

SEA LANES OF COMMUNICATION IN THE NUCLEAR ERA : A GEOPOLITICAL ANALYSIS

Dissertation Submitted to Jawaharlal Nehru University
in partial fulfillment of the requirements for
the award of the degree of the

MASTER OF PHILOSOPHY

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2000




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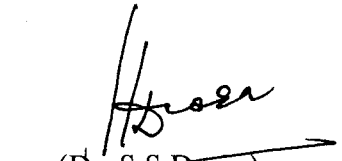
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PREFACE

Geopolitics is an area of geographical study that reveals the complexity of the relationships between political factors and geographical configurations. In other words geopolitics can be regarded as the interaction of geography and politics and resulting strategies associated with this interaction. In the post Second World War period, the most important geopolitical and geostrategic transformations have taken place over the oceans as a development of aviation and tele-communication satellites.

The first transformation has been the laying of claim on the vast maritime expanses by the littoral states. And each wants to gain the maximum advantages from different aspects of their sovereignty over the seas and oceans so as to establish their 'natural rights' and exploit various resources from the seabed. The second geopolitical transformation has been the multiplication of island micro-states as a result of colonial legacy and the efforts of United Nations. The third geo strategic change has been the emergence, of the role of nuclear submarines as a deterrence force in the naval fleet of certain military powers. The submarines equipped with nuclear warheads, can remain under water for weeks, can move around the around the oceans with out being spotted. Another geopolitical and geo strategic transformation to have taken place over the oceans has been the development of a formidable Soviet maritime power to pose serious threat to the United States and NATO forces during the Cold War era.

Besides these geopolitical and geostrategic transformation taking place over the oceans in the post Second World War period, the oceans have always been considered as an important storehouse of natural resources and served as a global highway

facilitating trade and communication. Some ocean-related issues like maritime boundary disputes, oil tanker accidents etc. are regularly taken up at international forums and conferences, and maritime policy has become a significant part of the foreign policy agendas of a large number of countries. The issue of Sea Lanes of Communication forms an important part of the maritime dimension due to growing scale of shipping and economic activities in the oceans.

In the backdrop of the increasing geopolitical significance of SLOC in the present times, the present study entitled “Sea Lanes of Communication in the Nuclear Era: A Geopolitical Analysis” attempts to examine whether the establishment of SLOC in the conventional era of maritime supremacy has continued the present nuclear era as well or not. The geopolitical analysis of the SLOC has been done by dealing with the geographical, economic and politico – legal aspects relevant to the topic. The *first chapter*, gives an account of the evolution of maritime transport and the main uses of the sea from the economic as well as the military aspect. Seaports as maritime trade nodes and straits & canals as transit passages determine the use of the sea for economic & military uses by any state, the *second chapter* as an insight into these principal geographical elements of SLOC. The *third chapter* on the regulatory regime of SLOC discusses its various politico-legal aspects and the main sources and elements that constitute sea-power. This chapter also gives a brief insight into the maritime strategic thinking of some eminent naval strategic thinkers in order to bring out changing perspective of maritime strategy over the years. To substantiate the earlier discussions,, the *fourth chapter* on the strategic dimension of SLOC in the Nuclear era, discusses the world maritime strategy in general with a special mention of the

maritime strategies of the two leading powers during the bi-polar World political system referred to as the Cold War era. The chapter also evaluates the role of maritime transport in the Nuclear era. The *concluding chapter* takes into account the changing perspectives of maritime transport in the Nuclear era and discusses the prospects for sea power in the foreseeable future.

The study is mainly based on secondary sources, though primary sources are taken into consideration whenever accessible and relevant. The text is also supplemented by various graphs and maps in order to make it more illustrative.

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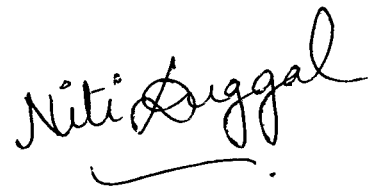
ACKNOWLEDGEMENT

I express my indebtedness to Dr. S.S. Deora for his help and guidance throughout the course of my study for writing this dissertation. His sincere supervision and suggestions helped me to bring out my work in the present form.

My sincere thanks to my grandmother, parents and sister, who gave every help and prayer support during the period of my study. I also acknowledge the encouragement and support given to me by my close friends.

I am also grateful to the Library staff of Jawaharlal Nehru University Central Library and Institute of Defence Studies and Analysis (IDSA), for their cooperation during my research.

A special thanks to Mr. Harish Chand & Surender Singh Rana for efficiently typing my dissertation and making graphs.



(NITI DUGGAL)

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CHAPTER 1

IMPORTANTCE OF MARITIME TRADE & COMMUNICATION

1.1 Evolution of Maritime Transport .

Transportation is the act of moving people or goods from one place to another. Without this act no trade activities would be possible and thus no towns or cities would evolve. Therefore, it has been rightly said about transportation, that it helps make civilization possible.¹ The evolution of transportation from the earliest times to the present have been made possible largely by the development of new methods and techniques that reduce both the time and cost of transportation in both labour and other resources. Hence 'transportation is both a result and a cause of an advancing society and reflects the rate of advance of a country'.² Some of the important factors that led to the development of transportation in a place can be :

- (a) Geographical factors : which determine the type of transportation for a country. Long indented coastlines, natural harbors and navigable rivers any lead to the development of water transport.
- (b) Economic factors : Industrial & technical development tend to increase the demand for various means of transportation in a country. The process of mechanization increase productivity and large-scale production becomes possible with the development of large national and international markets. All these developmental factors are largely dependent upon the expansion of transportation facilities.
- (c) Political factors : a stable govt. that encourage the industrial and commercial development, lays great stress on the development facilities as well .Defence needs also play a crucial role in the development of transportation of a country.

¹ The Encyclopedia Americana , International Edition; Vol. 27;Grolier Inc., Connecticut; 1980,p-23.

² ibid

(d) Social factors : the social and cultural fabric of any country has been influenced by and in turn also influence the transportation facilities. Interchange of ideas is largely dependent on the mobility of the people .

On viewing the world in its entirety, it is apparent that few methods of transportation known to have been used in the past have not been wholly abandoned, as they are still faster or less expensive and used for a specific purpose. This persistence of old methods is evident from this fact that animal power still remains a chief means of transportation in large parts of the world. However, the early man had learned that where water was available, water-borne transport was often easier than that over land.

The first ever use of the sea for trade can be dated back to about 2800 BC when the Egyptians sailed through the Mediterranean Sea to reach Phoenicia, carrying papyrus and grains to barter for wood³. Crete and Egypt developed trade by navigation in the eastern part of the Mediterranean Sea. But the Phoenicians extended the maritime trade over the entire Mediterranean Sea, and even ventured in to the Atlantic Ocean. Later on , the Greeks rose to become the maritime leaders and their merchant ships were also bigger than the ones used earlier. The evolution of civilization around the Mediterranean basin was based upon the seas as avenues for exchange of commodities and spread of ideas. And as mentioned earlier, water transportation was much easier & cheaper than transport over land, therefore, major nations and city states rose in areas with access to navigable rivers and seas.

The growing use of seas for carrying trade goods and increase of sea commerce attracted predatory sea fares to capture booty. This led to clashes between the traders and the pirates. The merchant vessels loaded with goods were not well prepared

³ Ibid

to defend themselves, hence they organized communities and vessels manned with warriors to patrol and guard the commercial Sea Lanes. This specialization of function led to the emergence of navies in order to protect sea trade and commerce. Therefore, it can be said that the primary mission of navies since then has been to safeguard their own sea routes and deny the enemies the sea routes they require.⁴ The fleet that have been successful in achieving this mission were said to have the control or command of the sea. The sea routes along which traders, goods and materials move and the routes for retreat, which a fighting force keeps open between itself and its base, are called the Communication Lines.⁵ This whole complex of routes and transport in seas is called the Sea Lanes of Communication (SLOC).

Earlier the power of a nation was measured not only by quantity and quality of its fighting ships but also by character & number of its population; the organization of its government; commercial shipping-overseas trade; commerce; quality and number of its ports and harbors; the extent of its coast line; overseas colonies and the location of the nation itself in relation to the major SLOC.⁶ According to various historical accounts, the maintenance of the Roman Empire depended upon the most advanced system of land as well as the water transportation existing during that time. Most of the trade activities in this part took place by sea. The interchange of goods encouraged local specialization and this further accelerated the trade activities.

During the period of Renaissance, some advancement took place in the art of navigation. The invention of the compass and sail led to overseas explorations and

⁴ Till Geoffrey; Maritime strategy and the Nuclear Age; Macmillan Press, London ; 1984,

⁵ Potter E.B& Fredland J.R (Ed) ; The United States and world sea power; Prentice- Hall Inc. N.J ; 1995

⁶ Ibid

colonization process. This resulted in an acceleration of trans-oceanic commerce activities. At this point of the world events, it was being viewed that, development of sea- power by a nation gave it the major advantages of acquiring colonies , dominating sea trade and thus becoming prosperous.⁷ Therefore, from this period onwards, with the help of their 'sea-power' Europeans spread their dominion eastwards in to the Indian Ocean, South-East Asia and China Sea, in order to exploit the riches of Asia.

