

*M A Razzak*

## **SMALL NAVIES IN THE DEVELOPING WORLD: CHALLENGES AND OPTIONS**

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### **Abstract**

Among the navies of the world, small navies of the developing countries dominate the number. Naval development is a costly enterprise. Navies of the developing countries are small but problems are big. Maritime nations in the developing countries could not ignore the necessity of having a navy though other social needs have been high on national agenda. The problem is compounded because the maritime nations in the developing world happen to be resource-strapped and they cannot provide critical resources as required. Shortfall in the availability of resource ultimately slows down the pace of naval development to the extent one may desire. Besides resource, other national and international factors also complicate navies' growth. To survive all these problems, navies need to address wide range of issues: identifying the need, planning acquisition, selecting the source of acquisition, integrating and interfacing human resource with the technology, managing critical resources and so forth. Eventually, these issues stand as challenge in their effort to naval development. To meet diverse challenges involved in naval development, small navies of the developing countries need to focus on various facets of naval management.

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## **I. Introduction**

Sea power has been manifested through the centuries in different ways and degrees. The ambition for economic expansion led the European nations to develop sea power. The power that they developed and employed at sea against their contenders led, in turn, to settle in overseas lands. The period of colonisation reduced the number of independent countries and barred the emergence of navies. The Mughal Navy for example, perished as the British domain expanded in the Indian sub-continent.

The 20<sup>th</sup> century saw a process of decolonisation, especially as a result of the two World Wars. At the end of the World War II, the number of independent countries was 45 compared to 37 in 1900. Since then the number of independent countries and their navies continued to rise. In 1952 there were 52 navies in the world, and the number rose to 162 in the year 2000, 83 per cent of which are small navies.

Small navies started off with the learning from colonial powers. Instead of beginning from zero bases, small navies tapped their experiences and tried to adapt those into local conditions. But the winds of the Cold War drifted many of them away into land oriented inter state and intrastate conflicts. Pre-occupation on land did not allow much time and resources to invest in conditioning the borrowed experiences. Naval development in the developing world was further affected by other domestic and international compulsions influencing political decision about the navy. An expected change in the world order with the collapse of the Berlin Wall and the Soviet Union did not help changing the operational environment of the navy.



Against this backdrop, this paper attempts to assess the challenges to develop small navies in the developing world and the ways and means of dealing with the challenges.

## II. Defining Small Navy

“Navy includes all those forces capable of exerting force at sea, not necessarily just those bureaucratically organised into ‘navy’. Also ‘*force projection*’ implies a capacity to engage in ‘sea control’ and ‘sea denial’ as well as power projection.”<sup>1</sup> Small navies include those whose aspirations and capacities are limited to defending interests in the immediate proximity of the coast extending to adjacent maritime zones. In doing so, many of these naval armories cannot realise their apparent aspirations. Nearly 60 per cent of the world navies do not have the capacity to undertake ‘sea control’ or ‘sea denial’ role or project deterrent power at sea or ashore. They are just bureaucratically organised with some assets to operate inshore or in the lakes and lagoons, commonly known as *token navy*. About one-fourth can be regarded as offshore defence navies; 14 per cent of which operate in one dimension (surface) and 12 per cent in two limited dimensions (surface and subsurface) with limited shore based non-combat air arm.<sup>2</sup> There are small navies in the developed and developing world. Problems of small navies in the developing world are different from and more complex than those in the developed world.

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<sup>1</sup> Eric Grove: *The Future of Sea Power*, Routledge, London, 1990, p. 237.

<sup>2</sup> The classification has been calculated using the list of navies available in the Jane’s Fighting Ships 2000-01.

