the navies of the Gulf region. Growth of Israeli navy has always been a stimulus for expansion of many Arab navies in recent years.

Role and Shape of the Indian Navy

28. Though the Indian Navy does not fall into the category of the 'Smaller Navies' yet it cannot be excluded from the discussion in order to establish the correct naval balance in the region. India, with her grand naval inventory including Aircraft Carriers, Guided Missiles Destroyers, Frigates, Corvettes, Fast Attack Crafts, Submarines, Naval Air Arm and Amphibious landing capability, boasts a major regional navy. The massive expansion of the Indian Navy since late 1970's is in keeping with the grandiose ambitions of an imperial role in Asia and the Indian Ocean. Except China, no other Asian country spends so much on its naval expansion programme. Prithvi and Agni missiles, will in time to come, give the Indian Navy a grand offensive capability. Besides, India has nuclear weapons capability and is hurriedly building a missile-based delivery system. At the same time orbiting Indian spy satellite will give a boost to the Indian naval operations in the Indian Ocean.

29. The warship production facility at Bombay and Goa has been expanded since 1960. The Mazagon Dockyard in Bombay has built a number of frigates, corvettes and submarines, besides a large number of small craft. Currently, it is engaged in constructing guided missile destroyers and missile boats for the Indian Navy. This unlimited expansion programme of the Indian Navy has triggered grave apprehension in Singapore, Malaysia, Indonesia and Australia. These countries have offered naval facilities to United States Navy for maintaining US presence in the Indian Ocean in order to restrain India's hegemonic designs.

30. Indian Navy aspires for dominance in Indian Ocean in letter and spirit. Its probable deployment to assist Indian origin nationals along the East African coast is indeed more cradling than superpower presence.
The potential growth of Chinese naval power also acts another stimulus to India to make her own the major Indian Ocean navy. China is not only 'threat' however, India still remembers the US deployment of the Enterprise carrier battle group as an exercise in coercive diplomacy in the 1971 Indo-Pakistan War. With a navy centred around two light aircraft carriers (and with plans for a third of her own construction) operating modern STOVL fighters a much more capable surface combatant fleet than China's, the beginnings of a nuclear submarine force and long-rang maritime patrol aircraft, India possesses 'the largest and most balanced fleet in the Indian Ocean. She can lay claim to a respectable capacity to project military power into the seas around her shore, a capability that is more than one of mere defence. The main targets (or sometimes potential beneficiaries) of Indian naval power projection are her neighbours, Pakistan (the adversary above all), Bangladesh, Sri Lanka, the Maldives, Burma, and Indonesia. The main threat to Indian naval hegemony in the area will remain the presence of the navies of the super/major powers, especially that of the United States. It is thus hardly surprising that India has been a major sponsor of 'zone of peace' proposals which might shut out outside actors and confirm her own naval hegemony. Until such measures come into effect, India will seek to use her navy as a deterrent to the projection of power into the Indian Ocean from outside. India's powerful navy, however might be a two-edged sword. As one informed analyst has warned. In so far as it complicates the force planning of a particular extra-regional threat it will have served the defensive purposes for which it was created. Its inherent capability to unnerve India's regional neighbours, however, is a political issue that merits greater attention. Unless India's military expansion is accompanied by a greater willingness to be more sensitive to the concerns of smaller neighbours, its force superiority will never adequately translate into political pre-eminence. In these circumstances, the naval forces acquired for the general purpose of greatness may become the very source of larger political discomfort and discord.\textsuperscript{113}

31. Indian Navy is poised for the following roles:

\textsuperscript{113} Eric Grove, \textit{The Future of the Sea Power} (London: Routledge, 1990), PP.164-165
a. **Maritime Defence.** The maritime defence role is particularly important to India. The sea has no frontiers and therefore, any Navy that operates in the Indian Ocean can threaten the Indian use of the sea. Large naval forces of extra-regional powers operating in the Indian Ocean are in a position to influence India's choice and action in a wide variety of situations ranging from rendering help to her maritime neighbours during hostilities to the exploitation of oceanic resources. India has always been particularly uneasy about the presence of other navies in her area of interest. This has in turn aroused the need for a credible navy to ensure maritime defence. Indian navy has always maintained an element of conventional deterrence with a balanced fleet.

b. **Protection of Sea Lines of Communication.** Sea lanes protection is an important task for the maritime forces. India has virtually no land routes for international trade and air freight is at least a hundred times costlier than sea freight. As the country gets more industrialised, imports and exports will both rise, leading to even greater dependence on the seaborne flow of goods. Although India enjoys the convenience of proximity of major international sea lanes, her dependence on sea lanes to sustain north western areas is very critical. Gulf market and oil is too important to be left at its own, at the door steps of potential adversary. There are certainly more options such as numerous alternate ports and harbours, large merchant marine etc, yet protection of sea lines of communication necessarily figures out prominently in Indian Navy roles.

c. **Protection of Offshore Assets.** Offshore assets' protection is a relatively new but fast expanding military role for sea power. In India's case, the bulk of her indigenous oil and gas comes from off the shore, and protecting the production and processing platforms and pipelines upto 360 kilometers from the shore near Bombay is a major task. These are important strategic target and
Indian Navy will always protect it as VPs. Later, as she enters the seabed mineral exploitation phase, the problem will become more complex as protection will have to be extended from the EEZ limits to the much vaster expanse of the high seas.

d. Projection of Power Ashore. In her aspirations to be a major regional navy, the Indian Navy has always kept her power projection role to the front. Two carrier capability coupled with nuclear submarine technology infrastructure, great leaps in missilery and substantial amphibious gut, the Indian Navy is rightly equipped for the role. It has effectively availed the opportunities of 1971 Indo-Pak war in Bay of Bengal and interventions in Sri Lanka and the Maldives to prove equal to this task. India's expansion is characteristic of a navy whose plan is bluewater power projection and regional domination. The Indian Navy is growing into a serious threat to regional stability and Western naval supremacy. Indian naval developments should be of great concern to its neighbours and the Western powers.  

e. Policing Role. The policing function entails sovereignty protection in the territorial waters and resource protection in the EEZ. This is primarily the work of the Coast Guard Organisation in India. But it will have to be carried out in close conjunction with the navy, especially during periods of tension and hostilities.

32. The massive Indian Naval buildup is clear cut evidence of hegemonic designs and has serious implications for countries in the region. Commenting on its effect on Pakistan's security, the Chief of the Naval Staff, Admiral Mansurul Haque Nl(M), S.Bt said:

"In our security context, size and shape of the Indian naval build up are both sinister and ominous. It has serious military, political and economic ramifications which we can ill afford to ignore".  

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114 Proceedings (July, 1991), P.102
Role and Shape of the Pakistan Navy

33. In the light of large scale expansion, and modernisation of the Indian Navy, Pakistan Navy is tasked with wide ranging roles for ensuring survival of the country. These include; Maritime Defence, Protection of the Sea Lines of Communication, Protection of National Resources, Policing and Flag Showing. Against the gigantic leaps of the Indian Navy, Pakistan Navy is under constant pressure to attain if not a match, at least a credible deterrence status. Lack of maritime awareness at higher echelons in 'Government and Defence', scarcity of resources and dislocation in overall defence strategy have seriously handicapped Pakistan Navy in her growth through past few decades. Nevertheless the service has made impressive progress in early development of sub-surface and air arms, while keeping the surface fleet at par with the expected roles. Navy could not perform in the classical way to blunt superiority of the Indian Navy during 1971 War. Bay of Bengal was not in the scheme of operations, while missile defence were non-existent on the western front. Sub-surface element manifested its edge by equaling the overall sinkings of men of war in the conflict. Lessons from this war were rightly drawn and scrupulously pursued. An authoritative missile defence in depth was materialized by combination of ASUW and sub-surface missile capability. Twin carrier power projection of the Indian Navy is no more the dominant threat in maritime defence mosaic conceived by the Pakistan Navy. Careful planning and prioritising by the naval planners have always rendered the Pakistan Navy a distinct edge over her potential adversary, which persists to date as antiship missile capability of submarines.

Maritime Defence

34. Considering the threat environment, the raison d'etre of the Pakistan Navy's existence is the defence of its maritime assets which

115 "Pakistan aware of need to develop maritime capability", The News International, January 3, 1995, P.4
includes coastal defence and protection of shipping and of our vital sea lanes. In the realm of the coastal defence, the protection of ports and port facilities is a major task for the Pakistan Navy. This implies principally the defence of Karachi harbour and subsidiary ports of Ormara, Pasni, Gwadar and Jiwni. Karachi being the priority target due to its role as the commercial centre of the nation, its strategic oil storage facilities which are essential for naval and commercial use, and the dockyard and repair facilities sited there. Besides, Karachi hosts the key rail head that links the entire road and highway system running across the country on a north-south axis.116 Off the coast, the Pakistan Navy must seek to protect nation's small merchant fleet and to counter the blockade likely to be imposed by the Indian Navy.

35. Pakistan Naval Strategy emphasises sea control in limited area to denying the Indian Carrier/Surface groups to close to less than three hundred miles from the Pakistani coast, in order to thwart any planned blockade of Karachi harbour. This essentially requires a well coordinated deployment of sub-surface, naval aviation and surface combatants of the Pakistan Navy. The significance of this mission is gaining credibility due primarily to the estimated growth of sea trade over the next few years. The defence/escorting of merchant shipping will become lot easier with the commissioning of the Ormara naval base.

36. For this objective PN has always been obliged to maintain sufficient deterrence. The perceptible presence of naval strength, applied deftly but firmly in the appropriate place may well deter belligerency or other forms of impetuosity.117


117 S. N. KOHLL, Former CNS of Indian Navy, Sea Power and the Indian Ocean (New Delhi, Tata, McGraw-Hill, 1978), P.32
Protection of Sea Lines of Communication

37. Pakistan Navy must also protect the nation's sea lanes - a daunting task given that the Indian Ocean encompasses an area of 28,350,000 square miles.\textsuperscript{118} The critical sea lanes in order of priority are the Karachi - Gulf route, the Karachi - Suez Canal/Red Sea Route, the Karachi - East Africa route, and the Karachi - Far Eastern route. Since the spatial dimensions of these routes are gigantic, total control over sea lanes is impossible to maintain consistently all the time. Hence sea lane defence of at least the extended routes is considered a tertiary operational objective, particularly because it is hoped that friendly maritime forces may assist in the distant patrols/transit facilities and the Indian Navy will be sufficiently extended to prevent a ravaging of the distant sea lines of communication.\textsuperscript{119} Geographical location of Pakistan and her single port complex clearly segregate the sea lanes leading to and from Karachi, from remaining international routes. Hence any vital cargo carrying vessels will be clear targets posing no identification problem to enemy. Pakistan Navy is thus denied of any benefit of international military intervention for protection of her sea lanes east of Ras Al-Hadd. The situation is further compounded by overwhelming superiority of the potential adversary in submarines and ASUW assets. Pakistan Navy is, therefore, bound to possess a very potentent escort force to fulfill this role. Protection of vital cargo carrying vessel on the Gulf-Karachi route will have to be assured at all costs.

Protection of National Resources

38. New law of the sea has legitimised Pakistan's right in exploiting living and non-living resources within her EEZ which stretches to 200 miles from the coast and upto 350 n.miles in case of continental shelf. The size of the sea area which comes to Pakistan's share measures over one

\textsuperscript{118} Chandra Kumar, "The Indian Ocean: arc of crisis or zone of peace?", \textit{International Affairs}, (Spring 1984), 236

hundred thousand square miles and is rich in food and mineral resources. The mission of enforcing order in contiguous zone and EEZ usually comprises of the several important but mundane operational tasks which include coastal surveillance, environmental protection, and law enforcement etc. Besides, Pakistan Navy’s contribution in hydrographic surveys is reckonable.

39. Much of the work that navies do of a policing nature can scarcely be regarded as military. Aiding the civil power in law enforcement in territorial waters is essentially a domestic affair, and is frequently discharged by a specialized service such as coast-guard forces. When such activities extend to the protection of shipping from injury by foreigners or their governments and to the defence of fishing rights, they take on a more martial air and become the stuff of which actual armed conflict may be made. Lately Pakistan has created Coast Guards and the Maritime Security Agency to perform these functions. Nevertheless Navy is often called upon to either assist these agencies or to undertake operations separately, when situation so warrants.

Policing

40. Policing the sea in peacetime may take several forms. There has been considerable poaching in our waters by foreign fishing vessels. Pakistan Navy has been involved in frequent searches and the apprehension of erring foreign vessels. The Pakistan Navy also assists in anti-smuggling, salvage and search and rescue operations besides, rendering invaluable help in times of national calamities - With the institution of Maritime Security Agency and the Coast Guards, Pakistan Navy has been relieved of many of its secondary peacetime functions. This allows it to devote more time for operational training.

Flag Showing

41. Pakistan Navy ships, over the years, have gone as far as Tokyo (Japan), Canton (China), Australia, Turkey, off the East African coast, Red Sea and the Gulf etc. The PN ships, submarines, and at times aircraft, so deployed have accomplished this ambassadorial function effectively.

42. To conclude, navies have variety of roles to perform at all times depending upon the national interests and dependence upon sea. Being self contained by nature, the navies have to be adequately shaped for the role they are assigned to perform. Smaller navies, although have comparatively limited roles to perform, these are vital instruments of maritime strategy. Geopolitical environment of the region are commanding the compulsions on the smaller navies to manage with meagre resources to match ever increasing demands. Strategic deterrence, classic projection of power ashore, naval diplomacy and international peace keeping are not normally in the charter of these smaller navies. Maritime defence and protection of sea lines of communication and protection of offshore national resources are prime roles that the smaller navies are endeavouring to perform under the purview of national maritime strategy. Ancillary roles such as policing, flag showing and maintenance of good order are performed with ease in our region. Some navies in the region are aspiring for a medium regional navy status; however resources constraints, influences of bigger powers and scarcity of domestic industrial base and skilled manpower are perpetual obstructions.