The period from the nineteenth century up to the First World War has been a volatile one from the point of view of numerous changes occurring in the political arena of the world. This period saw a number of innovations taking place that enabled to reduce the cost and time of transportation service across the oceans. The sea- power, both of military and even non- military varieties benefited a great deal from these technological development. The earlier dual advantages of sea-power in acquiring the colonies and their continued possession and maintenance was being juxtaposed with the development of merchant marine and giving impetus to sea trade and communication. The construction of Suez Canal in 1869 to connect the Mediterranean Sea with the Red Sea, promoted transportation between Europe and Far East by reducing the distance traveled, freight cost involved and time taken during the voyage. Similarly, the construction of Panama Canal in 1914, shortened the voyage distance between the Pacific and Atlantic coasts of the United States and the voyage distance on some international routes.

In the post Second World War period, high tension and confrontation was being witnessed in the shipping interests of the traditional maritime states and the shipping aspirations of the emerging nations. The Brandt Commission had described

⁷ Opcit 1

these two divisions by the global terms of 'North' and 'South'.⁸ For the traditional maritime or the 'Northern' nations, shipping was essentially a private enterprise. Whereas the 'Southern' or the newly independent developing nations perceived shipping as a public matter and a life-line for legitimate govt. involvement and support on which their future growth and development depended.⁹

This situation of confrontation was compounded by the involvement of Inter-Governmental Organization (IGO) especially the United Nations Conference on Trade and Development (UNCTAD) which was founded in 1964 with the twin objectives of making the maritime transport efficient in order to boost international trade and to increase the participation of developing countries in the international shipping industry¹⁰. In 1981, about 200 maritime industrial leaders, representing various sea-transport activities hailing from 34 countries across the globe, attended the fourth International Shipping Conference of International Chamber of Commerce (ICC), held at Caracas in Venezuela, to agree to initiate a new approach to international shipping based upon co-operation rather than confrontation.¹¹ In pursuance of this initiative ICC set up an Action programme to carry out field studies in 24 countries to assess joint-ventures, prospects and mutually profitable co-operation. The developments taking place as a result of the efforts of ICC, were viewed as a 'Promotion of North / South Commercial Co-operation in the field of Sea Transport' at the 11th session of UNCTAD Committee on Shipping in November 1984.¹²

⁸ United Nations, the Law of the Sea, official Text of the UN Convention on the Law of the Sea ; UN publications, New York 1983.

⁹ Ibid

¹⁰ Ibid

¹¹ "North/ South Cooperation In Shipping : new Approaches" ; Nicholas A.A.N and Bridge M.W.; Transport Reviews; vol.8, no 2 ; 1988.

¹² Ibid

In 1985 the Center for Maritime Co-operation (CMC) was setup as a self supporting specialised division of ICC. The main objective of CMC was to promote international business co-operation in various maritime activities except ship-building.¹³ In the period since the Caracas Conference, the economic problems surrounding international shipping have grown worse mainly due to great excess of shipping capacity. Even the philosophy initiated at the Caracas Conference holds great appeal. And it has been realized world wide that it is in greater interest of the world community to seek solutions on market rather than by govt. intervention.¹⁴ IGOs have realised that the private sector can contribute much in the progress and development of maritime aspirations of the developing countries. And the enterprises in developed countries have a better understanding of business opportunities in the developing countries.¹⁵ The CMC provides evidence of a private sector service available to all who seek advice and assistance.

Besides all these developments, the size of ships have increased during this period and they were being equipped with modern machinery, thus leading to a tremendous growth in maritime trade between different countries across the globe. Till about three decades ago, the surface ships could sail the seas and oceans undetected, but as a result of scientific and technological developments during the 1970s satellites¹⁶ were developed to detect and monitor the movement of ship vessels in the seas.

¹³Ibid

¹⁴ Ibid

¹⁵ Ibid

¹⁶ Ocean surveillance satellites are used to track military surface ships and also obtain information on various ocean properties like temperature, salinity, currents, depth, etc.

The first ocean surveillance satellite was launched by Soviet Union in 1967 and then United States launched its satellites in 1971.¹⁷

1.2 The Uses of Maritime Transport.

1.2.1 Economic Significance of Maritime Transport

For most of man's history, ocean transport has been the cheapest and the most convenient form of transporting bulky or large quantity of goods. Even today, ocean transport provides the longest binding links of the world economy and the vast expanse of ocean serves as free highway with absolutely no maintenance costs, as is there in the case of roads, railways and canals.¹⁸ Therefore, the greatest advantage of ocean transport is its low line-haul costs.¹⁹ Over the years, great changes have taken place in ocean transport and constant endeavors have made it even more efficient. The increasing size of ocean vessels like oil-tankers, ore-ships, etc have led to greater volumes of world trade at even lower costs.²⁰ To cater to these large ocean vessels, special tanker terminals and ore ports like Bantry Bay and Port Talbot have been established. And many of the existing ports had to even build outports such as at Rotterdam Europort, near deeper water to accommodate these larger ships. Moreover, a tendency of specialization of cargo has led to the availability of special facilities at ports for dealing with the right kind of loading and unloading systems.²¹ Now a days, the modern liners and cargo-ships are equipped with radar, wireless and other navigational aids. They cross the oceans at moderate speeds and even manage to reach their destinations on schedule.

¹⁷ Brown Lester R. & other ; State of The World - A World Watch Inst. Report on Progress Towards a Sustainable Society ; W.W. Norton And Company, New York ; 1994.

¹⁸ Leong G.C. and Morgan G.C. ; Human and Economic Geography ; Oxford University Press, Hong Kong ; 1995.

¹⁹ Line-haul costs are incurred in the process of moving goods and include fuel costs, wages, etc.

²⁰ Ibid

²¹ Ibid

The global pattern of seaborne trade has been dependent upon a number of factors such as the distribution of resources, population, location of industries, market, economic growth rates, political, military factors and the local climatic conditions, etc.²² Today about 80% of the international trade by volume is seaborne. And the period since the Second World War has shown a growth of 8% per annum in maritime trade.²³

Some of the major commodities that are shipped are : the crude oil, petroleum products, iron ore, coal, grain, mineral ores, etc. About 50 % of the dry cargo is the General Cargo (including: food-stuffs, manufactured goods, etc) that has a high value content and traded between the developed countries and a few developing countries.²⁴ (Refer Table 1 & Graph 1) Some of the other commodities like coal, mineral ores, etc. are transported over great distances. Great distances in the trade of crude oil have been reduced by the growing use of pipelines and opening of various canals and straits which will be discussed in the next chapter. Other various developmental activities like enlargement of the existing canals, opening of newer canals, increasing use of pipelines, etc have not only helped in increasing the volume of international seaborne trade, but also reiterated the significance of SLOC in the modern times. Such a situation has definitely knitted together the world economy and has given rise to interdependencies between various regions and their economics. However, one of the most evident aspects of the world seaborne trade pattern has been the imbalance between several regions and countries, especially in terms of countries producing ores and minerals.²⁵ For instance, in case of Saudi Arabia, about 453 million tonnes of crude oil is exported by

²² Ibid

²³ The Times Atlas of Oceans, Ed. Alastair Couper; Times Book Ltd, London;1983

²⁴ Ibid

²⁵ Ibid

tankers each year, and only 21 million tonnes of commodities are imported by cargo vessels.²⁶ The tankers depart loaded and return empty and the cargo vessels arrive loaded and depart almost empty and this increases the cost of freight transport. However the trade balance between many of the developed countries is better and it is ensured that the ships are loaded on both their outward and return voyages. The role of shipping organizations has been commendable in this regard. There have been constant attempts by them in route-planning to incorporate several ports in the trading countries. They have also been encouraging the use of multi-purpose ships & combination carriers, and suggesting cross-trading and triangular voyages in shipping movements on an international scale.²⁷ Table 3 shows the World seaborne trade according to the geographical areas based on the total goods loaded and unloaded.

(Also refer Table 4 and Graph 3)

TABLE 3

WORLD SEABORNE TRADE ACC. TO GEOGRAPHICAL AREA, 1997(million of tonnes)

AREA	GOODS LOADED (oil + dry cargo)	GOODS UNLOADED (oil + dry cargo)
• Developed Market Economies Countries	2,142.6	3,382.7
• Countries of central & Eastern Europe (inc former USSR)	87.8	153.2
• Socialist Countries of Asia	105.3	112.1
• Developing countries in Africa	514.2	200.4
• Developing countries in America	681.1	213.1
• Developing countries in Asia	1,289.1	874.0
• Developing countries in Europe & Oceania	2,505.8	1,317.4
• World Total	4,940.6	4,965.4

Source: Review of Maritime Transport (1997); Report by UNCTAD Secretariat.