### III. Challenges to Naval Development: Small Navies'

#### Experiences

##### *Domestic Environment*

Opportunity Cost: In the poor economies of the developing countries, military expenses are not welcome expenditure due to the perception that military programmes are too costly without contribution to the economy while social needs are high on national agenda. Capital-intensive orientation of naval expenditure, *i.e.*, huge unit cost of ship and the effect of inflation, is the main reason behind deepening the perception of higher opportunity costs of naval build up. Secondly, defence inflation is higher than ordinary inflation. While among the armed forces, air force procurement is usually affected by higher rate of inflation, unit cost in air force compared to navy is low. Thus, lumpy nature of investment in the navy becomes politically somewhat disadvantageous.<sup>3</sup>

Competition for Fund: Relative influence and advantages of the three services of the armed forces also play a role in respective share in the central government budgetary allocations. In the domestic politics of developing countries, army leadership usually and historically has overriding say in defence affairs. For example, in Pakistan, General Ayub Khan wielded greater influence over affairs of Pakistan than many politicians<sup>4</sup>. Consequently, navy got relatively smaller allocation from the defence budget<sup>5</sup>. In Indonesia, naval development had been hindered by a severe fund shortage attributed to inter service rivalry dominated by army leadership.

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<sup>3</sup> Geoffrey Till: *Modern Sea Power*, Brassey's Ltd, UK, 1987. p. 18.

<sup>4</sup> Pakistan Navy History Section, *Story of Pakistan Navy*, Islamabad, 1991, p. 162.

<sup>5</sup> "Pakistan Navy in War": Major General Fazal Muqeem Khan in *A Navy and Its Nation At War*, Commodore Ranjit Rai, Lancer International, New Delhi, 1987, p. 169.



Nature of Threat Perception: In the threat environment, people tend to focus on visible threat, which is usually continental in nature. "During the period between 1945-1976 a total of 120 armed conflicts took place on the territories of 71 countries involving 84 countries"<sup>6</sup>. On the other hand, "[s]ince 1945 [till 1979] there has been one real naval war, half a dozen rather one-sided naval contribution to operations on land, and more than 200 political applications of limited naval force"<sup>7</sup>. Despite more application of force at sea than on land, visible continental threats occupied people's and politicians' mind. Even sea-related security needs for the national economy failed to rouse politicians' visions. In the sequel, other arms continued to receive priority allocation. Further, the curse of bureaucratic complexities in running military set-ups<sup>8</sup> and the 'habit of deterrence'<sup>9</sup> also held up naval programmes.

#### *Technological Challenges: Sophistication and the Cost Factor*

Technological Sophistication: Technological advancement has increased ships' speed and endurance, and has given the weapon systems accuracy, speed, depth and lethality. However, technological sophistication attaches high price tag, often beyond the reach of the developing countries. High cost factor limits their options to less technological sophistication and quality. Consequently, technological development and rapid changes in

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<sup>6</sup> Abdur Rob Khan and Mohammad Humayun Kabir, "The Security of Small States: A Framework of Analysis", in M Abdul Hafiz and Abdur Rob Khan edited *Security of Small States*, University Press Limited, Dhaka, 1987, p. 3.

<sup>7</sup> James Cable, "Gunboat Diplomacy", *International Military and Defense Encyclopedia*, Vol III, p. 1135.

<sup>8</sup> Commander Farid-Uz-Zaman, "Pakistan Navy: Future Strategy for Third World Navies", *Mirpur Papers*, Issue No. 3, December 1995, Dhaka, Bangladesh. p. 69.

<sup>9</sup> Geoffrey Till, *op. cit.*, p. 49.



production line compel the small navies in the developing world into 'obsolescence'.

Buying ships bring in new challenges of ensuring and being able to maintain their technologies effectively. It involves physical capital in terms of durable equipment investment and human capital development for management and operation in the form of training and organisation. All these involve cost in ship's life cycle.

In the business of naval hardware and software, customer requirements are becoming the driving force in technological progress. Navies of the developed countries are focusing on Network Centric Warfare including Net Force to do more with less. End of the Cold War has brought asymmetric threat at the forefront. Invisible character of asymmetric threat demands more efficient and speedy intelligence and combat management systems, especially for operations close to shores or in narrow waters. Navies of the developed countries are the largest buyer of naval instruments in terms of value. Naval industries naturally aim at those deals. In this situation, small navies in the developing world continue to experience difficulty in finding quality with limited money.

Modernisation: Most of the small navies have grown on first and/or second-generation ships since the World War II, which are no more regarded cost effective in terms of desired operational capability. Modernisation of the navies is, therefore, an instinctive drive. Pakistan Navy, for example, intends to replace 35 years old Daphne Class submarines, if the third boat of the Khalid Class (Agosta 90 B) diesel-electric submarine programme is over by 2004-05.<sup>10</sup> South African Navy plans to phase out 5 strike craft by 2008, 4

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<sup>10</sup> Interview of Admiral Abdul Aziz Mirza, Chief of Pakistan Navy, *Jane's Defence Weekly*, Vol. 38, Issue No. 5, 31 July 2002, p. 32.