43. Indian Navy stands out prominently as a major regional navy, followed by Saudi Arabia, Pakistan and Iran as medium regional navies. However Pakistan Navy and Iranian Navy are seriously marred by isolation/discrimination from the West. Other Gulf navies need to expand their cooperation under GCC to develop a more integrated maritime defence, while still banking upon bigger power support in case of oil flow disruptions. Apart from platforms and weapons, the smaller navies have enormous room to outclass amongst each other with dedicated and highly
trained manpower. At the same time smaller navies are burdened with
careful planning and prioritising their inventory commensurate with
prepondering roles. The key to their success in meeting objective of
national maritime security are to attain ability to hit the adversary, where
it hurts the most.
CHAPTER 5

MARITIME POTENTIAL OF PAKISTAN

1. Today Pakistan is more viable, better consolidated consisting of one compact unit. It is located in the key strategic position linking the Middle East with South Asia. It is surrounded by three major/nuclear powers i.e. Russia, Peoples Republic of China and India. The importance of our geostrategic situation has somewhat diminished in the eyes of the Americans; the only remaining Super Power, as a result of the end of Cold War and termination of Afghanistan War. As one US observer puts in, "The US has tended to attach importance to India for What it is and to Pakistan for Where it is, Where is getting diluted with the changes in the geo-polities of the region". However Pakistan, to some extent, has won back the strategic importance eroded by the end of Afghanistan War, because of its key role in anchoring the ECO by dint of its geostrategic location on the direct land-route from Central Asia to Arabian Sea.¹²¹

2. This is evident from the statements of the Prime Minister of Pakistan issued on the eve of the stone breaking ceremony of Ormara Naval Base on 17 March 1994, as follows:

"The end of the Cold War has not led to a more tranquil region. Instead regional tensions and conflicts have intensified and we in Pakistan need to be more vigilant than ever before. Our national security dimension include the military and defence issues and that of environmental security. These can be achieved by re-inforcing both naval and commercial maritime sectors".¹²²

3. Pakistan's proximity to Central Asia from both cultural and geographical points of view stood her in good stead. Compared to any other port, Karachi was 2000 miles nearer, while Pakistan's trained


¹²² The News International, March 18, 1994, P.1

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manpower and entrepreneurs - though small in number - could help the newly - freed Central Asian States in their economic construction. No sooner South Asia and Central Asia would be 'Clumped' thus increasing Pakistan's geographical importance. Also Pakistan was located, along with Egypt and Turkey, on the periphery of an oil bearing region that was exposed to fundamentalist Influences. With Central Asia still toying to find an acceptable alternative to the Soviet system, Pakistan presented a "model of modern, moderate, Islamic Democratic Country" that could inspire other countries in the region. Recent resurrection of religious parties in national politics of Algeria and Egypt have provided new impetus to the US coined bogey of "fundamentalism". Regimes in the Middle East are generally monarchies and remain averse to democracy or firm religious polarisation in populace. US has been keeping dominant influence in region and particularly on Saudi Arabia on the pretext that she will protect the small kingdom/monarchies.

4. South West Asia today is more volatile and disaster - prone than any other region. Situation in Kashmir continues to destabilise this region. The United Nations declared Kashmir a disputed territory in 1948, and again in 1949, the UN examined the region’s status and passed two resolutions and declared that final status of Kashmir was to be determined by national plebiscite in a position supported by the United Nations and both India and Pakistan. But the promises with the Kashmiris have never been honoured. Kashmir has since been the cause of two wars between India and Pakistan.

5. Pakistan at present needs to adopt a policy of persuasion so as to enable the country to gain time to build up its economy. In today's age when the market place has come to determine the national standing of every state, Pakistan should for the time being focus on developing its economic strength. Without this basic underpinning, no nation, whatever the size of its war machine, can hope to project its power and influence, regionally or further afield, for long. Soviet Union's fate should be a very

vivid example in the current era. This calls for special attention to exploit Pakistan's maritime potential to uplift her economic bearing.

6. This chapter gives the detailed study of the maritime potential of Pakistan i.e. Ports and Harbours, the Merchant Marine, the Ocean Economic Resources and the Pakistan Navy; the guardian of the maritime potential.

Ports and Harbours

7. Pakistan is a littoral state with a coastline of about 540 miles which stretches from Gawatar Bay on the Iranian border to Sir Creek on the border with India. Our coastline is ideally located to dominate and guard the entrance and exit of Arabian Gulf. Karachi is the main port of Pakistan. Port Qasim is also being developed which can be regarded as an extension of Karachi Port. It is urgently required to develop harbours such as Gawadar which is of strategic importance by virtue of being situated closer to the Gulf of Oman. However, our present sea strategic communication system is based on Karachi as the major port, with the road and rail infrastructure along the bank of the River Indus, which is the only link between the Port and other cities of Pakistan. If another port is developed at Gawadar, and can be connected with the existing road network of Baluchistan and with further improvement of the selected communication system, it can relieve us of the constraints of the only system that we have.

8. India on the other hand, was lucky at the time of independence to get a developed coast with an impressive number of developed ports and harbours and necessary rail and road infrastructure on both east and west coasts. What was left at the time of independence was made good by occupation and subsequent annexation of Junagadh and Manawadar states and Goa on the west coast and development of Vishakhapatnam and port facilities at port Blair of Andaman Islands in the Bay of Bengal. The importance given to these Islands by India reflects upon the maritime awareness of the Indians.
9. The Pakistan government has approved the phased development of Ormara Naval Base, and construction of the naval base and harbour has already begun. The ground breaking ceremony of the Rs 4 Billion Ormara Naval Base and harbour was performed by the Minister of Defence on 17 March 1994 with a commitment by Government of Pakistan to upgrade Pakistan's increasing maritime capabilities, which included construction of submarines and surface ships in our country.

10. The construction of the Ormara Naval Base - a giant leap forward, is but of many major projects that government is determined to see through i.e. the upgradation of port operations at Karachi and Bin Qasim, the commissioning of modern containers' terminals and enhancement of fisheries operations.

11. With the establishment of an alternate naval harbour and base at Ormara, the options and freedom of action of Pakistan Navy to operate in the Arabian sea and the safety will be greatly enhanced. In his speech on the occasion of stone laying ceremony of Ormara naval base, the former Pakistan's Chief of Naval Staff, Admiral Saeed M Khan NI(M), S.Bt said:

"With the establishment of an alternate naval harbour base Ormara, the options and freedom of action of Pakistan Navy to operate in the Arabian sea and the Gulf will be greatly enhanced. Our role would thus transcend the direct defence of our sea lines of communication and extend to other areas including marine safety and environmental issues and participation in disputes of our maritime boundaries, delineation, of offshore boundaries as well as help combat illicit drug trade. The Chief of Naval Staff also pointed out that besides the strategic and operational advantage for the navy, the naval harbour will bring substantial economic benefit to this particular region which was less developed than Gawadar and Pasni."

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12. The Omara naval base is to be completed in the three phases - the first phase would take up to three years and include dredging and reclamation works, construction of wharf and finger piers, offshore breakwater, and provision of relevant equipment, and navigational aids. A Submarine Rebuild Complex is integral to the port and is planned to be executed concurrently.

13. The construction of commercial port at Gwadar is also amongst the higher priorities of the government. A fish harbour - cum - mini port at Gwadar, has already been commissioned. The construction of Gwadar complex with ultra modern facilities would definitely contribute to the evolution of a deep sea port at Gwadar. Gwadar with its location within the proximity of the Straits of Hormuz and its vast hinterland, makes it ideally suitable for its development into an international port. However, an elaborate communication infrastructure will have to be developed to link Gwadar with other major cities in hinterland.

14. The port of Gwadar once commissioned would serve a gateway to the region operating over an area of more than seven million square kilometers with a total population of over 300 million people consisting of Pakistan, Iran, Turkey, Afghanistan, and Central Asian states. Thus Gwadar would be a boon to these ECO countries, as it has vast hinterland stretching up to several breakaway states of the former Soviet Union in the North, to Iran, the Gulf, the Middle East, Egypt and Africa in the West, to India and Sri Lanka in the South. It can also develop into a trans-shipment station capable of serving Gulf and East African ports with fast feeder services. In short the envisaged Gwadar port complex would open new vistas in the field of maritime trade and commerce.

The Merchant Marine

15. Pakistan relies on sea transportation for over 90 percent of its imports and exports. It includes import of about 46% of raw material for capital and commercial products and about 60% of oil. Besides other exports, Pakistan produces over 65,000 barrels of crude oil per day. Most of this crude oil has different specifications than what are acceptable in
our refineries in Pakistan. This crude has to be exported to other countries. For all this trade a credible merchant marine is our compulsion.

16. Pakistan National Shipping Corporation (PNSC) started with a fleet of 42 ships in 1979 (DWT 522, 622). With the gradual depletion of the older ships, the fleet is now reduced to 21 ships (DWT 339, 386). Twelve of these are modern multipurpose general cargo ships with container carrying capacity of more than 400 TEU. Of the rest of the old general cargo ships, one is passenger-cum-cargo ship. PNSC is also fifty percent share holder of National Tanker Company (Pvt) Ltd. (NTC). The NTC owns 89,000 DWT tanker Johar which lifts about 60 percent crude oil imports of Pakistan. The rest is lifted on chartered tankers.

17. According to the principle adopted by UNCTAD for liner cargoes the national flag vessels are entitled to carry 40 percent of the national trade, 40 percent is allowed for the other trading partners and 20 percent for ships of Third World countries. PNSC does not own bulk carriers possibly because general cargo ships can be used in multi facet trade and are economical for smaller fleets. The dry bulk commodities lifted by PNSC have to be on chartered vessels. The share of dry cargo lifted by PNSC own vessels during 1992-93 works out to only 7.5 percent. In the shipments of liquid bulk commodities NTC is so far handling the imports of crude oil. About half of this quantity is lifted by its tanker Johar, while the rest of crude oil imports are lifted on the chartered vessels. The small quantity of crude oil exported by Pakistan and other liquid bulk commodities exported and imported by Pakistan are lifted by foreign flag vessels. If all these shipments are taken into account the share of liquid bulk commodities lifted by NTC own tanker during 1992-93 works out to 12.2 percent.

18. Notwithstanding the ready availability of flag of convenience shipping and other foreign shippers at cheaper rates, national flag carriers play significantly different role in war-time. They have a lot at stake as compared to the flag of convenience shipping; our own naval force can provide protection to national flag carriers by way of escorting them
through the quarantine/blockade zones. The potential mismatch between flag of merchant ship and flag of warship may, for the time being, create certain legal difficulties. It may, perhaps more importantly, prevent the interest in defending a particular trade being perceived. But the evidence of recent events in the Gulf demonstrate that warships will, eventually, come to the aid of all merchantmen threatened in a particular area, e.g. by combatants whose belligerent rights are in dispute. States who are the beneficiaries of maritime trade - albeit carried in other peoples' ships - will deny themselves the capability to do something in defence of that trade at their peril. However, due to our geographical location no such help will be available east of Ras-Al-Hadd. As such we should enhance the size of our merchant fleet to meet at least 40 percent of our sea trade needs while ensuring that oil and coastal trade is exclusively handled by our own vessels. It is obvious that sea trade is imperative to the very sustenance of Pakistan. Any threat to the freedom of our sea routes and security of our carriers is a threat to Pakistan's national interests.

Shipbuilding

19. Our ship-building industry is still in its infancy and comparatively small. Though it has produced ships for our merchant fleet and for other friendly countries, yet it leaves much to be desired to increase self reliance and ability to support friendly countries. Our experience in this field is limited, but low cost labour in Pakistan offers bright prospects for us to enter into joint ventures with more experienced countries not only to increase our present rate of merchant ship construction but also to take construction of warships both for ourselves and for our friends.

20. India is far ahead of Pakistan as far as indigenous ship-building programme is concerned. India is building Frigates, Submarines, Missile Corvettes, Tankers, LSTs, and Survey Research Vessels, besides Merchantmen. By virtue of this capability, the Indians are less prone to external pressures. Whereas Pakistan has suffered all the years because of

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her dependence on the West for purchase of warships and other naval weapons/systems.

21. At present Pakistan Navy, which is already out-numbered by the Indian Navy, is hurt the most over the stoppage of US Military Aid under Pressler law. Following the invoking of the Pressler Amendment, the US has also withdrawn the eight frigates/destroyers that were on lease to Pakistan Navy. The gap so created has been partially filled by the acquisition of Type-21 Frigates from United Kingdom.

22. Pakistan government fully alive of the emerging situation has plans to construct submarines and surface warships in the country. The government has signed a MOU with French government for the induction of three latest submarines (Agosta-90B) on 21 September 1994. This 950 million dollar deal includes complete transfer of technology upgradation of dockyard facilities and training of PN personnel. Similarly five container vessels of 12,000 tons each are proposed to be built in Karachi shipyard with transfer of technology from foreign shipyards. KSEW has now been placed under MOD and navy has been entrusted with management to gear up her ship construction projects.

23. While futuristic plans are taking its final shape at government level, Pakistan Navy Dockyard, over the years, has acquired a fair measure of capability to design and build sea-going platforms and outfit them, through self-financed R & D programme. Admiral Saeed M Khan NL(M), S.Bt, the former Pakistan's Chief of the Naval Staff, commissioned a 180-tons Patrolcraft on 6 June 1994, as PNS LARKANA. The Patrolcraft was designed and built by PN engineers, architects and workmen. On this occasion, the CNS also performed the keel laying ceremony of the second Patrolcraft and directed speeding up work of this process, to take on a series construction of two craft, simultaneously so that shortage of PN can be met quickly.

126 Dawn, September 22, 1994, P.1
24. PN Dockyard can undertake production of series of such vessels with different weapon outfits and aspires to build bigger warships and submarines, as part of its long-term plans of indigenisation, in collaboration with KSEW.

The Ocean Economic Resources

25. New Law of the Sea Convention has also legitimised Pakistan's rights in exploiting living and non-living resources within her Exclusive Economic Zone (EEZ) which stretches to 200 NM from the coast and upto 350 NM in case of continental shelf. The size of the sea area which comes to Pakistan's share measures over 100,000 square miles and is rich in food and mineral resources. The potential of organic wealth of the Arabian Sea particularly in the waters adjoining Pakistan is estimated to be one of the highest in the world.

26. Fisheries. The fisheries, being one of the important foreign exchange earning items, account for about 2.5 percent of the total exports and one percent of value added in agriculture. Besides supplying protein to the people to makeup meat deficiency, it provides employment opportunities to about 200,000 workers. In the coastal areas of Baluchistan marine fisheries is the central economic activity and the largest employer in the area.

27. The per capita consumption of fish in the country is very low i.e 2 kg only. During 1992-93 fish production increased by 4.7 percent to 534,000 tonnes as against 510,000 tonnes in the preceding year. Pakistan exported 79,175 metric tonnes of fish in 1992 and earned foreign exchange of 115 million dollars or Rs 3.45 billion. The sources opined that there was a great potential to increase foreign exchange earnings from this source provided it was developed on scientific lines.