²⁶ Ibid

²⁷ Ibid

1.2.2. Maritime Transport as the Military Medium .

The economic significance of the sea, as discussed earlier, has in fact provided reasons worth fighting for and defending the SLOC. The oceans have also been an important medium for developing military power in order to achieve the political objective of a country other than its maritime interests. With the development of technology in weapons and sea vessels, the use of sea and the concept of sea power have become even more important than before. However it is not just the physical expanse of the oceans that make it attractive for military activities, it is also the ease of movement through the international common highway that makes deployment of military forces attractive to the sea powers.²⁸ Moreover, naval power can be maneuvered to potential crisis areas without much problems as compared to the land forces. The maritime aviation forces have been an important development in the post second world war period due to the chief advantages offered by shore-based aircrafts in their ability to deploy quickly their range and payload capacity, which definitely widens the scope of 'sea-control'.²⁹

1.3 International Shipping Industry

The increase in the proportion of seaborne trade in international trade in the post Second World War period, has led to a massive expansion in the ship building industry. New technology and building material was developed and old ship-yards were modernized. The shipping industry has played an important role in the contemporary restructuring of world trade. For instance, in Japan, where there has been a tremendous growth in manufacturing activities, the ship building industry has attracted many

²⁸ Opcit 4

²⁹ Opcit 4

shipping orders from across the world and are therefore able challenge the dominant position occupied earlier by Britain (prior to 1945) due to a marked industrialization in the countries of Western Europe.³⁰ This situation reflects the significant re- location of world industrial production. ‘The newly industrialized countries in South-East Asia and in South America are increasingly involved in “off-shore processing”, importing components and semi-processed products from developed countries for re-export. this has stimulate international trade in intermediate products, many of which are shipped in fairly large consignments’.³¹

The shipping industry over the recent year has not only experienced technological development but also undergone various formidable changes in economic infrastructure operational procedures, etc. Even though on one hand some of the changes have definitely strengthened this shipping industry, on the other hand, some of the changes have even had negative effects. Faced with the worst economic slump the shipping industry is making all efforts for its recovery . The economists have pointed to this fact that this economic slump in international shipping has been largely self-inflicted due to certain factor such as over-building of ships, inaccurate economic predictions, over co-operative financial lending in the shipping sector, etc.³² These situations have resulted in large part of the world fleet of ships either lying idle or taken out of the service.

During 1973, the first international price hike of oil and subsequent recession led to a decline in demand for shipping and ship-building orders declined. There was a lessening demand for petroleum cargoes and a large number of ships were out of work. Along with this, sources of energy were developed for which the sea transport was needed less, as these sources of energy were either transported through overland or

³⁰ Casson Mark; “The Role Of Vertical Integration In the Shipping Industry” ; Journal of Transport Economics and Policy; vol.20, no.1 ; Jan. 1986, p-7.

³¹ Ibid ³² Odeke-Ademluni ; Shipping in International Trade Relations; Avebury Grower Pub. Co. Ltd, England ; 1988

undersea pipelines. The govts. of major ship-building countries offered subsidies and soft loans to induce further orders and thus be able to preserve their industries.³³ Many shipyards had to be closed down and some even shifted to rig-construction. In some countries, the shipping industry was taken under the public ownership.

Consequently, the over supply of ships has become an international problem and laid-up tonnage has been increasing. The tankers are not in the use any more because of the policy of slow steaming and storage of oil in vessels. Several ships are being scrapped and EU and OECD are making attempts to regulate ship-building and limit soft loans and subsidies. Nevertheless, competition for orders still remains fierce, especially as newer shipbuilding countries like South Korea, Taiwan, Romania, etc, emerge. Even though the demand for medium-sized tankers, bulk-carriers, gas-carriers, etc, increased during 1981, the industry still depends upon the govt. support for its survival and the future still seems bleak for larger tankers and general cargo vessels.

However, besides these negative effects showing up in the international shipping industry, certain prominent positive changes are also apparent. With the beginning of the swift door to door service, the traditional general cargo carriage method has been replaced by freight container vessels. These container vessels are bigger in size, faster and also expensive, as they require considerable infrastructure capital investments in ports, terminals and ancillary equipments.³⁴

Another major change in the international modern shipping industry has been the growth of the recreational passenger liners providing cruises to exotic destinations for increasingly more affluent clientele in the developed countries.³⁵ The growth of ancillary vessel sector has also been an interesting aspect of the modern shipping. The

³³ Ibid

³⁴ Ibid

³⁵ Opcit 18

world shipping industry is experiencing tremendous boom and switching over to the use of more and more sophisticated fishing vessels and equipments. The vessel navigation has also become more efficient and sophisticated with the increasing use of advanced shipboard electronics and dateline navigation systems by the developed as well as some developing countries. The period from 1980s onwards has witnessed a broadening of flag-states under the commercial shipping industry.³⁶ Some of the developing countries like India, Indonesia, Philippines, Brazil, etc. have been steadily growing their fleets. However, certain developing nations like Liberia, Panama, Cyprus, Bahamas, etc. and a large part of the world fleet, still continues to be registered under the “flag of convenience”.³⁷

(Refer table 5&6)

In the 21st century, the world fleet may not expand greatly in terms of overall tonnage, but is expected to undergo increasing diversification and specialization in certain aspects like: container carriers, passenger cruise liners, petroleum-cargo carriers, specialized industrial carriers for handling specific cargoes like colliers for shipping coal, whole back or grain-ships for wheat, banana, carriers for perishable goods and refrigerator ships for transporting fruits, meat and dairy products.³⁸ Besides these passenger ships and cargo ships, the special tasks ship, that perform special task in making the oceans more sailable and assisting merchant shipping activities, have been increasingly gaining importance.³⁹ For instance, dredges-deepen the coastal waters and river ports, lighter loads and unload in shallow waters, ice-breakers open up and sail through frozen waters, tugs for maneuvering large ships, life boats for rescuing seamen,

³⁶ Opcit 32

³⁷ Till Geoffrey ; Modern Sea Power; Brassey's Defence Publishers. London ; 1987

³⁸ Opcit 18

³⁹ Opcit 18

salvage ships for recovering wrecked vessels, police-launches and marine boat for guarding the sea-coasts and fleet of military vessels, including destroyers, submarines, torpedo boats, battleships, aircraft carriers, etc.⁴⁰ Table 7 shows the Merchant fleet of the different geographical areas in the world, according to the flag of registration and the types of ship.

⁴⁰ Op cit 18

Concluding Remarks

The evolution of maritime transport as a cheap and convenient mode of trade and communication has contributed significantly towards establishing economic and political relations between different countries across the globe. In order to partake in the economic advantages offered by seaborne trade, many countries started building sea fleet and crew. Earlier the power of a state was measured by its quantity and quality of marine vessels and navies. Infact the development of sea-power by a nation gave it the advantages of acquiring colonies even in distant lands.

The uses of the sea transport can be broadly divided into two categories: economic and as that of a military medium. The increasing economic significance of the sea trade has infact provided reasons for fighting and defending the SLOC. The military significance of SLOC has tremendously grown in the post World War period due to easy maneuverability of naval powers to crisis areas and the use of sea-based aviation forces. The increasing maritime activities has led to a massive expansion in the ship-building industry and the center of gravity of world shipping has moved east wards with Japan being the world's major ship-building country.

CHAPTER-2

ELEMENTS OF SEA LANES OF COMMUNICATION

2.1 Ocean Systems Of The World

‘The ocean is the sheet of salt water, which surrounds the great land masses of the earth. These land masses, divide this in-to several extensive portions , each known as an ocean, which altogether covers about 71% of the earth’s surface. The individual oceans are the Pacific, the largest, flanked by high mountain chains, having a deep, fairly level floor, and remarkable for the number of small islands, largely of volcanic origin. The narrower Atlantic with few islands; the Indian , still smaller and enclosed on three sides by continents and island; the Arctic , surrounding the North Pole, and the Southern Ocean surrounding Antarctica’.⁴¹

Over the time and stages of evolution of humankind, oceans have been always realised as a timeless source of natural resources and an important means of transport and communication. The oceanographers have divided the oceans in three distinct regions: the Littoral, the Pelagic, and the Abyssal Alternatively they have also divided the oceans according to depth in to four reigions:⁴²

The continental shelf – which adjoins the land,

The continental slope- immediately out side the continental shelf,

The deep- sea plain- a wide and almost level area forming most of the ocean floor, and varying in depth from about 2,000 to 3,000 fathoms, and,

The deeps-is the ocean floor , like the land surface having many ridges and valleys.