River Class mine hunters and 4 German 351 Class minesweepers in next decade.<sup>11</sup> Sri Lanka intends to acquire higher tonnage vessel to patrol the EEZ to prevent inflow of arms. However, economic capability is a natural precondition to the success of intended modernisation. Indonesian Navy has "lots of programmes to enhance its capability, but no money. As a result, its major aim is to maintain its current equipment rather than focusing on new procurements."<sup>12</sup>

### *International Politics*

The Uncertainty: Beside high price of technology, international politics further complicates naval acquisition. There have been many occasions that arms producing government's political motivation on military sales caught naval armouries of developing countries off guard. The following examples will help to understand the nature and intricacies of international politics and the way it affects naval development:

- a. Pakistan: After the departure of former USSR from Afghanistan in 1989, Pakistan's front-line state status to USA disappeared. The US concern for nuclear proliferation overrode the issue of containing communism<sup>13</sup>. Pressler Amendment (1985) on US military aid to Pakistan required her to qualify a certification by the US President that Pakistan did not possess a nuclear device. Pakistan for obvious reason never qualified. The bill was put into effect in 1990 and the USA in 1992 withdrew 8 frigates and 1

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<sup>11</sup> Interview of Vice Adm Johan Retief, Chief of the South African Navy, *Jane's Defence Weekly*, Vol. 37, Issue No. 10, 6 March 2002, p. 32.

<sup>12</sup> *Jane's Defence Weekly*, Volume 36, Issue No. 09, 29 August 2001. p. 23.

<sup>13</sup> *Asian Defence Journal*, 11/95, p. 48.

repair ship on lease to Pakistan and stopped military aid. Withdrawal of ships pushed Pakistan Navy close to shore.

b. Argentina: Before the Falklands War, Argentina received first consignment of *Exocet*. As the war began, France stopped further delivery, which could be used against another NATO member state.

c. Indonesia: Acquisition from one source risked navies. In late 1960s, the former USSR withdrew technical assistance as Indonesia supported Pakistan during the Indo-Pak war of 1965. Indonesia could not prevent the damaging effect of the pull out, as there was no technical infrastructure to fill in the gap of former Soviet technical assistance.

d. Sri Lanka: After the outbreak of insurgency, Sri Lanka desperately needed naval aid. Western governments were unwilling to sell arms being apprehensive of escalating the conflict and alleged human right violation. Australia abrogated a military deal when it became public. Option to buy weapons from the former Soviet block was cancelled, as the supply of spares was uncertain. Iraq, a possible source, was dropped for good reasons. Other Asian sources were explored. It was Sri Lanka's China connection that had been most useful in the war against the LTTE. Besides China, Israel and France also became useful sources of naval aid<sup>14</sup>. Pakistan was another source willing to help but Sri Lanka being concerned of India's political intent did not involve deeply with Pakistan.

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<sup>14</sup> *International Defense Review*, 2/1991, pp. 107-108



e. African Continent: Countries in the African continent were pre-occupied with fights on land, a product of colonial legacies and international politics in connivance with domestic politics. North African Arab states entangled into land dominated Arab-Israel wars. Countries along the coast of the continent also portrayed pictures with inter state and intrastate fights: Morocco, DPR Congo, Angola, Namibia, Mozambique, Somalia, for example.

Acquisition and Source of Weapon: Developing countries mostly depend on foreign sources for naval hardware and software and they resort to two kinds of procurement, off-the-shelf and new acquisition. Off-the-shelf purchase is an 'opportunity purchase'. It is relatively cheap without any choice of equipment except refurbishment. Problem in opportunity purchase is that the instruments are used and comparatively old. In the absence of assurance for spares or in case of break down in external sources of supplies, buyers sooner need investment for modernisation. On the other hand, acquiring new ship is a costly business. Until recently, east and west were the prime sources for both the two category purchases. New sources are coming up. Problem in the new source is that, while they fabricate hull and structure, dependence on sources in the west or east for major components continues. As a result, ships at new source ends up in a mix bag of equipment.