28. The government is taking several steps to improve the fisheries sector. A number of developments projects are being executed by federal and provincial fisheries departments. These include strengthening of infrastructural facilities, improvement of extension services, introduction
of aquaculture, diversification of fishing efforts, development of value
added products, enhancement of per capita consumption and upgradation
of socio-economic conditions of the fishermen. A fisherman training
centre has been built with the technical assistance from FAO and financial
grant from the Asian Development Bank. It will train fishermen in
advance techniques of netting fish, navigation and other related matters to
increase their efficiency.\textsuperscript{127}

29. \textbf{Oil}. The sea area adjacent to Pakistan is characterised by
peculiar but interesting oceanographic conditions. The marine geology
and geophysical aspects of the area are not adequately known. Such
knowledge is needed to provide the scientific basis for the country to
explore and manage natural, non-living resources from the shelf and from
within the 200 miles of its EEZ, in which at least two distinct geological
provinces, the Lidas offshore and the Makran offshore have been defined.
Seismic survey in the recent past by Oil and Gas Development
Corporation (OGDC) of Pakistan and Norwegian Agency for
International Development has been carried out. Some 8 wells were dug
in the past and the drilling of a new well about 600 NM South of Karachi
was started by OGDC in October 1985 through chartering an oil rig
from Petro-Canada. OGDC's programme, however, requires substantial
vigour and resources to bear fruit. The National Assembly of Pakistan
was informed on 27 January 1994 that better incentives have been offered
for petroleum exploration and production in offshore areas. It was
proposed to carry out offshore seismic surveys near Karachi to acquire
data pertaining to about 4,000 kms of coast through a French company.
The area will then be promoted for petroleum exploration. The firm is
operating over Makran onshore/offshore areas under a reconnaissance
permit. The OGDC and foreign companies had been granted 46
concessions covering an area of 199,300 sq kms for drilling/exploration as
well as different surveys including seismic survey.\textsuperscript{128}

\textsuperscript{127} Rafique Akhtar, \textit{Pakistan Year Book} 1993-94, (Karachi: East and West Publishing
Company, 1993), P.436

\textsuperscript{128} Rafique Akhtar, \textit{Pakistan Year Book}, 1993-94, P.547
30. **Minerals.** The search at large has drawn the attention of the developing littorals of Indian ocean to the fact that Bauxite, Cobalt, Tin, Platinum, Manganese and Industrial Diamond are all the lucrative items to the Industrialised West, lying in the seabed. These are essentially required for production of weapons, airframes and other industrial products. A dedicated effort is required to be directed to explore and exploit these hidden resources by us. While realisation is there, a lot is desired to be accomplished particularly to acquire this wealth very badly needed for development programmes and well-being of our nation.

31. **Legal.** The riches of the sea have the seeds of disputes for the demarcation of the boundaries of EEZ (See Figure 4) specially with India, who has already delineated maritime zone and raised necessary non-military forces to police and protect her interests. In fact the present location of the Indian oil rig near Pakistan's borders at sea is an indication of their persistent efforts to establish the possibility of cross boundary hydrocarbon so as to draw the treaty line to their advantage. Sir Creek has become the bone of contention in the maritime boundaries. The two countries had different views on the interpretation of the boundary in Sir creek area.\(^{129}\) What so ever little progress that has been made in this

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regard hints that this may end up as another "Siachin". It is in the interest of Pakistan to demarcate the maritime boundaries with her neighbours to safeguard the share of its ocean wealth. Pakistan has established Maritime Security Agency to guard her EEZ - the reservoir of wealth yet to be explored and exploited by us.

**Realisation of EEZ Potential for own Economic Growth**

32. It is a well known fact that oceanographic research for prospecting, exploration and exploitation of oceanic resources needs highly trained and skilled personnel, necessary infrastructure to manage the resources and expensive technology which most of the developing states are lacking due to financial constraint. In order to ensure provision of nautical charts for safety of shipping, Pakistan, like many other coastal states, had established an organisation in 1948 to carry out hydrographic surveys along the coast. However, other marine science activities did not receive much attention partly due to lack of general awareness and financial constraints until the adoption of the new Law of the Sea Convention which is now awaiting ratification. So far a wide diversification exists towards management of maritime affairs. There are at present thirteen Ministries dealing with the various marine activities. Details of some of them are as under:

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<tr>
<th>Marine Activity</th>
<th>Ministries</th>
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<td>a. Ports and Shipping:</td>
<td>Ministry of Communication.</td>
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<td>b. Fisheries:</td>
<td>Ministry of Agriculture.</td>
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<td>c. Law of the Sea:</td>
<td>Ministry of Law</td>
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<td>Ministry of Defence</td>
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<td>Ministry of Foreign Affairs</td>
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<td>Ministry of Housing and Works (Environmental Division)</td>
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<td>d. Naval Forces:</td>
<td>Ministry of Defence</td>
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<td>e. Marine Science and Technology:</td>
<td>Ministry of Science and Technology</td>
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<tr>
<td>f. Oil Exploration and other Non Living Resources:</td>
<td>Ministry of Petroleum and Mineral Resources</td>
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<tr>
<td>g. Radio Broadcasting:</td>
<td>Ministry of Information and Broadcasting</td>
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h. **Planning and Allocation of Funds:** Ministry of Finance and Economic Affairs

ej. **Coast Guard:** Ministry of Interior and Ministry of Defence

k. **Maritime Security Agency:** Ministry of Defence

33. Consequently a concerned and coordinated effort could not be mustered to realise this enormous wealth available within our reach. Therefore, under the guidance provided by the new Law of the Sea Convention, the government must accord priority to the affairs of ocean management and arrangement be made to establish a Central Coordinating Agency and National Oceanographic Division with representation from all the concerned agencies so as to pool up the national resources for conducting marine affairs of the country in an efficient and integrated manner.

34. Nothing better could be offered to motivate our authorities than the Holy Quran, on the subject;

"It is He who has made the sea subject, that Ye May Eat thereof flesh, that is fresh and tender and that Ye May Extract therefrom ornament to wear; and though seest the ships therein that plough the waves, that Ye May seek thus of the bounty and that Ye May be grateful".\(^{130}\)

**The Pakistan Navy**

35. The size and power of the navy must be commensurate with its mission and responsibilities in the light of anticipated threats to maritime security. The performance of the navy is conditioned by the use of suitable ships, submarines, aircraft, helicopters, weapons, sensors and infrastructure to support naval operations befitting national maritime strategy.

\(^{130}\) Al-Quran, Surah An-Nahl 16: 14
36. The Pakistan Navy started from scratch in 1947 without any meaningful infrastructure for logistics and repair facilities. At the time of partition, the Royal Indian Navy was divided between India and Pakistan in the rough proportion of 2:1.\textsuperscript{131} Pakistan Navy was accorded the lowest priority all through successive years in funding, which hindered its planned expansion. Despite serious setbacks in 1971 war and dramatic changes in threat environment since, Pakistan Navy continues to be at the bottom of the exchequer's priorities, causing it to fall further behind the Indian Navy in strike capability (see Appendix IX). To compound this problem, the cost of warships, weapons and sensors have risen astronomically in recent years and expansion of the Navy becomes even more expensive proposition. Nevertheless, the Pakistan Navy has been progressing on bare need to have basis.

37. In the face of the gigantic built up programme of the Indian Navy since early 1980's, Pakistan, with far more limited resources as compared to India, is making a more modest effort towards upgrading its naval capabilities. Today Pakistan Navy is a three dimensional force, comprising surface, subsurface and air elements in its inventory with an upcoming marine force.

**Surface Fleet**

38. The surface fleet of the Pakistan Navy is in transition phase. Following the invoking of the Pressler Amendment, the US has recently withdrawn eight Destroyers (Brookes/ Garcias) and one Repair/Support ship, those were on lease to the Pakistan Navy. The gap thus created in the Pakistan Navy's capability has only been partially filled by the recent acquisition of six Type-21 Frigates from Britain. These ships however, need a very elaborate upgradation of sensors and weapons. An intensive upgradation programme is already launched to make these ships the most potent vessels in our area. Already existing platforms include 3 US

Gearing class destroyers and two British Leanders. The surface fleet is also equipped with 4 Patrol craft and 8 Missile craft mainly of Chinese origin. Its mine warfare force is presently being enlarged through the acquisition of the first of three new French Eridan - Class of mine hunter. The other two are expected in 1995 and 1996. While, the first two vessels of this type are built fully in France the hull of the third is to be fitted out at Karachi.

**Sub-Surface Force**

39. The submarine force is the most prestigious arm of the Pakistan Navy. This is not only because it was the only arm of the fleet to register a single 'kill' in the last war, but it continues to be perceived as an effective means to counter Indian surface and sub-surface naval forces in warfare (particularly high - value surface combatants) at sea as well as to destroy military and economic targets on shore and offshore.\(^\text{132}\)

40. The submarine force of six vessels at present is entirely French in origin, two Agostas are much larger than Daphnes, and, as a consequence, have a far greater operational range of 8500 nautical miles. The lethality of both these classes of vessels is measured primarily in terms of their Harpoon anti-ship missiles. These missiles can be launched in a submerged mode, and have a range of about 130 kms.\(^\text{133}\) Besides, anti-ship missiles, Pakistani submarines are equipped with conventional torpedoes as mentioned at Appendix VII.

41. Submarines, though potent platforms require replacement because of being old. During next few years, Pakistan Navy will be equipped with three Agosta-90B submarines. Agosta-90B is a fully modernised and updated version of Agosta submarines, equipped with the most modern fire control system, latest sonar, modern long range torpedoes and antiship missiles. This new acquisition will strengthen our sub-surface

\(^{132}\) Rahul Roy Chaudhury, "Trends in Pakistan Naval Power", Strategic Analysis, (February 1994), 1496

\(^{133}\) Jane's Fighting Ships 1993-94 (1993), P.463
force manifold. The sub-surface inventory of the Pakistan Navy also includes 3 mini submarines of Italian origin.

The Naval Air Arm

42. Pakistan’s naval air arm has been growing steadily to constitute the second largest airborne maritime strike force in the Indian Ocean littoral. It presently consists of, 4 Atlantics (ASW/MR), 5 Fokkers (MR), 6 Seakings helicopters Mk 45s (ASW/ASUW), and 6 Alouettes-III helicopters (Recce, SAR). Atlantic’s and Seakings have been configured to carry Exocet, AM 39 antiship missile. These aircraft are perceived to be critical in location and engagement of Indian surface forces at some distance from their bases. Although the numerical strength of the naval aviation units is not formidable, its aircraft and helicopters are well equipped in terms of high technology weapons and sensors. The Seaking helicopters can also be operated from Oil Tankers, primarily desirable for ASW role. Pakistan Navy has also inducted 3 British ‘Lynx’ helicopters as part of the Type-21 deal. The effectiveness and utility of this helicopter are proven worldwide. In addition, few PAF Mirage-V strike aircraft have also been armed with Exocet missiles to execute missions for maritime operations.

43. Transfer of three Lockheed P-3C Orion (MR) planes, possibly armed with air launched Harpoon antiship missiles from US is held up due to Pressler Amendment. Had the Orions been delivered as planned in May 1991, they could have provided Pakistan the second largest airborne maritime strike capability amongst the littoral states of the Indian Ocean.\(^{134}\) The Brown Amendment is likely to pave the way for transfer of P3Cs to Pakistan in the near future.

\(^{134}\) Lt Sanjay Jasjit, “Whither the Pakistan Navy,” Indian Defence Review (January 1991), 133
Auxiliaries

44. Pakistan Navy has two fleet replenishment tankers which provide requisite flexibility of operations at sea. A third fleet support ship has been recently acquired from Netherlands. The remaining auxiliaries and minor combatants are listed at Appendix VII.

Marine Force

45. The Pakistan Navy has reactivated the Marine Force since 1988. This force at present is in its infancy but is shaping into a reckonable fourth dimension of the Pakistan Navy. The force has the primary role of ensuring protection of vital maritime installation and bases.

Quality and Skill of PN Personnel

46. No survey of the Pakistan Navy would be complete without a brief review of the quality and skill of personnel who man this three dimensional force of this medium regional navy. Pakistan Navy is highly professional and competent, getting an average of some 160-180 days at sea each year.135

47. Pakistan Navy is fortunate to have been gifted with a highly potential manpower resource. Despite having an overall low literacy rate in the region, it has produced technical manpower that can smoothly acquire, operate and maintain modern technology equipment. Pakistan Navy in particular, has proved that it can take longer leaps into the technology and can fairly well operate even the most modern equipment of today remaining within the severe financial constraints. In 1988-89, Pakistan Navy acquired Brooke/Garcia class ships from USN with as little as 2-3 months of training on 1200 psi plants in USA. Similarly, on expiry of the Brooke/Garcia lease, Pakistan Navy found itself manning a modern if not the latest class of Type-21 Frigates, once again within weeks of

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training with the RN. Not only that Pakistan perhaps stands unique in experience of operating ships and submarines and maintaining equipment from different countries of origin. From Battle/Checker class to Type-21s, Pakistan Navy in the past over 45 years of her history has successfully manned and run ships and submarines of American, British, French, Chinese, Italian and Japanese Origin. For a country that has been politically unstable ever since her independence, this has been possible mainly because of highly talented and committed manpower ever willing to perform miraculously when guided in the right direction. Besides, Pakistan Navy despite financial constraints and very raw influx of manpower largely hailing from rural areas has through consistent policies accorded high priority to training and to date maintained a highly trained manpower comparing to other smaller navies in the region. Pakistan Navy today has its own Naval Academy and Engineering College capable of conducting post graduate courses. Pakistan Navy has also been training officers and men from friendly countries in the region including Iran, Saudi-Arabia, Oman, UAE, Qatar, Bahrain Kuwait, Libya, Bangladesh, Sri Lanka and Maldives etc. PN's own officers have been keeping abreast with the technology by getting training from advanced navies of the world such as USN, RN, French, German, Chinese and Turkish Navies. For nearly two decades in 70's and 80's Pakistan Navy had been sending trained manpower to brotherly Middle Eastern countries to effectively run their navies. Quality and skill of the manpower has always, and remain haul mark of Pakistan Navy.