As a result of increasing human activities in the oceans for their economic development, the ocean waters are under the greatest environmental. Stress, especially

⁴¹ A Dictionary of Geography ; 1963 ; Penguin Books Ltd, Middlesex; p-126

⁴² Colliers Encylopedia; vol 21; Macmillan Educational Company, P.F. Collier Inc., New York ; 1982

the coastal waters. In order to deal with such issues of global concern various international organizations have worked out treaties and management procedures over the past years on shipping activities along the SLOC. The International Maritime Organisation (IMO) has been established to regulate shipping internationally and the signatory countries have adopted and enforced standards with some success. International Law has divided ocean waters as nationally controlled coastal waters and globally managed open oceans.⁴³

In order to assess the maritime claims of a country, it is essential to establish its maritime jurisdiction zones with the help of baselines. According to Article 5 of the United Nation's Law of the Sea 1983, "the normal baseline is the low water line along the coast as marked on large scale charts officially recognized by the coastal states".⁴⁴ Landwards of this baseline are internal waters of country with its complete sovereignty over it. Certain geographical situations like an indented coastline, fringe of islands along the coasts, presence of a delta, unstable coastline, etc, may require a country to have a straight baseline drawn along the parts of its coasts.⁴⁵ Whereas an archipelagic state can draw its baseline by connecting the outermost points of the outer island. Outwards from the baseline, the belt of sea adjoining the coast upto 12 nautical miles is the territorial waters of a country, under its territorial jurisdiction. A peaceful passage through this zone is permitted normally to the vessels of other countries. Beyond this territorial water belt is a 200 nautical mile zone called Exclusive Economic Zone (EEZ), within which the coastal countries have exclusive rights to the living and non living natural resources on the seafloor and seabed. According to the Law of the Sea, the littoral nations are considered to be in the best position to protect oceans, and the condition of the oceans depend upon the

⁴³ Smith Robert W.; "Global Maritime Claims" Ocean Development and International Law ; vol 20, no.1; 1989.

⁴⁴ Opcit 8

action of all the countries . In the Article 76 of the UN Law of the Sea 1983, ‘the continental shelf of a coastal state comprises of the sea- bed and sub- soil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin , or to a distance of 200 nautical miles from the baseline from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend upto the distance’.⁴⁶ (Refer Fig.1)

2.2 Determinant Factors of the Use of SLOC

There are certain factors that determine the intensity and the type of use of sea by any country .⁴⁷ The factors may be viewed by a country at an international or world level and at national or domestic level for the use of SLOC as well.(Fig 1)

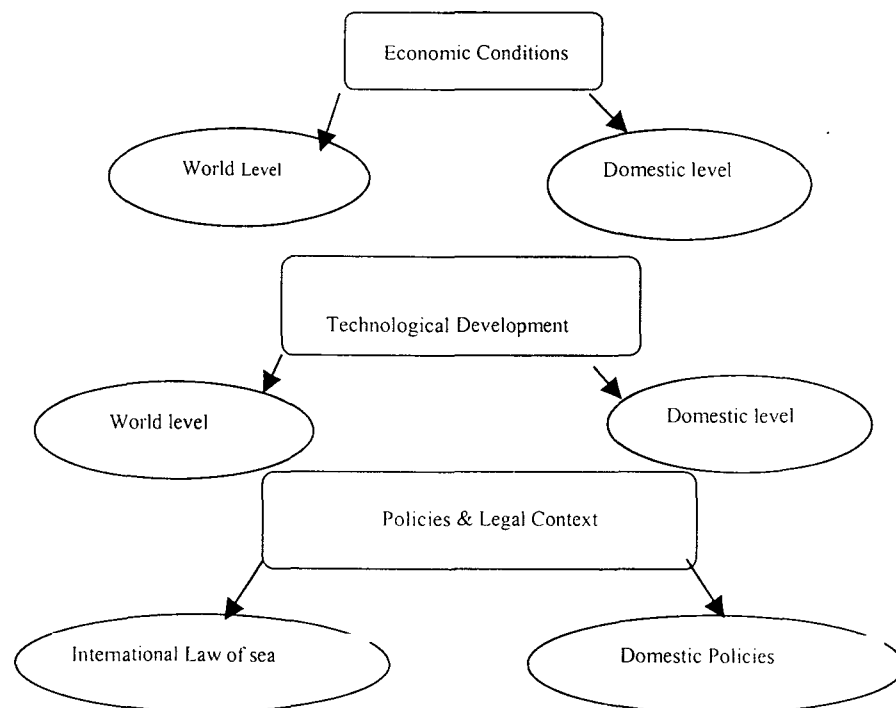


Fig-1 :- Determinant Factors of the Use of SLOC

⁴⁵ Opcit 43

⁴⁶ Opcit 8

⁴⁷ Gretton Admiral Sir Peter ; Maritime Strategy - A Study of British Defence Problems ; Cassell, London ; 1965.

The economic uses of SLOC has definitely increased and diversified with the growth in world economy. The ocean activities such as fishing , offshore oil explorations, resource explanations use of SLOC for trade & communication, etc may however respond to the condition of economic prosperity of the littoral country in the participation of world economy.

Various technological developments over the time has increased the uses of the sea by not Just reducing the costs of various operations involved in sea activities but also making it a lot easier.⁴⁸ The state of technology possessed by any country may determine its intensity of the use of the SLOC. And it is believed that there is going to be relatively more increase in the uses of the sea than in on- shore activities in the coming years

The policies and legal contexts formulated and implemented at the international as well as the national or domestic level have a major influence on the use of the seas. For instance the United Nations Conferences on the Law of the Sea and other such regulatory bodies have been negotiating on a wide variety of issues such as extent of territorial waters, economic zones, fishing grounds, marine pollution controls, transit right , seabed resource explorations, etc.⁴⁹ The regime agreed upon for each of these issues effect the maritime navigation activities of the individual countries to a great extent especially, the resolution of the extent of territorial seas and transit rights through internationally straits. The domestic maritime policies followed by the littoral countries may have important effects on the flow of seaborne trade and nature of military deployments and activities in that region. Infact , it can be inferred from the present world condition that the uses of the SLOC in the present context have been

⁴⁸ Ibid

⁴⁹ Opcit 8

developing more as a response to international and national economic and political events, rather than policies and codes of any international agreement on the Law of the Sea. The extent of the uses of SLOC by any nation depends on its domestic economic and political policies like tariff and quota regulation in seaborne trade, formulating maritime environmental policies, exploitation of govt. controlled offshore oil fields, govt. research activities in the seas, etc.⁵⁰ National and protectionist policies followed by certain governments have in a long run inhibited the expansion of seaborne trade in certain countries. Most of the large industrialized countries as well as some of the developing countries have realized the economic and strategic significance of the uses of the SLOC and have geared their domestic maritime policies towards the overall strengthening and development of their basic elements of SLOC.

2.3 Elements Of Sloc

There are certain geographical elements of SLOC, that may extend and strengthen the economic, commercial and military interests of a country. These elements of SLOC may include- seaports & harbors as maritime trade nodes and straits & canals as important transit passages.

2.3(1) Seaports As Modern Transport Nodes

A seaport can be best defined in terms of its functions as a place where exchanges between land & sea transport regularly take place, as the modern seaport has both : cargo served by inland transport and that by deep water terminals serving port industries.⁵¹ A sea port could be located in a bay, creek, lagoon, river, estuary or it could be even on an artificial people-made island. Some ports may handle single commodity while others

⁵⁰ Opict 47

⁵¹ Bird James; Seaport and Sea Terminals ; Hutchinson University Library, London ; 1971

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may deal in a wide range of commodities. Most of the seaports are under the control of local, state or national govt.

(i.e., under public ownership) while others under railway cooperation's, custom authorities or even private companies.⁵²

A seaport is a 'growth center' that stimulates industrial, manufacturing and the commercial activities. Some of the modern major ports may even act as distribution centers for international regional trade activities or location for large maritime industrial areas because of their strategic location.⁵³ Therefore, it is apparent that a port is a major factor relative to its economic functions. According to geostrategists, the location of a port may be considered in terms of site and situation.⁵⁴ Taking up each of these factors it is seen that :

- (i) The most important site characteristic for a port is protection from open water and an entrance which is deep enough for larger vessels and sufficient depth of water in the harbor to allow the entry of bigger vessels.
- (ii) The other factor, situation of a port, is its relative locations to the port hinterland and to the open waters of seas. A port may develop as far inland as the large vessels can go up to, and this situation is advantageous with respect to access to a maximum hinterland and to a minimum transportation cost between places of inland origin and destination and over seas.