During the Cold War, east-west ideological contention dominated military sales. USSR's collapse embedded political considerations in the west as prerequisite to military sale. In the east the vision is more of business than political. To the new sources, military sales are mostly of business considerations. Changes in the perception of arms sale imply colossal payment in short span of time.



To ease the difficulty some countries adopted 'buy some-make some' policy. Further, unipolar perception of the world led to concern in some countries like Iran, Lebanon, Syria, Libya etc. Concern has been expressed by the Lebanese Minister of Defence that, "... some of the states who have the final decision on the arms market will block any desire of the Lebanese Government to equip with sophisticated arms. The US is part of this policy."<sup>15</sup>

### *Managing the Inventory*

Despite costly affair, navies maintain stocks of wide range of items to operate in peacetime and in hostilities. Determining future requirement of spares needs rich empirical skill. Small navies are new in their experiences. Until gaining adequate experience, navies depended on the sources of supplies to estimate inventory or ascertained the requirement with a little experience. These factors, in some navies resulted in stock out or over stock rendering obsolete in the shelves. Syria in the mid-1980s received Soviet designed Romeo class submarine, which by the turn of the century had gone obsolete and two Petya Class frigates are in service in poor condition<sup>16</sup>.

### *Human Resource Development*

Both the 'gun' and 'man behind the gun' are important in the navies. Human resource is central in managing naval businesses. It entails that men are to be trained to organise, manage, maintain and operate all components in a ship. Mere existence of platforms does not pay any dividend. During the Falklands War, "Argentine Type 209 submarine attacks with SST-4 torpedo against ships of UK task

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<sup>15</sup> *Jane's Defence Weekly*, 8 May 2002, p. 32.

<sup>16</sup> *Jane's Defence Weekly*, 21 November 2001, p. 28.



force missed the target as the fire control system was improperly maintained resulting in erroneous targeting solutions".<sup>17</sup>

#### **IV. Options for Meeting the Challenges**

The challenges that the small navies are confronted with are all pervasive from domestic to international realities. It is understandably difficult to solve all the problems over night while navies need to remain afloat with desired capability. At this juncture, a careful approach examining options to reduce the burden of the problems would be reasonably logical until solution to the problems could be achieved. The most important element among the available options would be planning.

##### *Planning*

A good plan is half of the work. Consistent planning adds impetus to growth. Planning guided by the fact 'what is needed and what can be afforded' will provide consistency. Innovative financial study helps contemplating the reality ahead and analysis of the 'life cycle cost' of ships is the key to foresee that reality.

##### *Facets of Life Cycle Cost*

Acquisition of naval platform including base facility is the single largest cost in the navy. Then it involves operating cost of ship in different modes, which together with the capital cost is 'life cycle cost'. The 'life cycle cost' between manpower and technology oriented ship differs greatly. There are three general broad areas those incur expenditures during the life cycle — manning, maintenance and operation.

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<sup>17</sup> *Jane's Defence Weekly*, 27 March 2002. p. 35.

The capital cost at acquisition does not change in the life cycle while others usually follow the graph upward. For example, manning cost includes salary, pension, housing, food and medical services. One's salary at the beginning of his career grows high in 20 to 30 years of service. Add to this, the expenditure incurred on medical services, housing, pension etc attributed to the family that he owns during the service.

Maintenance cost follows the graph upward while the graph in operational cost depends on deployment pattern. During the life cycle, maintenance cost at times shot up due to modernisation programme. To avoid such expenditure at short interval, selection of outfit should be such that 'obsolete' or 'obsolescence' does not overtake soon.

Life cycle cost on future acquisition is a derivative from the empirical data on another ship of the same class/type. What happens, if there is no ship of the same class/type or there is a great difference in the ship's outfit? Among the cost factors discussed above, the expenditure on manpower will follow the similar trend. Likewise, it is also possible to foresee the employment pattern and so as the expenditure. Therefore the *Life Cycle Cost (lc)*, *Manning Cost (mc)*, *Maintenance Cost (rc)* and *Operational Costs (oc)* can be ascertained as<sup>18</sup>:

$mc = M \times l \times f_1$  ( $M$  is the complement,  $l$  is ship's life and  $f_1$  is the expenditure/man/year)

$rc = l \times f_2$  ( $f_2$  is empirical data on yearly aggregate maintenance cost)

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<sup>18</sup> M A Razzak: "Attributes of Naval Expenditure and Its Effect on Naval Capability: A Perception", *BISS Journal*, Dhaka, Vol 21 No. 4, 1999, pp. 449-450.