**Domestic Constraints Affecting Pakistan's Sea-Power**

48. Pakistan has persistently lagged in accommodating credible sea power to meet her maritime challenges. There have been numerous constraints affecting this field. Lack of maritime awareness, ailing economy and weak technical base have been the most compelling domestic factors.
Maritime Awareness

49. The people of Pakistan are least familiar with importance of sea due to the obvious reason that our geographic position restricts our sea frontiers to the south only. Most of the population has never seen the sea and they are totally unaware of its importance to the country. At the same time most of the population is illiterate and therefore, can be excused for not knowing the importance of the sea, but it is a matter of serious concern that our educated masses including the elite of the country are also unaware of the importance of seapower. Pakistanis are not a sea faring nation, nor they have set any traditions of amour with sea so far. Very thinly populated Makran coast and miniscule maritime infrastructure have not been conducive for even a medium grade fishing industry. Pakistan was most handicapped in the maritime sector at the time of independence. The very fact that the two parts of the country were separated by a hostile land stretching over 1,000 miles and sea was the only sure link between the two was not adequately realised. In crucial years (1953-1958) when the foundation of the navy had to be laid, Admiral H.M.S Choudri had advocated the build up of a navy for East Pakistan of the same size and strength as that in the western wing, a concept which was stoutly opposed by Ayub Khan. The vulnerability of East Pakistan against enemy action was amply clear during the 1965. It destroyed the illusion of a West Pakistan based defence strategy; isolation left East wing defence-less without adequate means to protect itself. The gross neglect of the maritime sector in Pakistan for most of the last four decades has weakened our economy and defence. Even today it does not receive the priority it deserves. This is largely due to our land locked thinking especially amongst most of those who have been in positions of power and privilege ever since the death of Quaid-e-Azam.\textsuperscript{136} Even now there is much talk about the F-16s which Washington has refused to release. No tears have however, been shed for the navy which has lost eight modern frigates leased to it by the US and which had to be returned on the expiry of the lease.\textsuperscript{137} However Navy shares the major blame for not making concerted efforts to educate the masses by effective public relating and meaningful publication.

\textsuperscript{136} H.M.S Choudri, \textit{An Introduction to PIMA}, 1994, P.4

\textsuperscript{137} M.H Askari, "Task Before the Navy", \textit{Dawn} June 29, 1994, P.4

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50. Mounting marine pollution is yet another symptom of our lack of maritime awareness. The only port complex of Karachi harbours the untreated industrial wastage and sewerage of the largest industrial estate and population. The continental shelf and coast are suffering rapid deterioration, which is bound to affect health, well being and prosperity of future generations. Government has addressed this problem under the Pakistan Environmental Protection Ordinance 1983. A Marine Pollution Control Board has been recently constituted at Karachi under the chairmanship of CNS. The board will suggest measures for prevention and elimination of marine pollution.138

51. One may not expect maritime thinkers like Pannikar and Subramaniam be born overnight, who may transform the national thinking in matter of years. However true nationalists with will and ambitions to glorify their motherland over their legitimate vastness of oceans are very much required to secure economic and defence needs of the country. Establishment of Pakistan Institute of Maritime Affairs (PIMA) by Vice Admiral H.M.S Chaudri is an outstanding endeavour to meet these needs. The institute is dedicated primarily to creating a greater awareness of the importance of the Maritime sector for Pakistan's economic prosperity and security among decision makers and others and promoting positive change in attitudes and policies. Retired senior naval officers, master mariners, fish industry tycoons and experienced personnel from bureaucracy may be invited to participate in the restructuring of maritime sector. At least Universities at Karachi must introduce maritime related faculties in their curricula. To make Pakistan strong and prosperous in the greatly changed international and regional environment we have even more than before to change our landlocked thinking and realise that what happens in the seas around us will affect our destiny every bit as profoundly as what happens on land. We must therefore, accord higher priority than at present to developing our maritime and related sectors including the Navy and the Merchant marine for the more rapid economic development and more effective diplomacy and defence of Pakistan.

138 The News International, July 11, 1994
Economy

52. Strong economy plays a significant role in all spheres of national progress; may it be development programmes, social welfare, and/or defence establishment. Navy is an expensive service and involves extraordinary finances. It requires money for buying ships, submarines and other weapons, sensors, and for creating support facilities, naval bases and harbours and last but not the least the training of manpower. Only then a viable naval capability can be established.

53. Collapse of Soviet Union is a vivid example where defence planners failed to consider the economic factor. Pakistan is facing a dilemma as far as funding for defence services is concerned. Our geostrategic and geopolitical environments demand a strong navy in order to effectively combat the threat emanating from the sea and to ensure security of maritime assets.

54. India, notwithstanding her economic situation is pursuing a planned naval expansion programmes and aspires a bluewater navy consisting of a very large naval inventory by year 2010 (see Appendix X). Paradoxically this enormous expansion is not predicted on the rationale of defensive needs as there is neither an external naval threat to the Indian coasts, nor anyone has claims over the Indian territorial waters or exclusive economic zone. The multidimensional development in the Indian navy clearly points to India’s hegemonic designs. Countries of the region including Pakistan who see the expanding military and naval power of India in the backdrop of its previous track-record feel increasingly insecure.

55. Pakistan Navy, on the contrary, has the lowest priority among three services. It is not the matter of distribution of funds to Navy, Army and Airforce, but the question is the economic uplift of the nation. This is a big challenge for the people and government of Pakistan. It requires
sincere and conscious effort to achieve viable economic base with an ultimate goal of self-reliance.

56. In our efforts to sustain our economy, three aspects i.e Pro-US/Western Strategy, Economic Prospects in Central Asia, and Emerging Economic Scenario in the Region have to be weighed critically.

**Pro-US/West Strategy**

57. A peep into the past is necessary to analyse our economic situation. Since inception, Pakistan has linked itself with the United States for its political, security and economic relation, notwithstanding our sporadic shift towards the People's Republic of China, Iran and the Muslim world. This relationship has only worked one-sided and the Americans have used Pakistan at their choosing, all along these long years. The fact has come up loud and clear after the demise of the Soviet Union. Pakistan should, therefore, while maintaining cordial and friendly relation with the US - the only remaining Super Power, should explore other avenues being alive to the emerging economic scene and new World Order. However US is not likely to permit Pakistan such liberty without a compromise on her nuclear programme. Mr. Ishrat Hussain has explained this issue in clear terms under the heading 'Pakistan's future foreign economic relations', published in *The News International*, April 7, 1994. Selected thoughts are reproduced in the succeeding paragraphs:

58. Domestic economic and budgetary pressures in the industrialised countries and competing demands from new claimants will limit and shrink the role of official aid. Technological, information and communication revolution has altered the traditional sources of comparative advantage permitting global sourcing and a different pattern of locating manufacturing activities across the world. Regional trading blocks spearheaded by the US, Japan and Europe will be playing an

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increasingly dominant role in managing the flows of world trade and investment. Developing countries in East Asia and more recently, in Latin America, have recognised the force of these new economic realities and are substantially modifying their response and gearing themselves to take advantage of the new opportunities presented by this realignment. It is high time that we in Pakistan, should abandon our conventional notions, remove the tainted lenses through which we only seem to look at the US, and integrate ourselves into a broader and more dynamic international market of goods, capital, technology and ideas. Today, America is the largest net debtor in the world with an enormous budget deficit and a large trade deficit. It can no longer provide export market to pull developing countries up. With a declining share of the world income and the need to reduce trade deficits and pay its debt, the US will have to cut down on its purchases from abroad and raise its exports. The American market will effectively be closed to the developing world or at least not provide the same kind of impetus it had maintained in the past. It would be unrealistic to expect any breakthrough in our export by exploiting the US market alone.

59. Recently the US capacity to be a conduit of capital has been seriously impaired and it is unlikely to be revived fairly soon. That is why the US foreign direct investment that flows to developing countries is relatively low in volume, highly selective and concentrated in a few countries. The large US budgetary deficits and weak support for foreign aid implies that the foreign aid flows will be severely restricted. US will only support Israel, Egypt and now the Palestinians, the strategic flows to the former Soviet Union and humanitarian aid to the trouble spots of the world could continue. The recent vista of US investment in Pakistan's energy sector only may not be without any long term strings.

60. The EC is now the single, largest integrated market in the world and the trading opportunities for the nations outside the community still remain enormous, though much hard effort is required. The expansion of the Community to absorb other European countries, and eventually Eastern Europe, will have a major impact on its growth and trading prospects. Reaching understanding with the EC and being able to
penetrate their markets at this stage will bode well for Pakistan in establishing a firm foothold in such a large potential market of more than 800 million people.

61. Japan has also emerged as the largest investor in developing Asia for a variety of internal and external factors. It is quite conceivable that the future location decisions of Japanese firms could be oriented towards Pakistan if the conditions here are right. Recent progress in establishing automobiles plants in Pakistan by Japan is indeed encouraging. In addition to Japan, other newly industrialised economies in Asia have surplus investible funds and are looking at attractive potential prospects such as Viet Nam for example. However nuclear issue could always be a hurdle for Pakistan. It should however be understood that US may always influence EC and Japan to restrict economic assistance to Pakistan.

62. Developing countries themselves have become big players in their own right. The centre of gravity of both consumption and production will shift from the rich to the developing countries, particularly China and East Asian countries. These countries will exploit their comparative advantage in manufacturing importing capital and skills from richer countries. The linkage of the Latin American economies with the US, that of China and other East Asian countries with Japan, and the Eastern Europe with the EC will generate positive trade, creating opportunities. The countries which are well positioned now to take advantage of these opportunities will have a head-start and ultimately large benefits. There is no reason as to why Pakistan should not prepare itself to take advantage of these growing opportunities'.

63. To sum up, the international economic environment has changed significantly in the last decade or so, and future changes are likely to be even more profound making the established norms and relationships redundant. The US has lost its edge as the dominant economic player in the world and, as Lester Throw notes. "To be a double superpower, it will have to be willing to invest what others invest in being economic superpowers and on the top of that make whatever investments are necessary to remain a military superpower. The chances that the US will
be able to achieve and retain the status of both economic and military superpowers in the coming decades are not particularly bright as other equally powerful players, devoid of the encumbrances of investment in military, would surpass the US in economic strength. Pakistan has so far neglected to pay sufficient attention to these new powers and focused disproportionately in its foreign economic relations upon the US. The imperatives of our future development dictate that we rethink and reevaluate our current stance and take measures to diversify our relations and broaden them to include the European Community, Japan and the developing countries".

Economic Prospects in Central Asia

64. The establishment of the Economic Cooperation Organisation (ECO) on 28 March 1992, brought 10 states, encompassing a population of 300 million people, on a platform to develop the old silk-route into a new economic lifeline for Asia. The hope that the more elaborate ECO venture will succeed where RCD experiment faltered is well founded in fresh ground. Whereas the RCD peaked with the Cold War between the USA and USSR, the ECO celebrates the end of it and is gaining grounds in the face of combined approach from both the countries.

65. Economic compulsions are so overwhelming in today's competitive world that within two months of formation of the Commonwealth of Independent States (CIS) set up, the six Muslim republics namely Uzbekistan, Tajikistan, Kazakhstan, Turkmenistan, Kyrgyzstan and Azerbaijan rushed their representatives to the ECO summit in Tehran on February 16, 1992, to sign protocols to join the organisation. Later all the six states - besides Afghanistan - became full-fledged members of the Economic Cooperation Organisation on 28 March 1992.

66. Perhaps the single greatest economic incentive is access to sea offered to the landlocked Asian states by the three founding members - Turkey to the Black Sea, Iran to the Gulf and Pakistan to the Arabian
Sea. Of the three, the shortest route is provided by Pakistan. More specifically, calculated from the Tajik capital of Dushanbe, Vladivostok on the Pacific Ocean is some 9,500 kms away; Eostov-NA-Donu on the Black Sea, 4,200 kms; Abadan and Bandar Abbas on the Gulf, around 3,200 kms and Karachi on the Arabian Sea, about 2,700 kms. Estimates of other routes put the distance between Muslim Central Asia and the Arabian Sea at barely 2,000 kms.

67. An idea of the immense range of commercial and industrial potential can be gained from a short list of what the Central Asian Republics produce or manufacture. It includes oil and gas, gold and such rare metals as cobalt, bismuth, cadmium and thallium used in electronics, mercury and antimony. Agricultural produce include cotton (Uzbekistan is the world's third largest producer), wheat and rice, fruits and vegetables; cattle, sheep and horses. The Central Asian industries cover a wide range from manufacture of farm equipment, textile machinery, electric motors and transformers through nuclear-power and desalination plants, oil-extraction and oil refining and oil-exploration equipment, to silk-weaving and carpet-making.

68. It is vital for Pakistan to compete for maximum economic dividend from the ECO. Besides judicious use of existing facilities and communication infra-structure, construction of port at Gawadar and alternate communication network needs to be expedited. As a whole, ECO with vast economic potential can achieve its economic goals only if the member countries sincerely work together with a collective aim and objective to uplift economic well-being of the member states. Pakistan, however, can become the number one beneficiary of the emergence of Central Asian Republics if peace returns to Afghanistan. Pakistan must particularly accentuate efforts to secure a lasting peace and stability in Afghanistan, taking it as an economic rather than a goodwill gesture.
Emerging Cooperation Around Pakistan Borders

69. Post Cold War era along with turbulent aftermath of the Gulf War has triggered mammoth politico-economic activity in the region and particularly around Pakistan. Pakistan should be mindful of India's rapprochement towards Iran and China. The salient aspects of the emerging cooperation are:

a. The new relationships are based on the concepts and strategies of trade and economic cooperation. Recently a MOU has been signed between Iran - Pakistan for extension of Gas pipeline to India.

b. India - China - Iran axis has intertwined economic interest whereby India has an eye on the Central Asian States (CAS) whereas Iran is trying to get direct access to CAS over and above the ECO relationship. Similarly India has her vested interest to uplift her economy.

c. Iran's rapprochement with China and India can serve both economic and diplomatic interests at a time when it requires an outlet to come out of its isolation - the west has imposed on it.

d. China with its production booming could not ignore a vast market like India just across its borders especially when China's access to Western market is often threatened by sanctions or threats of sanctions and group protectionism under the EC or NAFTA cover.

e. Despite Pakistan's special relationship with China and Iran, the economic cooperation is limited. While both countries are served better with India because the latter is a bigger market with vast economic potential.

70. Pakistan is also facing difficulties in manpower absorption and bilateral trade and economic cooperation with the Gulf countries. In keeping with the new concepts and strategies of trade and economic
cooperation, Gulf countries are increasingly going to be dictated by the
group interests and would be compelled to establish their relations with
EC and NAFTA on group basis under the cover of GCC. The GCC
countries are also trying to develop group relations with ECO countries
including Pakistan in their bid to have access to Central Asia. Pakistan
for too long has been only banking on relations with these countries as
fellow members of the Muslim Ummah. Pakistan cannot and should not
depend on its special relations only with any country or group as such
relations cannot stand the test of time when conflicting interests are
emerging in various regions of the world with new concepts and strategies
of trade and economic cooperation.

71. Pakistan's foreign relation experts and economic strategists have
got to guide the destiny of the nation in the light of the emerging pattern
of economic relations to forge relationship with friendly countries and
groups of nations. While charting out a sound economic strategy and
policy, the strategists should also consider the gaps and lapses that ail
Pakistan's economy in the domestic front. Extracts from an article,
"What ails Pakistan economy" by Shahid Javed Burki, published in
DAWN December 12, 1992, are reproduced which merit urgent
consideration by our economic strategists, policy markers as well as the
people of Pakistan.