The development of ports may also be influenced by changing physical conditions in coastal regions and therefore, a growth in size of sea vessels and an increase in depth of water required in ports has assumed greater importance.⁵⁵ The other two important factors that have affected the growth of seaports, especially during the modern

⁵² Ibid

⁵³ Ibid

⁵⁴ Opcit 18

⁵⁵ Opcit 51

⁵⁶ Opcit 51

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times are : (a) periods of expansion of seaborne trade, and (b) changing maritime technology and specialization in shipping.⁵⁶

Besides these factors, the success of a port may also depend upon:

Efficient inland communication network by road and railways or inland water ways connected to hinterland of high production and consumption . Proximity to a major shipping route may also influence the growth and development of a port. Presence of physical barriers such as mountains, etc, may even retard the port's growth and its geostrategic importance. In the global economy , the maritime field is in constant state of change, being effected by and influencing economic conditions. Therefore, an efficient maritime transport and port infrastructure are very essential for participation and expansion of global trade and peaceful naval activities.⁵⁷ This statement can be well supported by the figures given by United Nations, about the world seaborne trade registering its eleventh consecutive annual increase in 1996, with an annual growth rate of 2.3 % reaching a new record high of 4.76 billion tonnes.⁵⁸

The Atlantic Ocean is an important ocean from the point of view of trans-oceanic trade relations, and has some of the most important seaports of the world like: New York , New Jersey, Port Newark – Elizabeth port complex, Boston, Philadelphia, Baltimore, New Orleans, Halifax, Quebec, Toronto, St. John, Chicago, Para, Rio de Janeiro, Buenos Aires, Hamburg, Rotterdam, Amsterdam, Copenhagen, Venice, Marseilles, London, Liverpool, Hull, Bristol, Southampton, Alexandra, Port Said, Lagos, Cape Town, Leningrad, Odessa, Astrakhan, etc.

In the Pacific Ocean, some of the important trans-oceanic trade-nodes are : San Fransisco, Vancouver, Valparasio, Vladivostok, Yokohama, Kobe, Osaka, Shanghai, Canton, Sydney, Port Adelaide etc.⁴

⁵⁷ Opcit 51

And in the Indian Ocean, the major sea trade nodes are: Rangoon, Singapore, Calcutta, Vishakhapatnam, Chennai, Mumbai, Karachi, Colombo, Aden, Dar-es-salam, Durban, Darwin, Perth, etc.

2.3(2) Significance of Straits & Canals in Maritime Trade & Communication

Besides seaport and harbor serving as important sea transport nodes, strait and canals also play an important role in the international trans-oceanic trade relations and in determining the maritime strategy of a country. Geographically, a strait is a natural arm of the sea or a narrow sea channel which separates two land areas or connects two different water bodies. And legally speaking, a strait is a natural passage that connects two parts of the high seas, or one part of the high sea and the territorial sea of a foreign state.⁵⁹ The most important straits on which world shipping activities depend are: Bab-el Mandeb, Dover, Dardanelles, Gibraltar, Hormuz, Malacca, Singapore, Florida, Luzon, Mona, Lombok. Windward, etc. Of these major straits, Bab-el Mandeb, Dardanelles and Hormuz are of great strategic importance, as they have no other alternative shipping routes like for instance, Lombok is the alternative of Malacca for Far East. A strait may be considered strategically important as a passage which not only saves time but also the cost and distance for commercial and military ships. (Refer Fig.5)

Canals, on the other hand, are people-made waterways constructed primarily to join rivers, lakes and seas for the purpose of inland navigation or are used as distribution channels for irrigation water and water supply.⁶⁰ Places of trans-shipment and inter-oceanic canals have played an important part in world sea-borne commerce, and today, the main canals have great influence on the pattern and extent of world trade and even on world politics. There are four major canals in the world with great

⁵⁸ Review of Maritime Transport (1997)

⁵⁹ Opcit 23

commercial and strategic significance. These are the Panama Canal, Suez Canal, St. Lawrence Seaway and Kiel Canal.

A necessary condition of the freedom of the seas is the freedom of passage or navigation for ships of all states through these international straits and canals. Through the history of maritime transport, all the big maritime powers have sought to keep these straits and canals open for the safe passage of their ships, either by peaceful agreements or aggressive means. Besides the natural straits and channels, the maritime power have even constructed waterways and canals like the Panama and the Suez, to fulfil their ever-growing economic, political and navigational aspirations. However, even through the significance of these international straits and waterways has been realised in the era of the freedom of the seas for maintaining navigation and maritime communication relations between different countries across the world there has been some political inhibitions among the numerous strait states.⁶¹ These states are hesitant in allowing the passage to all ships through their waters in view of their security and other interest. Such a situation has become even more pronounced especially in the post Second World War period. With the popularization of the concept of territorial waters of the coastal states, the strait states considered the straits as part of their territorial seas under their controls and limitations. The closure of certain straits lying within the territorial waters of certain archipelagic states like Indonesia and the Philippines led to a diversion of sea traffic around Australia or the Panama Canal leading to not only increased distances but also to inflated prices of goods. This situation also resulted in retarded mobility of naval activities in these regions.

These issues were taken up in the third UN convention on the law of the sea in 1982 and its Article 38(2) clearly defined the “transit passage” through the straits as,

⁶⁰ Opcit 23

“ the exercise in accordance with this part of the freedom of navigation and overflight solely for the purpose of continuous and expeditious transit of the strait between one part of the high seas or an EEZ and another part of the high seas or an EEZ. However, the requirement of continuous and expeditious transit does not preclude passage through the strait for the purpose of entering,, leaving or returning from a state bordering the strait, subject to t he conditions of entry to that state. (Article 38(2) – UNCLOS-III).⁶²

Further the Article 39 laid down certain principles for ships and air crafts making use of the transit passage, to be acted upon in accordance with international regulations and practices.⁶³ The convention gave authorities to the coastal states to specify the sea lanes for navigation purposes with the approval of the International Maritime Organization Table no 8 gives a list of some selected straits and channels and the sovereign countries on their either side.

⁶¹ Anand R.P. ; “Peace-Time International Cooperation for The Security of The Sea Lanes of Communication In The Indian Ocean”, International Studies, vol.25, No 1., Jan – March 1988.

⁶² Ocean Yearbook – 5; E.D. Borgese E.M. & Ginsburg Norton ; The University of Chicago Press, Chicago;1985.

⁶³ Ibid

Table No.8

SELECTED STRAITS AND CHANNELS

PASSAGE	SOVEREIGNTY (on either side)
Bering strait	United states/ Russia
Strait of Magellan	Argentina / Chile
Bosporus	Turkey
Dardanelles	Turkey
Karpathos strait	Greece
Strait of Otranto	Albania/ Italy
Strait of Messina	Italy/ France
Strait of Bonifacio	France/ Italy
Canale de Piombino	Italy
Strait of Gibraltar	Morocco/ Spain
Strait of Dover	France/ United Kingdom
St. George's Channel	Ireland / United Kingdom
North Channel	United Kingdom
Skagerrak	Denmark/ Norway
Ore Sund	Denmark/ Sweden
Bonholmsgat (Hambarne)	Denmark/ Sweden
Kalmar Sund	Surden
Entrance of Gulf of Bothnia	Finland / Sweden
Entance of Gulf of Finland	Russia / Finland
Bab el Mandeb	Ethiopia / Yemen
Strait of Hormouz	Iran/ Muscat/ Oman
San Bernardino passage	Philippines
Makassar strait	Indonesia
Selat Lombok	Indonesia
Selat Bali	Indonesia
Selat Sunda	Indonesia
Strait of Malacca(North)	Indonesia/ Malaysia
Strait of Malacca (South)	Indonesia/ Malaysia
Formosa Strait	China/ Taiwan
Pescadores Channel	China/ Taiwan
Cook Strait	New Zealand

Source : U.S Department of State , *Sovereignty of the Sea*

2.4 Pattern of Ocean Dominance

The principal oceans have always been considered significant from the point of view of their political & economic aspects. The Pacific Ocean is the largest Ocean and occupies about one third of the terrestrial global surface. Even though an early civilization flourished along the western Pacific coastlands, there were however, no attempts made to explore the ocean beyond the coastal waters. And it was only during the 16th century that direct contact between Europe & Pacific was established by sea explorations.⁶⁴ These explorations led to the opening up of oceanic trade-routes and linked Europe with Far-east. By then the Spaniards had developed an efficient sea – power and discovered several islands in the ocean. The Dutch not staying far behind, started dominating these Pacific voyages from the 17th century onwards.⁶⁵ During the 18th century British and French naval powers also started navigating the Pacific Ocean in order to pursue their imperialist interests.⁶⁶ By the 19th century, the maritime powers of western Europe, were all engaged in struggle for gaining colonies and trade monopoly in the Pacific. But the history of modern naval strategy in Pacific dates from 1894, where Japanese defeated the Chinese navy.⁶⁷ And by 1904, Japanese become the dominant power in the western Pacific after they overthrew the Russian Far-East Fleet. An alliance between Britain and Japan was maintained during this time in order to safeguard British interests in the Pacific.

After the defeat of Germany in the First World War, Japan acquired Germany's Pacific islands and further strengthened her naval influence. With the opening of the Panama Canal in 1914, the US could operate its fleet in the Pacific, but the Japanese hegemony remained unchallenged. However, during the Second World War, despite

⁶⁴ The New Encyclopaedia Britannica, Volume-25, Macropaedia (15th Edition), Encyclopaedia Britannica Inc. Chicago, 1987.