$oc = l \times f_3$  ( $f_3$  is empirical data on yearly aggregate operational cost)

Therefore,  $lc = cc + mc + rc + oc$  ( $cc$  indicates the capital cost) and assume the value is 'y'. Add to this the inflationary value in the life cycle i.e.  $y + \frac{xy}{100} = v$  ('x' is the average rate of inflation and 'v' is the value in life cycle cost).

To understand the impact on fleet maintenance further elaboration is necessary. If 'v' is the value that indicates the total expenditure incurred on a single ship in its life then its yearly average expenditure ( $e$ ) can be put into the a simple equation.

$$e = \frac{v}{l}$$

Thus the yearly aggregate expenditure of all platforms will be the fleet maintenance cost in a year. If the total number of ship is 'n' ( $n_1 + n_2 + n_3 + \dots n_n$ ) then the Fleet Maintenance Cost ( $fc$ )/year will be:

$$fc = en$$

Having ascertained the life cycle cost, it is essential to make a cost-benefit assessment of the expenditure in relation to ship's combat capability and capability requirement.

#### *Cost-Benefit Assessment*

In cost-benefit assessment, comparison must be drawn between the capital cost, ship's potential and capability requirement. In doing so, priority should be given to navy's mission and ship's ability although fund position may have intervening say over the preferred choice. At this juncture, a great deal of care is essential to strike the balance between quality and quantity aimed at achieving the mission.

To strike the balance, 'theory of probability' can be used as a tool. Ship's speed, weapon fit, EW outfit, operators' skill etc. indicate ship's prospect to survive, fight and achieve mission. It does not necessarily mean that high tech ship will not sink. In the Battle of Midway, the Imperial Japanese Navy lost four super carriers to the US Fleet. In the Falklands War, UK lost *HMS Sheffield*. The analysis will help to ascertain ship's probability to survive and fight. In the game of 'survive and fight', a low-tech ship's prospect to survive and fight ends before the game starts.

### *Standardisation*

A mix bag apparatus does not assure economy in maintenance. One of the reasons of ship's class concept was to provide economy in maintenance and operation. Single ship of a class increases maintenance expenditure and operation becomes costlier. Therefore, acquisition programme should consider more than one ship of in the same class. While acquiring and/or refurbishing, three sources may be considered in fitting out class of ships to avoid any uncertainty in the supply of hardware or software arising from international politics.

### *Cost Reduction in Life Cycle*

Training on simulators like engine room, bridge, damage control and tactical trainer etc. can help to decrease cost in life cycle. Simulation should only be viewed as complementary to sea training, not as alternative.

### *Human Resource Development and Management*

Management output is the collective product of individual skill. Human resource is the ultimate strength in management job. Success



in managing all avenues of naval functions at optimum level will depend on the development of that branch of resources. Computer assisted system is a skill multiplier and reduce manpower cost. Before beginning automation, it is imperative to devise a system that fits own needs.

### *Managing the Technology*

To match the order of the day, navies will have to adopt newer technologies. Managing the sophistication is likely to be one of the most challenging tasks for the small navies in the developing world. In doing so, innovations through Research and Development (R&D) will be able to give insight. R&D is essential for generating new technologies and also to promote organisational efficiency, improve logistical capability, taking up new technologies and examining future implications including maintenance and expense involved and so forth. This is certainly a big study and should take off methodically. Sooner is better.