"It is well known that Pakistan is not investing enough in its future
- it is not improving the economy's physical infrastructure, it is not
providing the economy with the quality of the work force it
requires, it is not protecting its physical environment. The road
and railway systems work with appalling inefficiency and are
woefully inadequate for the needs of the economy of Pakistan's
size; Karachi port is terribly clogged with long periods of waiting
time for ships; the sector of education produces poor students;
members of the large middle class and the poor have inadequate
health facilities; women remain social outcasts, poorly educated, in
poor health, and discriminated against in all manner of ways."
Pakistan is not investing in any of these things for two reasons: the people and the government save a very small part of their income and the government spends a vast portion of the revenue it collects on activities that will not contribute to the country's long term development. Investment as a proportion of the gross domestic product is low but even this low level of investment cannot be financed entirely out of domestic savings. In the past the resource gap was filled by a number of foreign friends who were prepared to reward Pakistan for its geopolitical position or for the willingness of its leaders to do the bidding of those generous with their largesse. A significant proportion of this capital was provided on highly concessional terms which helped Pakistan not to run up a massive burden of foreign debt. In spite of the generosity of foreign friends, extensive external borrowing in the past has left the country with a fairly large debt overhang.  

72. Being mindful of the emerging scenario in our region and drying up of US aid on the basis of Pressler Amendment, Pakistan should be prepared to devise a strategy which places minimum reliance on external resources. In the immediate context one element of this strategy could be negotiating a substantial debt relief or re-scheduling. Another could be tapping more effectively some Islamic countries for concessional assistance. Third and last is of course an aggressive new push for increasing exports by searching for new markets. This is easier said than done. But in the emerging situation we must attempt it the whole hog if serious economic disorder is to be averted. A balanced approach is mandatory in under taking any major economic uplift. No all out disregard of major power interest will allow us any meaningful progress. In the long run, we have to maximize the exploitation of our own domestic resources specially oil, gas, and hydro-electricity, to achieve self reliance. A special and serious effort has also to be made to exploit our EEZ resources to uplift our economy.


Technical/Industrial Base

73. Pakistan had the misfortune that at the time of independence she did not inherit a strong industrial base which went to India. Pakistan has made significant progress since Defence Production Division has embarked upon an ambitious programme to achieve self-reliance. Presently ordnance factories have not only made Pakistan self-sufficient in small arms but are also able to export the small surplus. Pakistan Machine Tool Factory, Heavy Mechanical Complex, Tank Rebuilt Factory, Pakistan Aeronautical Complex, Telephone and Electronic Industry are making contribution to self-reliance. Pakistan has also made a significant headway in the nuclear field, it is a prestigious programme, a capability which should be retained and signing of NPT should be kept conditional with India. Pakistan is, however, seriously lacking in the shipbuilding industry. In the 60's Pakistan had developed the capability of building merchant ships, but due to political instability in the country, the only shipyard in Karachi lost business through trade unions and could not retain the skilled manpower who found better job opportunities in the Middle East.

74. Among the regional developing countries in the Indian Ocean, India has the largest reservoir of scientists and engineers deployed in the field of military research and development. This is all the more evident from the programme to attain self-sufficiency in design and development and production. India's modernisation programme has one main objective in the longer run i.e. self sufficiency through utilization of local industrial base. This is amply clear from the transfer of technology clause in major defence contracts. Moreover, she is also producing hi-tech products under licence from the manufacturers. This process of indigenisation backed by a strong industrial infrastructure, is progressing at steady pace. India has in fact made great leaps in nuclear, space and missile technology. Although many of the first steps in these fields were taken on this side of the border. Satellite launch vehicle, elaborate nuclear
civil and military capacity and ICBMs are indeed milestones attributable to strong technological /industrial base and firm government policies. Defence production is another special field to mention. India today has the capability of indigenously building warships, submarines and long range missiles. The warship production facility at India's naval shipyards especially those at Bombay and Goa, has been expanded. Since 1960, the Mazagon dockyard has built six frigates, two corvettes, one training ship, a missile craft, and a submarine, besides a large number of smaller craft. The first of 209 submarines being built in India with the help of Germany were delivered to the Indian Navy by the same yard. Three guided missile destroyers, and two missile craft are currently under production at Mazagon docks.

75. Comparing the industrial base and defence industries of India and Pakistan, it can be seen that India with the initial head start has taken lead. It has a strong technical manpower base to support the industries, and its technological development programmes. Pakistan is lacking both in industrial infrastructure and the technical manpower base to support defence industries. She is however striving hard to reduce this gap which would require a concerted effort and commitment. Looking at India's gigantic achievement in the defence industry, the message becomes clear for Pakistan that there is a long way to go to establish a meaningful industrial base to meet our defence needs particularly in the maritime field.

76. As mentioned earlier the government of Pakistan has initiated certain steps which should go a long way in strengthening its maritime defence, besides economic uplift. The acquisition of three submarines with transfer of technology is noteworthy. According to media report the total proposed package include 40 strike aircraft and some 200 main battle tanks, which would cost approximately 5 billion US dollars. Like in the past we should not end up with induction of latest weapon systems only. This billion-dollars procurement should be linked with the indigenous production which requires a global approach to achieve maximum indigenisation and transfer of technology. This would, however, require effective participation by the private sector.
What course of action Pakistan must take at this juncture cannot be presented better than what Lt. Gen. (R) Talat Masood has done in his article titled "Multi-billion dollar defence acquisition" published in The News International May, 22, 1994. Extracts are reproduced in the following paragraphs:  

"What has to be realised at the outset is that progress in defence industrialisation cannot be independent of the industrial and technological growth in the civil sector. In the absence of a vibrant and well developed civilian technological and industrial base heavy capital investments have to be made to enable defence industry to manufacture sophisticated equipment which can never make economic or even military sense. Key areas of defence technology used in submarine, strike aircraft and tanks are currently non-existent or minimal - micro-electronics, computers, aerodynamic computational capabilities, laser technology, electro special alloys, ceramics, composites, sensors etc. to name a few. Micro electronics makes components smaller but it makes their fabrication invariably more complex and difficult. So for years to come we will have to depend on foreign sources supply. Similarly for propulsion systems and advanced weapon systems we will have to rely on original manufactures. While the above factors demonstrate the obstacles to achieving autarky, a well developed local industry can serve to limit the degree of dependence.

Local production should be addressed to the following:

a. Ability to overhaul and rebuild.

b. Assemble and part manufacturing, with gradual increase in content.

c. Ability to bring about incremental technological improvements and innovation so as to maintain the state of art weapons and equipment.

Rapid technological changes become necessary to acquire the capability of updating the equipment so that it does not suffer from obsolescence. For this we need to have a binding contract with the manufacturers so that we are linked with future upgrading of the equipment and also develop an in-country capability to keep pace with technological improvements.

In order to develop an indigenous defence production capability which can be sustained for any length of time our defence industry would require strong relations with major industrial states such as France, UK and China. Pakistan has to contend with not only coping with military threat from India but also the long term technological threat. For the reason it is not enough to merely select a major weapon system on the basis of its cost and technological sophistication but equally important is to select sellers from willing allies who are committed to technological cooperation and with whom the political relationship is strong, stable and durable. The changing US foreign and military policy towards Pakistan over a span of last four decades is a stark reminder that military self-sufficiency should be our principal aim".

78. Pakistan is gifted with vast sea frontiers, laden with riches. Handicapped right from the independence in inheriting any viable maritime infrastructure, the country has not paid attention to this field very laboriously during the last half century. However economic and military compulsions have kept the maritime sector alive. But the progress is far below the satisfactory levels, particularly in the wake of 1982 Law of the Sea Convention which has generated new opportunities for maritime aggrandisement. Recently the government has made some serious effort to develop various elements of the national maritime sector. New fish harbours at Gwadar, Pasni and Korangi and construction of naval harbour at Ormara are indeed gigantic steps in view of the limited
resources available. Likewise establishment of the National Institute of Oceanography in 1982 and commissioning of the Maritime Security Agency in 1989 are concrete steps in the right direction. Major policy decision has also been taken to uplift indigenous construction of surface ships and submarines. Fishery industry has tremendous scope for development and needs to be tackled on war footing. Awakening general maritime awareness amongst the elite and policy makers in particular and consolidation of the entire maritime potential under a unified authority is the need of the hour.
CONCLUSION

1. The sea is a blessing bestowed by nature upon those countries which have a coastline. Land-locked countries are obviously deprived of this natural advantage. Ports and harbours on the coastline, merchant shipping on the surface, economic resources from the sea-bed and the naval forces present at sea, all contribute greatly towards the economic, political and military potential of a country. This calls for a sound maritime strategy in order to derive maximum dividends from these potentials.

2. In the recent years a number of geostrategic, political, economic and technological developments have changed the nature of maritime environment:

   a. There is growing dependency of the Western industrialised world and of many emerging countries in the Third World on the seas for the transit of raw materials, the export of products and the supply of energy, minerals and food, particularly the Gulf oil.

   b. The growth of sea-denial capabilities by a number of developing countries of the region that have many unresolved conflicts with the maritime powers and with their neighbours over territorial demarcations and access rights.

   c. Oil wealth is one of the key factors which has encouraged and contributed to the naval expansion in the Middle East. With their large oil revenues all these countries can sustain naval expansion; the West, the main supplier of naval equipment, continues to benefit by exporting arms to these countries.

   d. The new Law of the Sea recognises the increased demands for the uses of the ocean for economic well being of the littorals.
e. Economic pressures combined with the new technologies have made the sea the cockpit of rivalries. Notwithstanding the traditional uses of the sea, technology has now opened the prospects of using the depths and bottom of the sea for a variety of new civil and military purposes.

3. 'The Law of the Sea' and the 'New Technology' are inter-twined. The law of the sea offers EEZ and sea-bed resources, while the new technology not only provides means of exploiting these ocean resources but also helps in structuring potent and effective naval forces for the security of the maritime frontiers. The continuing development in maritime technologies is having far-reaching effect on contemporary maritime strategies and on the roles and activities of the navies around the world. The advent of stand-off weapon systems with OTHT capability, electronic warfare, and C3I systems have entirely changed the maritime war theatre.

4. The Third World countries have always had a set of maritime preoccupations that are local and peculiar to them. But certainly the issue has now a much greater visibility than it once had and has been brought into prominence by the end of Cold War. These maritime powers though of a similar sort, are all unique in their responses and policies. In recent years there has been progress by the developing countries in establishing or in some cases re-establishing modern naval forces capable of furthering their countries' broader maritime interests. Most of these countries have smaller ships in their inventory i.e. Frigates, Corvettes and FACs. Very few countries have submarines mainly because of manning problems. On the other hand, many countries have simply disregarded the logistic support and mine countermeasure forces while planning their navies. Therefore, with very few exceptions the new fleets now taking shape are heavily unbalanced. However, with the passage of time and experience, these factors will be taken into account by most of these countries who have recently started acquiring naval vessels.

5. Major sea powers are developing and using technologies for their own superiority, however, availability of the same to smaller navies
depends on their ability to operate and maintain these technologies and geopolitical factors which influence their release. While the economic factor plays an over-riding role due to high cost of new technology weapons and equipment, all maritime countries, whether large or small are hard put to match resources with their commitments in the rough and the tumble of the regional and global politics. All the signs are that the tasks of corelating ends and means are not growing any easier. The naval planners of smaller navies, in particular are faced with the problem of composition and updatation of their naval forces due to the rapid advancement in technologies, induction of new weapons in the region, and high cost. Besides availability of resources, technical manpower, educational standard and industrial base of the country also have a direct bearing on navy's ability to operate and maintain state of the art equipment/technologies which can be effectively used and their operating cost met from available resources.

6. The study of maritime potential of Pakistan clearly brings out that it has not been fully realised. The advantage derived so far is much less than what is in the offing. Pakistan remains a maritime nation because of its long coastline stretching over 540 miles and dependence on seaborne trade. The geopolitical conditions in the region around Pakistan have altered so radically that she has to evolve a viable naval strategy to safeguard security and maritime interest. The emerging geopolitical scenario in the North West Indian Ocean region has got a direct bearing on our sea power and security. Pakistan's geostrategic importance has diminished in the eyes of the US after the end of the Cold War. Since the Gulf War, most of the Gulf states have accepted the US as the guarantor for their security, a situation that suits the US and its allies who are in any case not willing to relinquish the bases, facilities, spheres of influence, assured supplies of oil and other vital material, and markets for their lucrative arms industry.

7. Pakistan's special relations with the Gulf states including Saudi Arabia and Iran are losing their weightage because of the emerging political, military, and economic priorities. In any future conflict between India and Pakistan, the attitude of regional littoral states will be either
neutral or, in case of Saudi Arabia, neutral, but well-disposed towards us. Nevertheless our maritime cooperation should be enhanced particularly with Iran, Saudi Arabia and other Gulf countries. There are tremendous opportunities for Pakistan to expand ties with Iran in technological, industrial, trade, economic and defence fields. If, for any reason Islamabad does not avail these opportunities, New Dehli would capitalise the same. This course of action will suit India presently aiming at weaning away Pakistan's natural strategic ally from her.

8. India is determinedly pursuing its naval expansion programme to acquire a bluewater naval capability in pursuit of her hegemonic ambitions. On the diplomatic and economic fronts, India has largely been successful in making friends with Pakistan's friends in her endeavour to isolate Pakistan. India's rapprochement with the Gulf States, Iran, and China is noteworthy. US is well disposed towards India, while the latter continues to enjoy special relationship with Russia - the successor of the Soviet Union. India's initiative to establish diplomatic relations with Israel at opportune time speaks well about her diplomatic maturity and its eye on the future.

9. Besides impressive naval inventory at present, the Indian Navy is due to acquire the first of a new class of cruiser-sized missile and helicopter equipped destroyers. By the first decade of the next century, the Indian Navy's future expansion plans call for it to have 3 Aircraft Carriers, 4 to 6 Nuclear - attack Submarines, between 8 and 20 Conventional Submarines, and between 30 to 45 Destroyers and Frigates and numerous other small combat and support vessels. That will give the Indian Navy a bluewater capability. Time is, therefore, running out for our naval planners to transform the Pakistan Navy into a potent force to meet the challenge. Notwithstanding the future plans of the Indian Navy, even the present inventory when compared with that of ours serves as an eye opener.