⁶⁵ Ibid

⁶⁶ Ibid

⁶⁷ Ibid

Japan's military successes in Asia, it failed to establish control of the eastern Pacific and the United States took over the command of the Western Pacific from Japan. Since then the United States has been the Supreme power in the Eastern Pacific and the south Pacific, Britain, Australia and New Zealand have also been the important naval powers.

Trade and Communication

During the 19th century, the development of the North American west coast and the growing influence of the United States in the Pacific accelerated the trade relations between the North America and Far-East & Oceanic. After the decline of Japanese supremacy in the Pacific, countries such as Australia, New Zealand, France, USA and UK established the South Pacific Commission, whose aim was to encourage and coordinate research in the economic and social problems of this region.⁶⁸

The major trading patterns are determined by political factors here and trade links have been established between Hawaii & the United States, Britain & France, and their colonial Pacific island and between Australia & New Zealand and their dependent territories. Communication network across the Pacific is much better than that between the various island of the ocean. Passenger service and ocean freight services have connected the North America with Japan and the Philippines. The Panama Canal links the ports on both Atlantic and Pacific coasts. Honolulu, the capital of Hawaii, is an important port-of-call and Japan in the Far-East is the principal focal point in shipping routes.

The Atlantic Ocean with the largest drainage area was explore by the Vikings in their wooden ships during the 11th century.⁶⁹ Their ships charted the waters around

⁶⁸ Ibid

⁶⁹ Ibid ⁷⁰ Ibid

Greenland, Iceland and North–Eastern North America.⁷⁰ After the Portuguese discovered the islands of Madeira and Azores in the 15th century and the trans-Atlantic voyage of Columbus(1492-93), many Europeans started the explorations of land bordering Atlantic’s western shore⁷¹. Spain had become the dominant naval power in Atlantic during the 16th century. Later, her supremacy was challenged by French, British and Dutch ships.⁷² However, in the 19th century, British managed to establish a naval supremacy that lasted until the first half of the 20th century ,in the time which United States sea – power developed. At present both the United States and Russia have powerful naval forces in Atlantic waters and are competing with each other in Oceanographic research.

The areas of most congested marine traffic lie in Atlantic Ocean specifically the North Atlantic. In 1948, the International Convention of the Safety of Life at Sea was adopted to systemize and regulate the shipping routes.⁷³ Each of the lanes are used at a certain time of the year. Countries have also assigned their own lanes in order to relieve traffic.

The Indian Ocean is the third largest ocean in the world and comprises of only about 20% of the total ocean area. Major portion of this ocean lies in the southern hemisphere and its maritime trade routes cross the tropical zone. Since the Indian Ocean is surrounded by four continents–Africa, Asia, Australia and Antarctica, it has great geo-political and geo-strategic importance since the historical times. This ocean has been the earliest ocean to have been charted by naval powers of the ancient civilizations. During the 1st millenium B.C., the Egyptians, the Phoenicians and the Indians undertook voyages in the northern portion of the Indian Ocean and later

⁷¹ Ibid

⁷² Ibid

⁷³ Ibid

Chinese and Arabic ships also joined in.⁷⁴ Accounts of medieval Arab and Persian scholars of the 9th to 15th centuries, include sailing instructions and information on navigation, winds, currents, coasts, etc. In 1469, Nikitin, a Russian voyager sailed to India on an Indian trading vessel and then in 1497, Vasco de Gama sailed around Africa to reach the western shore of India. Later on the Portuguese were followed by the Dutch, British and French ships to the Indian ocean in order to establish their supremacy over the sea routes and monopolize the trade with the Asian countries endowed with vast mineral resources and commercial crops. It has been estimated, that about a quarter of the World's trade is being handled in the ports of the Indian Oceans in the present times.⁷⁵ However, as compared to other oceanic and geo-political regions of the world, this region has been witnessing various conflicts and discords between its littoral countries and thus exposed to power imbalances. However it has been realised by the maritime power that this ocean provides important trade routes and sea lanes of strategic importance as compared to any other region. Indian Ocean provides an important line of communication between the Atlantic, the Mediterranean and the Pacific through the Suez Canal. During 1900 this ocean was considered as a 'British lake' due to the control of British navy over all the strategic gateways.⁷⁶ However after the Second World War, with the weakening of the British and other European colonial powers led to their subsequent withdrawal from the Indian Ocean. But with the growing rivalry between the United States and erstwhile Soviet Union, which had emerged as the strongest powers after the World War, led to their stepping in the Indian Ocean to seek new alliances and strengthening their presence. During this Cold War period these two super-

⁷⁴ Ibid

⁷⁵ Ibid

⁷⁶ Ibid

powers were engaged in arms build up in the ocean and the concept of maintaining “forward bases” and carrying out naval exercises started.⁷⁷

Due to extreme weather conditions of ice, storms, fog, low temperature and over-cast skies, navigation had been impossible in the Antarctic and Arctic Ocean. But with the improvements in ice-reconnaissance and ship-design since the post Second World War period there has been a considerable use of submarine routes below the ice by military vessel and nuclear powered submarine oil tankers of different countries. In the near future navigation can be increased in the Arctic in order to reduce distance and tap mineral resources and even perform military exercises by naval powers by using large and powerful surface vessels or nuclear powered vessels and ice-breakers.⁷⁸

2.5 Defence of Sea Lanes of Communication

The SLOC along the main ocean routes are vital for the economic prosperity and security of the countries in the different oceanic geopolitical regions of the world. This makes the defence of these SLOC an important and common subject among the countries in such regions. However, it is not easy to promote the cooperation and mutual assistance in the defence of such long SLOC especially with the spread of new technology, missiles, torpedoes, mines, land-based aircraft's, etc, even in the hands of non-industrialized countries can make it hazardous for even power full navies to pass through or operate in sea areas with in reach of land.⁷⁹ The modern defence of maritime communication involves the attack of enemy units- their aircraft's and submarines when encountered. Mines prove a serious threat to merchant shipping and therefore requires substantial counter-measures in coastal waters and harbors. Politico-legal aspects like

⁷⁷ Ibid

⁷⁸ Opcit 23

⁷⁹ Opcit 4

the regulation of ports and shipping , pre- positioning of stock, etc, also exist.⁸⁰ The merchant ships may also be armed with aircraft and other defence systems. And increase in the relative power of faster and much better armed submarines has posed serious threats to present day surface navy or merchant fleet . The ever looming possibility of war and the untested modern means of offence and defense has made it necessary to arrive at specific answers to the importance of SLOC and their defence. Since it is very difficult for a single country to defend these long SLOC all by itself, therefore what is required at present is a systematic and since are effort to establish co-operation among the various groups of countries with common maritime interest. To come up with common measures to defend the SLOC . the success of such an effort in defending of the SLOC by creating co-operation among countries in the different oceanic geopolitical regions and co-ordinating their efforts with the global maritime strategy, will lead to the future of the SLOC defence being very bright and this in turn will prove to be a big effort in deterring a large scale nuclear war.

2.6 Maritime Trade Route Patterns:-

The oceanic routes of shipping have undergone drastic changes with the development from ships to steam sips and especially in the post – Second World War period. The volume of traffic on these routes, the type of shipping activities carried out along these routes and the frequency of services on these routes depend upon various factors such as the supply and demand of goods, availability of ocean terminals and nodes, transit passages, absence of physical barriers, nature of cargo, etc. These major ocean trade routes are-

- a) The North Atlantic Route – flanked on both sides by regions of dense population and varied industrial activities.
 - b) The Cape of Good Hope Route – was once an alternative to the Suez Canal route.
-

- c) The Mediterranean- Suez – Asiatic Route- linked Europe with Far – East with the opening of the Suez Canal .
- d) The Panama Canal- West Indian-Central American Route- was started with the completion of Panama Canal and benefits countries on both Atlantic and Pacific Coasts.
- e) The South Atlantic Route – Has less ocean traffic as compared to that in the North Atlantic, as it connects regions of sparse population and limited economic development .
- f) The Trans – Pacific Route- links the ocean traffic from North America and through the Panama Canal to South - East Asia.

Concluding Remarks

An insight into the basic elements that enhance the commercial & military significance of SLOC in a particular maritime geo-political region, such as the trans-oceanic trade route as transit passage, the co-operation in defending these SLOC, etc makes it apparent that maintaining a peaceful control over these is significant in not just attaining economic prosperity but also in influencing the political maritime strategy of any country. Since long the maritime strategists throughout the world have realized that unlike the land forces, the role of maritime forces cannot be limited up to the territorial limits of a country. The maritime strategy of any country should be so formulated as to meet the maritime military threats posed by the enemy naval forces and also getting involved and participating in the international political, diplomatic and commercial activities during the peacetime. A detailed discussion on this aspect is taken up in the next chapter.