### *Economic Benefit of Naval Expenditure*

To have domestic environment in favour, economic benefit of naval expenditures should be put in its proper perspectives. Both the people and the government are interested in visible return of expenditures although governments have the responsibility to provide certain services to the people which do not have financial turnover, police protection, fire protection for example, yet they are an important part of economy's final output. Economists and statisticians value them at what they cost. This is the best practical solution advanced to date<sup>19</sup>. Navy, a service provider to the nation is

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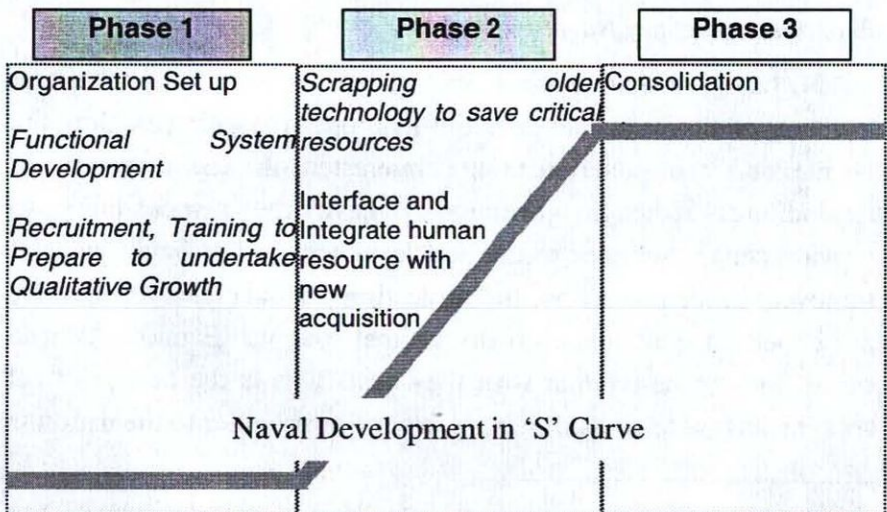
<sup>19</sup> Edwin Mansfield, *Economics* (fifth edition), W. W. Norton & Company, New York, USA, 1986, p. 132.

designed to protect national 'maritime economic interests'. Protection of maritime economy is the best economic benefit that nations can get from navies.

### *Following the 'S' Curve*

Naval development can be divided into three phases in the 'S' Curve. First phase can be described as '*Formative Phase or Laying the Foundation*'; the second phase is the '*Qualitative Development Phase*' and third is the '*Consolidation*'. This concept is better applied in undertaking 'naval development projects' on long term.

In the first phase, it would be essential to set up organisation, plan and develop functional system, recruit and train men to prepare to undertake qualitative changes. As the second phase begins, it is imperative to scrap old technology to spare critical resources like money and human resources to support qualitative growth through planned induction and interfacing human resource with the new acquisition. Holding up old technology will tie down important





resources, incurring extra expenditure. As the phase of qualitative change reaches the goal, the consolidation begins and continues. Consolidation phase will involve performance review. The growth along the 'S' curve will necessarily demand detail phased planning spreading over the years. Prospect of carrying through the 'S' curve depends on how far the naval planners can foresee and are capable of taking charge of the uncertainties surfacing in the uncertain future.

## **V. Conclusion**

Study of the small navies in the developing world reveals that they experience diverse challenges in their effort to survive. Their problems extend from domestic to international issues. Dependence on foreign sources for the whole range of naval technology makes naval development a challenge for the planners. Critical resource limitation, developing human resource in the oceanic environment, and interfacing them with newer technologies, etc. are different facets of the problems. At the conundrum of omni-prong issues and problems and the necessity to remain afloat with appropriate naval inventory and maintaining operational readiness, small navies need to address the problems both in short term and long term. In the short term challenge, modernisation of forces and finding reliable, and trusted source for weapon are identified as the prime concern. In the business of naval administration, acquisition and supporting newer technologies, ascertaining life cycle cost ship and the fleet as well, human resource development, adjusting to fast advancement of technology etc may be considered as long term challenges. With multi-faceted problems, the business of naval administration, therefore, demand focus on naval management to reduce the burden. Naval management functions beginning with planning helps to identify the need, and financial analysis help foresee the availability

of money in the future to materialise the plans. Before making the acquisition to materialise the plans, cost benefit analysis of naval platforms and/or the outfit, guides to contemplate customer's value for money. As the technology continues to gain more sophistication and international politics remaining uncertain, the resources are not available in abundance; the business of naval administration is likely to continue to become more challenging job. One may not find linear solution to the problems by exploring the available options but it is likely contribute in reducing the burden of the problems.