10. Despite the dramatic changes in the Pakistan threat environment in the last several years, the status of the Pakistan Navy as the neglected service has not been altered. Even though the present and prognosticated
acquisitions promise a considerable leap in capabilities, they have been conceived of as incremental and marginal improvements rather than as the harbingers of a renewal of security strategy. While such a posture will suffice over the short run its long term success is in serious doubt. The urgency of upgrading and planned expansion of Pakistan Navy cannot be over-emphasised given the fact that India's posture towards Pakistan remains hostile and Indian naval buildup shows no sign of slowing down. While acquisition of ships and submarines from abroad is inevitable, Pakistan ought to concretise indigenous construction of surface warships and submarines etc. A sustained modernisation, with foreign collaboration if necessary, is thus vitally necessary. To urge this preparation is not to urge a preparation for war. Rather, it is to assert the conclusion that if Pakistan fails to put itself in a position from whence it can secure its integrity, it will soon be beyond its power to do so.

11. In the final analysis, following areas need to be seriously addressed to meet our economic and security objectives and enhance our maritime capability.

a. Restructuring of Economy. A need for a sound economic base cannot be over-emphasised, Pakistan should devise a strategy which places minimum reliance on external sources. In long run, we must maximize the exploitation of domestic resources, specially oil, gas and hydro-electricity to achieve self-reliance.

b. Exploitation of Maritime Potential. A special and serious effort has to be made to exploit our maritime potential to uplift economy. This includes:

(1) Exploring our EEZ resources in area which measures one hundred thousand square miles which is rich in food and mineral resources is urgently required to be accentuated.


144 Ibid.
(2) Construction of a commercial port at Gawadar – With its location at the mouth of the Arabian Gulf, and its vast hinterland, it is ideally suited for its development into an international port.

(3) We should enhance the size of our merchant fleet to meet at least forty percent of sea trade needs, while ensuring that oil and coastal trade is exclusively handled by our own vessels.

c. **Demarcation of EEZ.** Clash of interests in exploitation of EEZ are going to be rife in near future; particularly in our region as the littoral countries acquire technologies and expertise to exploit the same. Our EEZ boundary in the west is already in dispute in Sir Creek. There is immediate need to finalise this with India in particular and Iran and Oman in general.

d. **Normalisation of Internal Turmoil in Afghanistan.** Vast economic and industrial potential of the Central Asian States can only be profited from, if Pakistan succeeds in managing a natural down flow of their goods and raw material to the Arabian Sea. Normalisation of internal turmoil in Afghanistan is most essential in this regard. It is our economic imperative to broker a lasting peace and stability in Afghanistan and build a modern infrastructure for promoting trade with Central Asian States.

e. **Industrial Base** Besides, planned acquisition of ships and submarines from abroad to strengthen the Pakistan Navy, a viable industrial base should be established to promote indigenisation. This would require involvement of private sector in defence production, training of scientists and engineers abroad, and transfer of technology. In order to keep up with the ever changing technology in the field of weapons, and weapon-systems, there is a dire need to establish R&D facilities to support our indigenous programme.
Strong and Viable Navy. It is perinent to note that over 90 percent of Pakistan's total trade is through sea and disruption of trade through sea even for a short duration would bring the country to the brink of insolvency. For a nation with high stakes in sea borne trade, the naval component of national defence assumes vital importance. A balanced, strong and viable navy capable of deterring maritime coercion and to contest acts of aggression at sea is compulsive need from economic and security perspectives.
APPENDIX I

THE REGION

INDIAN OCEAN

MALDIVES IS

DIEGO GARCI
APPENDIX II

PROPULSION SYSTEMS

A TYPICAL STEAM ENGINE CONFIGURATION

COGOG ARRANGEMENT IN TYPE 21 FRIGATES OF PAKISTAN NAVY

A TYPICAL CODAG ARRANGEMENT
A TYPICAL CODOG ARRANGEMENT IN 'M' CLASS FRIGATES OF DUTCH NAVY

CODLAG ARRANGEMENT IN TYPE 23 FRIGATES OF ROYL NAVY
APPENDIX III
TYPES OF WARSHIPS

VIRGINIA CLASS CGN 11300 TONS

ARLEIGH BURKE CLASS DDG-AEGIS 8400 TONS

OLIVER HAZARD PERRY CLASS FFG 4100 TONS

NANUCHKA I.I.I CLASS MISSILE CORVETTE 660 TONS

HAINAN CLASS FAST ATTACK CRAFT 392 TONS
## APPENDIX IV

### ANTI SHIP MISSILES (ASMs)

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>MISSILE</th>
<th>GUIDANCE</th>
<th>RANGE</th>
<th>SPEED</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHINA</td>
<td>FL-1/2/7/SY-2</td>
<td>Auto pilot+ Active radar</td>
<td>40/50/30 KMs</td>
<td>Mach 0.9/0.9/1.4</td>
</tr>
<tr>
<td></td>
<td>HY-3/C-101/C-301</td>
<td>Inertial+ Active radar</td>
<td>100/50 KMs</td>
<td>N/K</td>
</tr>
<tr>
<td></td>
<td>HY-4/C-201</td>
<td>Auto pilot+ Active radar</td>
<td>150 KMs</td>
<td>Mach 0.9</td>
</tr>
<tr>
<td></td>
<td>SY-1/HY-1/HY-2</td>
<td>Active radar</td>
<td>20-40/20-50 KMs</td>
<td>Mach 0.92/0.9</td>
</tr>
<tr>
<td></td>
<td>YJ-1/2(C-801/802)</td>
<td>Radar seeker</td>
<td>8-40/15-120 KMs</td>
<td>Mach 0.9</td>
</tr>
<tr>
<td>CIS</td>
<td>SS-N-2 'STYX'</td>
<td>Auto pilot+ Active radar</td>
<td>5.5-85 KMs</td>
<td>Mach 0.9</td>
</tr>
<tr>
<td></td>
<td>(P-15/20/21/22)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>SS-N-3a/c</td>
<td>Auto pilot+ Active radar</td>
<td>460 KM theoretical Mach 0.9-1.4</td>
<td>278 KM (practical)</td>
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<td>SHADDocks</td>
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<td>(P-6/7)</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>SS-N-3b ST.PAL</td>
<td>Auto pilot+ Active radar</td>
<td>64 KMs</td>
<td>Mach 0.9</td>
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<td>(P-35)</td>
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<tr>
<td></td>
<td>SS-N-7</td>
<td>STARBRIGHT</td>
<td>70-110 KMs</td>
<td>Mach 0.9</td>
</tr>
<tr>
<td></td>
<td>SS-N-9 'SIREN'</td>
<td>Auto pilot+ Active radar</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SS-N-12 'SANDBOX'</td>
<td>Inertial+ Active radar</td>
<td>550 KMs</td>
<td>Mach 1.7</td>
</tr>
<tr>
<td></td>
<td>SS-N-19</td>
<td>SHIPWRECK</td>
<td>550 KMs</td>
<td>Mach 1.6</td>
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<tr>
<td></td>
<td>SS-N-21 'SAMPSON'</td>
<td>Inertial+ Terrain matching</td>
<td>3000 KMs</td>
<td>Mach 0.7</td>
</tr>
<tr>
<td></td>
<td>SS-N-22 'SUNBURN'</td>
<td>Inertial+ Active radar</td>
<td>110 KMs</td>
<td>Mach 2.5</td>
</tr>
<tr>
<td></td>
<td>KENNEL AS-1</td>
<td>Beam riding/ radiot+passive/ active radar</td>
<td>c90 KMs</td>
<td>Mach 0.9</td>
</tr>
<tr>
<td>Country</td>
<td>Weapon</td>
<td>Guidance System</td>
<td>Range</td>
<td>Speed</td>
</tr>
<tr>
<td>----------</td>
<td>-------------------</td>
<td>-------------------------</td>
<td>--------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Germany</td>
<td>KORMORAN</td>
<td>Inertial/active-passive radar</td>
<td>c20 NM</td>
<td>Mach 0.9</td>
</tr>
<tr>
<td>Israel</td>
<td>GABRIEL/HSIUNGFENG/SKORPIOEN</td>
<td>Semiactive/Active radar+Inertial</td>
<td>20/36/160KMs</td>
<td>Mach 0.7/0.7/0.9</td>
</tr>
<tr>
<td>Italy</td>
<td>SEA KILLER</td>
<td>Inertial+active radar</td>
<td>25 KMs</td>
<td>Mach 0.9</td>
</tr>
<tr>
<td>Country</td>
<td>Missile Name</td>
<td>Guidance System</td>
<td>Range (KMs)</td>
<td>Velocity</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------</td>
<td>-----------------</td>
<td>-------------</td>
<td>----------</td>
</tr>
<tr>
<td>OTOMAT</td>
<td></td>
<td>Inertial+ Active radar</td>
<td>60-160</td>
<td>N/K</td>
</tr>
<tr>
<td>SEA KILLER 2</td>
<td>Beam rider/ radio command +optical radio</td>
<td></td>
<td>25</td>
<td>-</td>
</tr>
<tr>
<td>SEA KILLER 3</td>
<td>Auto pilot + active radar</td>
<td></td>
<td>45+</td>
<td>Mach 0.82</td>
</tr>
<tr>
<td>JAPAN</td>
<td>X-ASM 1</td>
<td>Inertial + active radar</td>
<td>c50</td>
<td>c Mach 1</td>
</tr>
<tr>
<td>NATO</td>
<td>ASSM</td>
<td>Inertial + active radar/IR</td>
<td>c180</td>
<td>Mach 2</td>
</tr>
<tr>
<td>NORWAY</td>
<td>PENGUIN/NSM</td>
<td>Inertial+ Passive IR</td>
<td>2.5-27</td>
<td>Mach 0.7</td>
</tr>
<tr>
<td>UK</td>
<td>SEA EAGLE SL</td>
<td>Active radar</td>
<td>130</td>
<td>Mach 1</td>
</tr>
<tr>
<td>USA</td>
<td>SEA SKUA SL</td>
<td>Semi active</td>
<td>15</td>
<td>Mach 0.85</td>
</tr>
<tr>
<td>RBS 17</td>
<td>HELLFIRE (AGM-114B)</td>
<td>Semi active laser</td>
<td>10</td>
<td>Mach 1</td>
</tr>
<tr>
<td></td>
<td>RGM/ UGM-109B/C TOMAHAWK</td>
<td>Inertial</td>
<td>460/1300</td>
<td>Mach 0.75</td>
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<tr>
<td>RGM-84A/ UGM-84A HARPOON</td>
<td>Inertial+ Active radar</td>
<td></td>
<td>92</td>
<td>Mach 0.85</td>
</tr>
<tr>
<td>BULLPUP</td>
<td></td>
<td>Radio command</td>
<td>11-17</td>
<td>Mach 1.8-2</td>
</tr>
<tr>
<td>HARM</td>
<td></td>
<td>Passive homing</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ISSSMID</td>
<td></td>
<td>Electro-optical</td>
<td>c113</td>
<td>c Mach 0.85</td>
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<tr>
<td>SEA SPARROW</td>
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<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SHRIKE</td>
<td></td>
<td>Passive homing</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>STANDARD</td>
<td></td>
<td>Passive radar</td>
<td>25</td>
<td>Mach 2+</td>
</tr>
<tr>
<td>WALLEYE</td>
<td></td>
<td>Optical/imaging IR</td>
<td></td>
<td>-</td>
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</table>

Source: Jane's Weapon Systems, 1993-94
## APPENDIX V

### SURFACE TO AIR MISSILES (SAMs)

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>MISSILE</th>
<th>TYPE</th>
<th>GUIDANCE</th>
<th>RANGE</th>
<th>SPEED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHINA</strong></td>
<td>SD-1(CSA-NX-2)</td>
<td>Point Defence</td>
<td>Command+ Active Radar</td>
<td>2.5-12 KMs</td>
<td>Mach 3</td>
</tr>
<tr>
<td></td>
<td>PL-9N</td>
<td></td>
<td>Infra Red</td>
<td>5 KMs</td>
<td>N/K</td>
</tr>
<tr>
<td><strong>CIS</strong></td>
<td>M-1 VOLGA/SAN-1 'GOA'</td>
<td>Local Area Defence</td>
<td>Radar Command 6-31.5 KMs</td>
<td>Mach 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SA-N-3 'GOBLET'</td>
<td>Area Defence</td>
<td>Semi Active</td>
<td>30 KMs</td>
<td>Mach 2.5</td>
</tr>
<tr>
<td></td>
<td>SA-N-4 'GECKO'</td>
<td>Point Defence</td>
<td>Semi Active</td>
<td>14.8 KMs</td>
<td>Mach 2.5</td>
</tr>
<tr>
<td></td>
<td>SA-N-5 'GRAIL'</td>
<td>-</td>
<td>Infra Red</td>
<td>5.5-6 KMs</td>
<td>Mach 1.7</td>
</tr>
<tr>
<td></td>
<td>SA-N-6 'GRUMBLE'</td>
<td>Area Defence</td>
<td>Command+ Inertial+ Semi Active Radar</td>
<td>90 KMs; 25 KMs</td>
<td>Mach 3</td>
</tr>
<tr>
<td></td>
<td>SA-N-7 'GADFLY'</td>
<td>Local Area Defence</td>
<td>Semi Active Radar</td>
<td>3.5-25 KMs</td>
<td>Mach 3</td>
</tr>
<tr>
<td></td>
<td>SA -N-9</td>
<td>Point Defence</td>
<td>Command</td>
<td>1.5-12 KMs</td>
<td>Mach 2.5</td>
</tr>
<tr>
<td><strong>FRANCE</strong></td>
<td>CROTALE</td>
<td>Point Defence</td>
<td>Auto Pilot+ Infra Red</td>
<td>700 m - 13 KMs</td>
<td>Mach 2.5</td>
</tr>
<tr>
<td><strong>INTERNATIONAL</strong></td>
<td>MASURCA Mk 2</td>
<td>Area Defence</td>
<td>Active Radar</td>
<td>55 KMs</td>
<td>Mach 3</td>
</tr>
<tr>
<td></td>
<td>MISTRAL RIM-7</td>
<td>Point Defence</td>
<td>Infra Red</td>
<td>700 m-5 KMs</td>
<td>Mach-2.5</td>
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<tr>
<td></td>
<td>SEASPARROW/ MARK 57 NSSMS, PIPMS, EDPMS, AN/ $S$WY-1(V) SDSMS</td>
<td>-</td>
<td>Semi Active</td>
<td>14.5 KMs</td>
<td>Mach 1</td>
</tr>
<tr>
<td>Country</td>
<td>System</td>
<td>Type</td>
<td>Mode</td>
<td>Range (KMs)</td>
<td>Mach</td>
</tr>
<tr>
<td>---------</td>
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<td>------</td>
<td>------</td>
<td>-------------</td>
<td>-------</td>
</tr>
<tr>
<td>ISRAEL</td>
<td>BARA'C-1</td>
<td>Point Defence</td>
<td>CLOS</td>
<td>500-12</td>
<td>Mach 2</td>
</tr>
<tr>
<td>ITALY</td>
<td>ASPIDE/ALBATROS</td>
<td>Point Defence</td>
<td>Semi Active</td>
<td>13</td>
<td>Mach 2.5</td>
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<tr>
<td>SWEDEN</td>
<td>RBS 70/90</td>
<td>-</td>
<td>Laser Beam Riding</td>
<td>200-6</td>
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<td>UK</td>
<td>SEACAT</td>
<td>-</td>
<td>Close Circuit TV</td>
<td>5</td>
<td>Mach 0.8</td>
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<tr>
<td></td>
<td>SEA DART (GWS 30)</td>
<td>Area Defence</td>
<td>Semi Active</td>
<td>40</td>
<td>Mach 3.5</td>
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<td></td>
<td>SEASTREAK</td>
<td>-</td>
<td>Laser/Semi Active</td>
<td>300-7</td>
<td>Mach 4.5</td>
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<tr>
<td></td>
<td>BLOWPIPE/JAVELIN/STARBURST</td>
<td>-</td>
<td>CLOS/SACLOS/700-3500 m/ Laser Beam Rider 300-4500 m/ 300-4500 m</td>
<td>-</td>
<td>DMach 1</td>
</tr>
<tr>
<td></td>
<td>SEAWOLF (GWS 25/26)</td>
<td>Area Defence</td>
<td>CLOS</td>
<td>5-6</td>
<td>Mach 2+</td>
</tr>
<tr>
<td>USA</td>
<td>FIM-92 STINGER</td>
<td>-</td>
<td>Infra Red</td>
<td>-</td>
<td>-</td>
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<tr>
<td></td>
<td>RIM-66/67 SM 1/2</td>
<td>Area Defence</td>
<td>Semi Active</td>
<td>38-60/70-120</td>
<td>Mach 2/2</td>
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<tr>
<td></td>
<td>RIM-116A RAM</td>
<td>-</td>
<td>Infra Red/RF Seeker</td>
<td>9.6</td>
<td>N/K</td>
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<td></td>
<td>RIM-72 SEA CHAPARRAL</td>
<td>Point Defence</td>
<td>Infra Red</td>
<td>3</td>
<td>Supersonic</td>
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</table>