Chapter 3

REGULATORY REGIME OF SLOC

This chapter on the regulatory regime of the SLOC discusses what maritime strategy is all about and what the main sources and elements of sea-power are. Then the discussion will proceed to trace the development of maritime law and policies evolved in general and those related to the domain of SLOC in particular. In the present century there have been two important developments that have greatly affected the customary law of the naval warfare and hence changed the course of maritime strategy: the Charter of United Nations and the third United Nations Law of the Sea. In the backdrop of the discussion on the evolving Law of the Sea and maritime strategy, the study seeks to bring out the changing perspective of the maritime transport strategy as put forward by some eminent maritime strategic thinkers. This would be followed by a review of the situation in the post Second World War period, especially in the bi-polar nuclear era referred to as the “Cold War” era from the point of view of both the United States and the Soviet maritime strategies.

3.1 Maritime Strategy:-

The maritime strategy of a country is a major component of its national strategy to safeguard its national interests in the form of its political economic, social cultural, geo-political military, etc aspects.⁸¹ Thus the maritime strategy of a country is not just

⁸¹ Dimri B.M ; “Evolving Law of The Sea And Naval Strategy: An Indian Prevision” ; Strategic Analysis, vol.17, No.11, February 1995.

its defense and security but also making use of the world oceans to promote its economic and commercial, military and political scientific and technology, etc interests. For a country to have an efficient maritime strategy, it is very essential to have all these interests integrated and be considered as an inseparable part of the naval strategy of the country. The maritime strategists have realized that unlike the landforces, the operational role of the maritime power cannot be limited up to the territorial boundary of a country, hence, the maritime strategy should be so formulated as to not just meet the maritime military threats, but also getting involved in the international political, diplomatic and commercial activities during the peacetime.⁸²

3.2 Principles of Maritime Strategy:-

Vice Admiral Sir Peter Gretton of the Royal British Navy had talked about two sets of principles of maritime strategy. These principles of maritime strategy are the peacetime principles which has been made use of during peacetime for the preparation of war the second type are the wartime principles that are applied during a war.⁸³ These principles are learnt by every defence officer in the starting of their career.

a) 3.2 The Peacetime Principles:-

A country should maintain a naval strategy which should be equal to naval strength of two of its most powerful enemies.⁸⁴ The defence of the seaborne trade is an important task of the naval power and the maritime aviation and nuclear propelled submarines have helped in this task immensely. With the newer developments in weaponry technology, maritime aviation and submarine U-boats can be used to take on even the coastal or

⁸² Ibid

on-shore operations. Gretton has also supported the policy of securing and developing strategic maritime bases which can prove to be very important at the time of conflicts and naval operations. The floating bases on the 'Fleet Train' which are the mobile docks and ships meant for repairing and maintaining the warships, submarines and aircrafts of the fleet besides providing food and other provisions have also been helpful in pursuing these maritime interests.⁸⁵ Gretton strongly feels that the international Law of the Sea permitting transit passage through the seas during the peacetime and allowing a maritime power to enforce a blockade against an enemy, should be strictly abided by in order to restore the liberty of movement at sea.⁸⁶

3.2(b)The Wartime principle:-

Gretton recognized that the need to destroy the enemy fleet and preventing it from using the sea, is a fundamental principle of maritime warfare.⁸⁷ The security of an insular or island country and its overseas territories (as was in the case of Britain) can be best looked after by an efficient and strong sea power and the maritime aviation forces. In the pre-World War period, the sea was used to transport land forces at strategic coastal locations of enemy territory. However, in the present times the air transport has replaced this function of the ships to a great extent. Further, attacking the enemy sea communication and paralyzing their overseas military bases can damage their economy and prevent them from using the sea for military operations. In accomplishing such a task, aircraft and submarines have been very useful. Aircrafts have also been needed to

⁸³ Gretton Admiral Sir Peter ; Threat to Sea Communication as a Means of Limited War ; Barassey's Naval Annual ; 1964.

⁸⁴ Ibid

⁸⁵ Opcit 4

⁸⁶ Opcit 83

defend the surface ships from the enemy's bomber aircrafts and missiles. According to Gretton the merchant shipping can be protected well against enemy attacks by escorted convoys such as small aircrafts. Though he felt this is more a method of trade protection rather than being just a principle, the analysis of past wars at sea, made him accept this method as a principle of maritime strategy.⁸⁸

3.3 Sources and Elements of Maritime Strategy

The maritime strategists strongly believe that the sea has been since time immemorial an important means of transportation and the operations conducted to attack and defend shipping, plays a significant role in the maritime strategy of a country. The events of the Second World War confirm their views by demonstrating the extent to which the military power of the great maritime powers like the United States, Britain and Japan depended upon not just the safe but also the timely arrival of ships carrying supplies needed during the war. The country with a strong military power had a greater capacity to command the sea lanes and denying its enemies the same. The Second World War and even the First World War have made it explicitly clear that despite all the technology advances having taken place in the machine age, the traditional roles and importance of sea power still survives. According to the maritime strategist the constituents of sea – power of any county are many and varied. These elements of sea–power of any country are not just limited up to the combat ships, weapons or trained personnel but also the factor and facilities such as the mercantile fleet, efficient shore establishments, etc.

⁸⁷ Opcit 83

⁸⁸ Opcit 83

The following section discusses the basic constituents of maritime power which have been put forward by some eminent maritime strategic thinkers in the form of a basic input/output model of sea-power. According to Geoffrey Till's model the input constituents are 'sources' and 'elements' that lead to the output 'sea-power'.⁸⁹ These inputs have been based on the elements of sea power given by A.T. Mahan that are: maritime community, resources, styles of government and geography. Till gave his elements of sea-power as being that of merchant shipping overseas possession and the fighting instruments. The sources of maritime power are:

1) Conventional Maritime Power or Maritime Community:

Some maritime strategists have maintained that the only legitimate reason to possess a naval power was to protect the country's merchant shipping activities and establish such conditions in which the trade could prosper during the peacetime. During the times of war, these navies would guard the merchant navy is indeed an important source of maritime power for any country to make the best use of them during the peace as well as wartime. The merchant shipping has also become a source of strategic & political influence due to its important roles like transporting people and goods around the globe. And if a country maintains a strong maritime community its relatively easier for it to maintain an efficient navy, as commercial shipping takes care of supplying the basic financial resources.⁹⁰ During the times of war, these navies would guard the merchant shipping from enemies attack. Over the years with the growing economic importance of the Sea Lanes of Communication, it has been realized that a merchant navy is indeed an important source of maritime power for any country to

⁸⁹ Opcit 4

⁹⁰ Opcit 4

make the best use of them during the peace as well as wartime. The merchant shipping has become a source of strategic and political influence due to its important roles like transporting people and goods around the globe. And if a country maintains a strong maritime community its relatively easier for it to maintain an efficient navy, as commercial shipping takes care of supplying the basic financial resources.⁹¹

2) Resources and Economic Power:-

The interdependence between maritime power and economic interests of any country is well illustrated in the world history, and the British naval history being a prime example. Its been widely accepted that the economic strength of a country helps its sea- power in a big way, as it not only provides money for defence but also for other general purposes like developing industrial expertise and ship- building skills.⁹² Economic prosperity also helps in establishing efficient port facilities and operational performances.

3) Political System and Organization:-

The history of maritime transport points towards the fact that the form of government and its ideological spectrum about military needs is an important influence upon the development of its sea-power. Efficient and stable governments have translated its maritime interests and aspiration into a strong navy, trained personnel and developed operational skills. On the other hand it has also been seen that an inefficient government in turn produces an inefficient navy and maritime strategies.⁹³

4) Geopolitical Considerations Of Location, Shape And Size:

⁹¹ Opcit 4

⁹² Opcit 4

Maritime strategists have realized that the geographical location and conditions of any country are very essential in determining its capacity to be a sea-power. Besides its proximity to important SLOC and development of harbors in determining a country's maritime strategy, some other aspects like the wind-pattern, water currents, seasonal cycles, etc influence the country's sea activities.⁹⁴ These weather conditions not only affect a country's defence preparations, strategy and operations but also its ship-designs. The study of geographical conditions of places with strategic advantages have also drawn considerable maritime attention as has been apparent in the case of the Danish Straits, Singapore, the Cape, Alexandria, Gibraltar, Dover, etc. On the other hand, in the 'geographically disadvantaged' countries, the maritime strategies are so formulated so as to overcome the natural disadvantages of its geography, as is apparent from the case of Germany and Soviet Union, etc.