Source: Jane's Weapon Systems 1993-94
# APPENDIX VI

## CLOSE IN WEAPON SYSTEMS

<table>
<thead>
<tr>
<th>Cannon</th>
<th>DARDO</th>
<th>TWIN 30</th>
<th>GOALKEEPER</th>
<th>MEROKA</th>
<th>PHALANX</th>
<th>SEA DRAGON</th>
<th>SEAGUARD</th>
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<tbody>
<tr>
<td>Calibre (mm)</td>
<td>40</td>
<td>30</td>
<td>30</td>
<td>20</td>
<td>20</td>
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<td>Barrel Length (Cal)</td>
<td>70</td>
<td>-</td>
<td>-</td>
<td>120</td>
<td>-</td>
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<td>92</td>
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<tr>
<td>No Barrels</td>
<td>2</td>
<td>2</td>
<td>7</td>
<td>12</td>
<td>6</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Rate of fire (rpm/barrel)</td>
<td>300</td>
<td>800</td>
<td>600</td>
<td>750</td>
<td>500</td>
<td>600</td>
<td>800</td>
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<tr>
<td>Muzzlevel (m/s)</td>
<td>1,000</td>
<td>1,040</td>
<td>1,021</td>
<td>1,015</td>
<td>1,036</td>
<td>1,150</td>
<td>1,470</td>
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<tr>
<td>Theoretical Range (m)</td>
<td>12,500</td>
<td>-</td>
<td>-</td>
<td>2,000+</td>
<td>1,486</td>
<td>-</td>
<td>2,000</td>
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<tr>
<td>Wgt Empty (kg)</td>
<td>5,200</td>
<td>-</td>
<td>3,039</td>
<td>-</td>
<td>-</td>
<td>5,392</td>
<td>4,500</td>
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<tr>
<td>Wgt Loaded (kg)</td>
<td>7,000</td>
<td>-</td>
<td>6,370</td>
<td>4,500</td>
<td>-</td>
<td>8,334</td>
<td>5,550</td>
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<td>Training velocity (cad/s)</td>
<td>1.57</td>
<td>1.74</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>1.6</td>
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<tr>
<td>Elevation velocity (rad/s)</td>
<td>1.04</td>
<td>1.3</td>
<td>-</td>
<td>1.5</td>
<td>-</td>
<td>1.6</td>
<td>2</td>
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<tr>
<td>Training acceleration (rad/s²)</td>
<td>2</td>
<td>2.6</td>
<td>-</td>
<td>4</td>
<td>-</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Elevation acceleration (rad/s²)</td>
<td>2</td>
<td>1.74</td>
<td>-</td>
<td>4</td>
<td>-</td>
<td>8.5</td>
<td>10</td>
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<td>Ammunition</td>
<td>PPF</td>
<td>APDS</td>
<td>APDS</td>
<td>HE</td>
<td>ADPS</td>
<td>MPDS</td>
<td>APDS</td>
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<tr>
<td>Mounting</td>
<td>Breda</td>
<td>3reda</td>
<td>General Electric</td>
<td>CETME</td>
<td>General</td>
<td>Vickers</td>
<td>Oerlikon</td>
</tr>
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Source: Navy International, January 1984, p.47

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APPENDIX VII

STATISTICS - SELECTED NAVIES OF THE REGION

Saudi Arabian Navy

PERSONNEL: 11,400 (Including 1,200 Marines).

BASES:
Riyadh (HQ Naval Forces). Western Fleet,
Jeddah (HQ), Yanbu, Eastern Fleet: Al-Jubayl (HQ),
Ad-Dammam, Ras al Mishab, Ras al Ghar.

PRINCIPAL SURFACE COMBATANTS: 8
FRIGATES: 4
4 Madina (French FFG.2000) with 4 x 533 mm TT, helicopter (AS 15 ASM),
plus 2x4 Otomat-2 SSM, 1x100 mm gun.

CORVETTES: 4
4 Badr (US Tacoma) (ASUW) with 2 x 4 Harpoon SSM, 2x3 ASTT (Mk 46
LWT).

PATROL AND COASTAL COMBATANTS: 69
MISSILE CRAFT: 9 As Siddiq (US 58 m) FAC(Missile) with 2x2
Harpoon SSM.

PATROL CRAFT: 60
3 Dammam (German Jaguar) FAC(Torpedo) with 4x533mm TT (training,
including 1 in reserve).
17 US Halter Marine CPC(some with coast guard).
40 French Simmonneau 51 Type PCI

MINE WARFARE: 6
2 Al Jawf (UK Sandown) MH (Coastal).
4 Addriyah (US MSC-322) MSC.

AMPHIBIOUS: 8
4 LCU and 4 LCM

SUPPORT AND MISCELLANEOUS: 7
2 Boraida (Modified French Durance) AOR with 1 or 2 helicopters, 3 ocean
tugs, 1 salvage tug. 1 Royal Y: clt with helicopter deck.
NAVAL AVIATION:
HELICOPTERS: 24 AS-365N/F, (4 SAR, 20 with AS-15TT ASM),
21 Super Puma some with AM-39 Exocet.

MARINES: (1,200): 1 regiment (2 battalion), with 140 BMR 600P.

Omani Navy

PERSONNEL: 3,600

BASES:
Seeb (HQ), Wudam (main base), Rayut, Ghanam Island, Alwi.

PATROL AND COASTAL COMBATANTS: 12
MISSILE CRAFT: 4 D’ofar FAC (Missile), 1 with 2x3 MM-40, 3 with
2x4 MM-40 Exocet SSM.

PATROL CRAFT: 9
4 Al Wafi (Brooke-Marine 37m) FAC(Gun),
4 Seeb (Vosper 25m) PCI.
1 Tyler-Vortex Type PCI

AMPHIBIOUS: 2
1 Nasr el Bahr LSL, capacity 240 troops, 7 tanks, helicopter deck
(effectively in reserve).
1 Al Munassir LSL, capacity 200 troops, 8 tanks, helicopter deck (non-
operational, harbour training).
Plus craft: 3 LCM, 1 LCU

SUPPORT: 2
1 supply and 1 training with helicopter deck (At Mabvuleak).

United Arab Emirates Navy

PERSONNEL: 2,000

BASES:
Abu Dhabi: Dalma, Mina Zayed.
Ajman.
Dubai: Mina Rashid, Mina Jabal Ali, Fujairah.
Ras al Khaimah: Mina Sakr.
Sharjah: Taweela (mainbase), Mina Khalid, Khor Fakkan.
PRINCIPAL SURFACE COMBATANTS: 2
CORVETTES: 2 Muray Jip (German Lurssen 62m) with 2x2
MM-40 Exocet SSM, plus 1 SA-316 helicopter.

PATROL AND COASTAL COMBATANTS: 17
MISSILE CRAFT: 8
6 Ban Yas (German Lurssen TNC-45) with 2 x 2 MM-40 Exocet SSM.
2 Mubarratz (German Lurssen 50m) with 2 x 2 MM-40 Exocet SSM, plus 1
x 6 Sadral SAM.
PATROL CRAFT: 9
6 Ardhana (UK Vosper 33m) LPC.
3 Kawkab PCI.

AMPHIBIOUS: 4
3 Jananah LCT, and 1 LCM

SUPPORT AND MISCELLANEOUS: 4
1 diving support, 2 logistics support and 1 tug.

NAVAL AVIATION:
6 Alouettes SA 316/319S, 6 Cougar AS 535 ASV and 2 Defender aircraft
for surveillance.

Qatari Navy

PERSONNEL: 850 (Including Marine Police)

BASE
Doha and second base at Halul Island.

PATROL AND COASTAL COMBATANTS: 40
MISSILE CRAFT: 3 Damsah (French Combattante I/I) FAC (Missile)
with 2 x 4 MM-40 Exocet SSM.
PATROL CRAFT: 37
6 Barzan (UK 33m) PCI
6 Damen Polycat 1450 class LPC
25 Failey Marine Spear Class CPC

AMPHIBIOUS: 1
1 Rabha LCT

COAST DEFENCE: 4 x 4 MM-40 Exocet batteries.
Kuwaiti Navy

PERSONNEL: 1,200 (Including Coast Guard).

BASE:
Ras al Qalaya.

PATROL AND COASTAL COMBATANTS: 6
MISSILE CRAFT: 2
1 Istiqqlal (German Lurssen FPB-57) FAC (Missile) with 2 x MM-40 Exocet SSM.
1 Al Saoubouk (German Lurssen TNC-45) FAC (Missile) with 2 x MM-40 Exocet SSM.

PATROL CRAFT: 4
4 Inttisar (Aist 31.5m) LPC.
Plus 52 PCI.

Bahrain Navy

PERSONNEL: 650

BASE:
Mina Suleman.

PATROL AND COASTAL COMBATANTS: 12
MISSILE CRAFT: 8
2 Al Manama (German Lurssen 62m) with 2 x 2 MM-40 Exocet SSM,
1xDauphin II helicopter (AS-15 ASM) FAC (Missile)
6 Ahmad el Fateh (German Lurssen 45m) FAC (Missile) with 2 x 2 MM-40 Exocet SSM.

PATROL CRAFT: 4
2 Al Riffa (German Lurssen 38-m) FAC (Gun),
2 Al-Jarim (USA, Swift FBO Type 20) FAC (Gun).

SUPPORT AND MISCELLANEOUS:
4Ajeera LCU type support ships.

Iranian Navy

PERSONNEL: 18,000 (Including: 2000 Naval Aviation and Marines).
BASES:
Bandar Abbas (HQ), Bushehr, Kharg, Bandar-e-Anzelli, Bandar-e-Khomeini, Chah Bahar

SUBMARINES: 2
2 Soviet Kilo SSK with 6 x 533mm TT.
Plus 9 North Korean Midget Submarines.

PRINCIPAL SURFACE COMBATANTS: 8
DESTROYERS: 3
1 Damavand (UK Battle) with 4 x 2 SM-1 SSM (boxed), 2 x 2 114mm guns, plus 1 x 3 AS mortar.
2 Babr (US Summer) with 4 x 2 SM-1 SSM (boxed), 2 x 2 127mm guns, plus 2 x 3 ASTT.
FRIGATES: 3
3 Alvand (UK Vosper Mk 5) with 1 x 5 Sea Killer SSM, 1 x 3 AS mortar, 1 x 114mm gun.
CORVETTES: 2
2 Bayandor (US PF-103) 2 US 3 inch/50 MK 34, 2 Bofor 40/60(twin), 2 Oerlikon 20mm.

PATROL AND COASTAL COMBATANTS: 34
MISSILE CRAFT: 11
10 Kaman (French Combattante II) FAC (Missile), some fitted for 4 Harpoon SSM.
1 ex Iraqi OSA II FAC (Missile)

PATROL CRAFT: 23
3 Kaivan, 3 Parvin LPC, 1 ex-Iraqi Bogomol LPC, 3 N. Korean Chaho FAC (Gun) Plus 161 Coastal Patrol Crafts.

MINE WARFARE: 5
3 Shahrokh MSC (including 1 in Caspian Sea training),
2 Riazi (US Cape) MSI.
Plus 2 Iran AJR LST used for mine laying

AMPHIBIOUS: 13
4 Hengam LSL, capacity 225 troops, 9 tanks, 1 helicopter.
3 Iran Hormuz 24 (S.Korean) LST, capacity 140 troops, 8 tanks.
2 Iran AJR LST.
1 MIG-S-3700 CLASS LCT
3 Iran Harmu 3-21 LCT

SUPPORT AND MISCELLANEOUS: 28
1 Kharg AOR with 2 helicopters, 2 Bandar Abbas AOE with 1 helicopter,
1 repair ship, 4 water tankers, 7 Delvar, about 13 Hendijan support vessels
**MARINES:** 3 battalions

**NAVAL AVIATION:**
*ASW:* 1 helicopter squadron with 6 ASH-3D, 7Agusta AB204 ASW.
*MCM:* 1 helicopter squadron with 2 RH-53D.
*MR:* 2-P3F Orion and 5 Lockheed C-130

**Iraqi Navy**

**PERSONNEL:** 2,000

**BASES:**
Basra (limited facilities), Az Zubayr, Umm Qasr (currently closed).

**PRINCIPAL SURFACE COMBATANTS:** 3

**FRIGATES:** 1: Ibn Marjid (ex-Khaldoum) Yugoslav Type(training) with 2 x ASTT 1 Bofors 57mm and can carry 4 Exocets.

**CORVETTES:** 2
2 Assad Class, 2 OTO Melara 1 Matra Omat SSM, 6 Aspide SAM, 1 OTO Melara Gun 3 inch

**PATROL AND COASTAL COMBATANTS:** 12

**MISSILE CRAFT:** 1 Soviet Osa-I with 4 SS-N-2A Styx SSM.

**PATROL CRAFT:** 13
1 Soviet Poluchat 1 Class LPC
1 Soviet Bogomol LPC plus 8 CPC hovercraft, plus boats.

**MINE WARFARE:** 5
2 Soviet Yevgenya MH (Inshore)
3 Yugoslav Nestor MSI.

**SUPPORT AND MISCELLANEOUS:** 5
1 Aka (Yugoslav Spasilac-class) ARS.
1 Agnadeen (Itlay Stromboli) AOR lid-up in Alexandria.
Plus 1 Yacht, 1 Fire boat and 1 Diving tender.
Yemeni Navy

PERSONNEL: 2500 (including 500 Marines)

BASES:
Aden and Hodeida

FACILITIES
Perim Island, Al Mukalla and Socotra.

PRINCIPAL SURFACE COMBATANT: 2
CORVETTES: 2 Tarantul-I with 1 x2 SA-N-4, 2 x12 ASW Rocket Launchers; plus 2 x 2 76mm gun.

PATROL AND COASTAL COMBATANTS: 12
MISSILE CRAFT: 5 Soviet Osa-II with 4 x SSN-2B Styx SSM
FAC (Missile)
PATROL CRAFT: 7
3 Sana'a (US Broadsord 32m) PCI,
4 Soviet Zhuk. FAC (Gun)

MINE COUNTERMEASURES: 9
2 Soviet Natya MSO.
1 Soviet Sonya MSC.
6 Soviet Yevgenya MHI.

AMPHIBIOUS CRAFT: 6
1 Soviet Polnocny LCT, capacity 100 troops, 5 tanks.
2 Soviet Ondatra LCU, plus 2 LCVP.
1 Polish ROPUCHKA 1 CLASS LST.
2 Ondatra Class LCU plus 2 LCVP

SUPPORT AND MISCELLANEOUS: 2 small tankers (1,300 tons).

Israeli Navy

PERSONNEL: 6,600 and additional 4,000 Reserves are available for mobilisation.

BASES:
Haifa, Ashdod, Eilat.

SUBMARINES: 3
3 Gal Type 540 (UK Vickers) SSK with Mk 37 HWT, Harpoon USGW.

PRINCIPAL SURFACE COMBATANT: 2

CORVETTES: 2
2 Eilat (SAAR 5 class), 8 Harpoons, SSM, 2 Barak 1 (2x32 cells) 3 inch OTO Melara Gun, 6 Torpedos (2x3 TT) LWT MK 46

PATROL AND COASTAL COMBATANTS: 63
MISSILE CRAFT: 19 FAC (Missile)
2 Aliya with 4 Harpoon, 4 Gabriel SSM, 1 SA-366G Dauphine helicopter (OTHT).
2 Romat with 8 Harpoon, 8 Gabriel.
1 Hetz with 8 Harpoon, 6 Gabriel and Barak VLS.
8 Reshef with 2-4 Harpoon, 4-6 Gabriel,
6 Mivtach/ Sa'ar with 2-4 Harpoon, 3-5 Gabriel

PATROL CRAFT: 34
About 34 Super Dvora and Dabur some with 2 x 324mm TT, FAC (Gun), plus 2 Hovercraft.

AMPHIBIOUS CRAFT: 5
1 Bai Sheva AP.
3 Ashdod LCT
1 US type LCP.

NAVAL AVIATION:
MR: 4 Hawkeye E-2C & 3 Sea Scan 1A1-1124.

MARINES: Naval commandoes: 300

Indian Navy

PERSONNEL: 55,000, (Including: 5,000 Naval Aviation)

PRINCIPAL COMMANDS: Western, Eastern, Southern.
Sub-Commands: Submarine, Naval Air.

BASES:
Bombay (HQ Western Cmd), Goa (HQ Naval Air), Lakshadweep (Laccadive Is), Karwar (under construction); Cochin (HQ Southern Cmd),
Visakhapatnam (HQ Eastern and Submarines), Calcutta, Madras, Port Blair (Andaman Is), Arakonam (Naval Air).

**FLEETS:** Western (based Bombay), Eastern (based Visakhapatnam).

**SUBMARINES:** 18
8 Sindhughosh (Soviet Kilo) SSK with 533mm TT.
4 Shishumar (German T-209/1500) SS with 533mm TT.
6 Kursura (Soviet Foxtrot) SS with 533mm TT training. (Plus 2 non-op).
(Three of these are operational, at any one time)

**PRINCIPAL SURFACE COMBATANTS:** 40
**CARRIERS:** 2
1 Virat (UK Hermes) (29,000t) CVV.
1 Vikrant (UK Hercules) (19,800t) CVV.
Air group typically:
Aircraft: 8 Sea Harrier fighter/attack.
Helicopter: 6 Sea King ASW/ASUW (Sea Eagle ASM).

**DESTROYERS:** 5
5 Rajput (Soviet Kashin) DDG with 2xSea King helicopter, 2x3 SA-N-1
goal ASW Rocket Launcher 1 Ka-25 or 27 helicopter (ASW).
3 Delhi Class DDG (To be commissioned in 1995/98 & 2000)

**FRIGATES:** 14
3 Godavari FF with 2 x Sea King helicopter, 2 x 3 324mm ASTT; plus 4 x
SS-N-2C Styx SSM and 1 x 2 SA-N-4 SAM.
6 Nilgiri (UK Leander) with 2x3 ASTT, 4 with 1x3 Limbo ASW mortar, 1
Chetak helicopter, 2 with 1 Sea King helicopter, 1x2 ASW Rocket
Launcher, plus 2x114mm guns.
5 Kamorta (Soviet Petya) with ASW RL, 3x533mm TT.
Additional in store: some 2 ex-UK FF and 4 Kamorta FF.

**CORVETTES:** 19
4 Khukri (ASUW) with 2 or 4 SS-N 2C (Styx), helicopter deck.
3 Vijay Durg (Soviet Nanuchka II) with 4xSS-N-2B Styx SSM.
8 Veer (Soviet Tarantul) with 4 x Styx SSM.
4 Abhay (Soviet Pauk-II) (ASW) with 4 x ASTT, 2 x ASW mortar.

**PATROL AND COASTAL COMBATANTS:** 27
**MISSILE CRAFT:** 8 Prachand (Soviet Osa II) with 4 x Styx. FAC
(Missile)

**PATROL CRAFT:** 19
7 Sukanya Offshore Patrol Ships
12 SDB Mk 2/3. FAC (Patrol)

**MINE WARFARE:** 22
**MINELAYERS:** None, but Komorta FF and Pondicherry MSO have
minelaying capability.
MINE COUNTERMEASURES: 22
12 Pondicherry (Soviet Natya) MSO.
4 Bulsar (UK 'Ham') MSI.
6 Mahe (Soviet Yevgenya) MSI.

AMPHIBIOUS: 13
2 Magar LST, capacity 200 troops, 12 tanks, 1 helicopter.
8 Ghorpad (Soviet Polnocny C) LSM, capacity 140 troops, 6 tanks.
3 Vasco da Gama LCU.

SUPPORT AND MISCELLANEOUS: 32
2 Deepak AOR, 1 Amba (Soviet Ugra) submarine tender, 1 diving support,
ship, 2 ocean tugs, 5 Support Tankers AOS, 6 Sandhayak and 4 Makar
AGS, 1 Tir training, 3 water carriers, 3 Torpedo Recovery Vessels, 1
Hospital Ship and 3 Diving Tenders

NAVAL AVIATION
ATTACK: 1 squadron with 21 Sea Harrier FRS Mk-51 & 3 T Mk-60
(Training), 12 SEPECAT/FAL JAGUARS
ASW: 6 helicopter squadron with 9 Chetak, 18 Ka-25, 24 Sea King Mk
42B/C.
MR: 3 squadron with 5 IL-38, 8 Tu-142M Bear F, 34 Do-228,
18 BN-2 Defender.
COMMUNICATIONS: 1 squadron with 5 BN-2 Islander, 2
Do-228 aircraft.
SAR: 1 helicopter squadron with 7 Sea King Mk 42A.

MISSILES:
AAM: R-550 Magic I and II.
ASM: Sea Eagle, Sea Skua.
MARINES: (1,000)
1 regiment (2nd forming).

Pakistan Navy

Personnel: 22,000 (including: Naval Air and Maritime Security Agency).

BASE:
Karachi (Fleet HQ).

SUBMARINES: 6
2 Hashmat (French Agosta) with 533mm TT (F-17 HWT), and Sub-
Harpoon USGW
4 Hangor (French Daphne) with 533mm TT (L-5 HWT), and Sub-Harpoon USGW. 
Plus 3 SX-756 Midget Submarines

**PRINCIPAL SURFACE COMBATANTS:** 11

**DESTROYERS:** 3
3 Alamgir (US Gearing) (ASW) with 1x8 ASROC, plus 2x3 ASTT, 2x2 
127mm guns, 3x2 Harpoon SSM and helicopter deck.

**FRIGATES:** 8
6 Tariq (UK Amazon Type-21) with SA-319B/Lynx helicopter, plus 4 x 
MM-38 Exocet, 1 x 114mm gun.
2 Shamshir (UK Leander) with SA-319B helicopter, 1 x 3 AW mortar, 
plus 2 x 114mm guns.

**PATROL AND COASTAL COMBATANTS:** 12

**MISSILE CRAFT:** 8
4 China Hungfeng with 4 x Hai Ying 2 SSM, FAC (Missile)
4 China Hengu, with 2 x Ha' Ying 2. FAC (Missile)

**PATROL CRAFT:** 4
3 (China Shanghai) II) FAC (Gun)
1 Rajshahi LPC

**MINE WARFARE:** 9
1 Munsif (French Eridan) MH (Coastal),
2 Mahmood (US-MSC 268) MSC.
6 Mine Sweeper Inshore

**SUPPORT AND MISCELLANEOUS:** 6
1 Nasr (China Fujing) AOR, 1 Dacca AOR, 1 Moawin AOR (Ex Netherland
Polster) and 3 Support Tanker AOS.

**NAVAL AVIATION:**
10 combat aircraft Mirage 5 ASV (operated by Air Force)
**ASW/MR** 1 squadron with 4 Atlantic.
**ASV/ASW/SAR:** 2 helicopter squadron: 1 with 6 SA-319B (ASW), 6 Sea
King Mk 45 (ASW) and 3 Lynx .

**COMMUNICATIONS:** 5 Fokker F-27 aircraft.

**MISSELS**
**ASM:** Exocet AM-39.

**Sources:** Military Balance, 1993-94 and Jane's Fighting Ships, 1994-95
# APPENDIX VIII

## COMPARISON OF NAVAL FORCES ASSETS

<table>
<thead>
<tr>
<th></th>
<th>Saudi Arabia</th>
<th>Oman</th>
<th>UAE</th>
<th>Qatar</th>
<th>Kuwait</th>
<th>Bahrain</th>
<th>Iran</th>
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<th>Israel</th>
<th>India</th>
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**Note:** The assests include reserves also.

**Source:** Jane's Fighting Ships, 1994-95


## APPENDIX IX

### THE NAVAL BALANCE 1993-94

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<th>India</th>
<th>Ratio</th>
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<td>30</td>
<td>166</td>
<td>1:5.53</td>
</tr>
<tr>
<td>Combat Aircraft</td>
<td>10</td>
<td>36</td>
<td>1:3.6</td>
</tr>
<tr>
<td>Mr/Comm. Aircraft</td>
<td>9</td>
<td>72</td>
<td>1:8</td>
</tr>
<tr>
<td>Asw/Asw/Sar Helicopters</td>
<td>15</td>
<td>58</td>
<td>1:3.97</td>
</tr>
<tr>
<td><strong>Amphibious Crafts</strong></td>
<td>2</td>
<td>13</td>
<td>1:6.5</td>
</tr>
<tr>
<td>Landing Ship Medium</td>
<td>Nil</td>
<td>8</td>
<td>0:8</td>
</tr>
<tr>
<td>Landing Craft Mechanised</td>
<td>2</td>
<td>Nil</td>
<td>2:0</td>
</tr>
<tr>
<td>Landing Craft Utility</td>
<td>Nil</td>
<td>3</td>
<td>0:3</td>
</tr>
<tr>
<td>Landing Ship Tank</td>
<td>Nil</td>
<td>2</td>
<td>0:2</td>
</tr>
</tbody>
</table>

**Sources:** Jane’s Fighting Ships, 1994-95
# APPENDIX X

## INDIAN NAVY'S PROJECTED FORCE GOAL BY YEAR 2010

### Personnel

80,000

### Ships/Submarines

<table>
<thead>
<tr>
<th>Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrier</td>
<td>3</td>
</tr>
<tr>
<td>Nuclear Submarines (SSNs)</td>
<td>4-6</td>
</tr>
<tr>
<td>Type 1500 (209), SSKs</td>
<td>4-6</td>
</tr>
<tr>
<td>Kilo Class Submarines (SSKs)</td>
<td>8-20</td>
</tr>
<tr>
<td>Kashin Destroyers</td>
<td>6-8</td>
</tr>
<tr>
<td>Udaloy or Sovremenny Class Destroyers</td>
<td>6-8</td>
</tr>
</tbody>
</table>

- **or**
- Follow-on Kashin Destroyers | 6-8
- Project 15 destroyers       | 10-12
- Godavari Class Frigates     | 3
- Godavari follow-on Frigates | 6-12
- (6 Leander Frigates Training/reserve)
- Nanuchka/Tarantul Class Corvettes | 24-30
- Khukri Class Corvettes      | 16-32
- Seaward Defence Boats/OPVs   | 15-30
- Natya/Yevgenya Minesweepers & Natya
  follow-on Minehunters
- Ponocny Amphibious Vessels   | 12-18
- Magar LSTs                   | 8-12
- Auxiliary & Repenishment Vessels | 30-45

### Aircraft:

<table>
<thead>
<tr>
<th>Aircraft</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sea Harrier</td>
<td>60-80</td>
</tr>
<tr>
<td>Sea King</td>
<td>60-80</td>
</tr>
<tr>
<td>Hormone/Helix</td>
<td>40</td>
</tr>
<tr>
<td>Bear</td>
<td>8-12</td>
</tr>
<tr>
<td>DO-228</td>
<td>50-65</td>
</tr>
<tr>
<td>Defender</td>
<td>18-25</td>
</tr>
<tr>
<td>Alouette II ALH (ASW &amp; SAR)</td>
<td>30-50</td>
</tr>
</tbody>
</table>

Source:  [India Defense Review, July 1991](#)
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