A discussion of the major sources of the sea-power of a country should be followed by an analysis of the various elements of sea-power.

a) **Merchant Shipping :-**

As it has been discussed above that the sea is an important medium of transportation because of its being used for moving or carrying food-stuff for feeding the increasing number of humans, bringing in the raw-material for the industries, supplying various types of goods to other countries, transporting passengers and defence personnel to different destinations, etc. without this cheap and convenient means of transportation,

⁹³ Opcit 4

⁹⁴ Opcit 4

the ability of the maritime powers to reach out beyond their shores would be severely restricted, thus restricting and even retarding their prospects of development.⁹⁵

b) Overseas Naval Bases:-

An efficient and orderly operation of naval bases has been an important element of sea-power for centuries now. During the colonial era, the European countries did set up overseas bases across the Indian Ocean in order to maintain their far flung empires. During the Second World War, the immense importance of the naval bases was realised with the use of such bases in Europe, the Mediterranean Sea and the Pacific Ocean. The British naval operations had been unsuccessful, despite her being a traditional maritime power, because, enough money was not spent on the maintenance of its overseas naval bases at Malta, Gibraltar, Freetown, Scapa Flow, etc during the peacetime. The degree of strategic importance of overseas naval bases normally determine the form of naval activities carried out there.⁹⁶ Prominent maritime strategists like Mahan, had suggested that it was essential to maintain naval bases, so as to be able to defend the SLOC and maritime trade, which has become axiomatic in this context.⁹⁷

c) Weapons or Fighting Instruments:

The main objective of gaining superiority in sea- power by a Maritime power is achieved through employing weapons at sea also called the instruments of sea- power

⁹⁵ Opcit 4 ⁹⁶ Opcit 4

⁹⁷ Mahan A.T. ; The Influence of Sea Power Upon History 1660-1783 ; Boston : Little Brown ;1890

for the purpose of disputing the control of sea.⁹⁸ The most important fighting instruments of naval power is the warship and since the First World War, the maritime air power has also become an integral constituent of sea power. With the development of science and technology, various kinds of sophisticated submarine weaponry, maritime platforms tracking devices or ocean surveillance satellites, etc have seen their way as important instruments of modern sea power for use in both war and peacetimes.

d) Air Staging and Transit Rights:

Sir Peter Gretton has remarked that in the post Second World War period it has become rather difficult to obtain transit facilities and overflying rights for naval ships and military aircrafts through a sovereign country's territorial waters and airspace.⁹⁹ Such a political condition makes a ship haul long and expensive. However, as already discussed under the section on straits and canals in the previous chapter that, a necessary condition of the freedom of the seas is the freedom of passage or navigation for ships of all States through the international straits and canals. Such issues have been dealt with under several conferences and certain principles have been laid down for ships and aircrafts making in use of transit passages. Under these conventions, the sovereign coastal countries have been given authority to specify the sea lanes for navigation purposes with the approval of the IMO.¹⁰⁰

With the developing technology and prospects for a bright future for sea- power. Gretton has also suggested the development of navigation under polar ice- caps.

⁹⁸ Opcit 4

⁹⁹ Gretton Admiral Sir Peter ; Maritime strategy; Cassell : London ; 1965.

e) **Interdependence In Foreign Affairs:-**

It has been pointed out by many a statesperson especially in the post World War period that, however, strong a country's military and maritime forces may be, no country can pursue an independent foreign policy. And the basis of foreign policy of any country should be the principle of interdependence in world affairs.¹⁰¹

Maritime co-operation is possible in all those activities that make use of the sea. Such co-operation may take place in the form of either naval interaction or in other maritime activities like merchant shipping and trans-oceanic trade and communication. Lt Cdr. B.M Dimri of Indian Navy has put forward three stages of maritime co-operation. These are : Strengthening of International Legal System at sea; II Naval Co-operation and confidence-building measure; III Co-operative measures in naval activities & in other maritime activities (including defence science).¹⁰²

3.4 Development of Maritime Law & Policy

The Law of the Sea, though many have been codified over the past recent decades governing the commercial functions of ships, the "maritime law" has been developing since the ancient times. Even the Roman navies had codified shipping rules that were followed in Mediterranean commercial practices. They, however, did not get pressingly concerned about these jurisdictional practices, as they themselves controlled most of the known world and its ocean at that time.

During the Dark Ages, the Mediterranean city states developed the commercial interests on the western and northern seaboard of Europe. And it was the growth of these

¹⁰⁰ Ibid

city states and their commercial ambitions that led to the beginning of the real “Law of the Sea”.¹⁰³ In an essay written in 1637 by Hugo Grotius, titled “De jure belli ac pacis,” he considered freedom of navigation as a part of the “freedom of the seas” which got on to become a widely accepted principle of the international Law of the Seas. However, this policy of “freedom of navigation” was not much acceptable to the powerful states especially as it was suggested by the weaker states¹⁰⁴. The weaker states had to put up a bitter confrontation in order to win it. During the 17th century, the opening of the world due to exploration and development of science and technology, made colonial and commercial activities possible and ocean transportation was the only means to achieve this. The powerful states benefited greatly from shipping and the free use of oceans. From the late 18th and early 19th century, Britain rose to become a leading maritime state by pursuing its oceanic ambitions on a global scale by the help of the new freedom of seas which she had strongly condemned some years ago. Other maritime powers also followed a similar kind of a policy of changing from a coastal power to sea power. This kind of a situation required certain legal norms codified for the new spatial requirements of ocean use. The major maritime states formulated new maritime policies based on commercial aspects of shipping leading to a dominance for jurisdictional aspect of Ocean Use.¹⁰⁵ The private shipping or the (commercial aspect of navigation) formed powerful and influential organizations such as ship – owners and maritime law associations International Chamber of Shipping the Committee Maritime International,

¹⁰¹ Ibid

¹⁰² Opcit 81

¹⁰³ Abrahamsson Bernhard J. ; “Merchant Shipping In Transition : An Overview” ; Ocean Year Book 4 ; The University of Chicago Press Chicago ; 1983.

¹⁰⁴ Ibid

¹⁰⁵ Ocean Year Book-5 ; The University of Chicago Press, Chicago ; 1985.

etc.¹⁰⁶ In the 20th century, the development of International Shipping and private laws governing it, contributed greatly to the prosperity of the industrialized nations. However, gradually this smooth functioning of commercial and legal transactions in shipping faced the inability to perceiving changes in the international political scene.¹⁰⁷ And the shipping Industry got completely isolated from the public or political aspect of ocean issue. The three conferences held between 1930 and 1960 on the law of the sea, dealing with the aspect of jurisdiction of public Law of the Sea, saw any changes in the codes of the Law of the Sea as infringements on the Principle of Freedom of the Sea.¹⁰⁸ The demand for a wider territorial sea and contiguous zone, put forward by the coastal states was also rejected in these conferences.

By 1958, these issues had become quite politicized and the commercial use of oceans had been reduced to only one of the several uses of ocean gaining importance in this rapidly changing political scenario of this world¹⁰⁹. Certain States that wanted to protect their other oceanic interests and aspirations, defended the “freedom of seas” as a convenient tactics. The concepts of innocent passage, transit right, high – seas, merchant ships with flag- state jurisdiction gave sufficient protection to oceanic interests of various states. By late 1960s, ocean use got on to become a political question in terms of a public international law far removed from the commercial aspect of private maritime law.¹¹⁰ A great deal of political changes arising at both international and national levels after the

¹⁰⁶ Ibid

¹⁰⁷ Edgar Gold : Marine Transport : The Evolution of International Marine Policy and Shipping Law
Lexington, Mass : Heath ; 1981.

¹⁰⁸ Opcit 81

¹⁰⁹ Opcit 103

¹¹⁰ Opcit 103

Second World War, affected the ocean use and laws to a great deal and leading to a rise of a great number of coastal states over the ocean issues at Hague Codification Conference in 1930 then at UNCLOS I and II.¹¹¹ The number of these states further increased after the independence of various colonial countries in Africa and Asia, wanting to pursue maritime ambitions in restructuring their economies.

The establishment of a specialized agency of UN, Inter-Governmental Maritime Consultative Organization (IMCO), to deal with international shipping matter, was opposed by the traditional maritime states, who thought such an agency may disrupt the establishment pattern of shipping activities.¹¹² However, the problem of marine pollution as a result of ocean transportation processes led IMCO to represent international public interest in ocean transportation more broadly and posed one of the most difficult challenges before the shipping industry.¹¹³ The great development debate of “North- South” prevalent during the 1970s, also included shipping under its fold. The first meeting of UNCTAD in 1964, placed shipping on its agenda, after much protests by the developed countries UNCTAD confined itself to dealing with private maritime law, that were compiled by traditional maritime states hence viewed as unfavorable to the interests of the developing states.¹¹⁴

It is apparent from the above discussion that the issue of maritime warfare and maritime strategy have been significantly overlooked despite several technological innovations and developments taking place in sea- weaponry. Infact due to rapid advancement in technology, the traditional principles and roles of maritime power has

¹¹¹ Edgar Gold ; “The Surveillance And Control of Navigation In The New Law of The Sea : A Comment” ; Ocean Year Book –3 ; 1982

¹¹² Ibid

¹¹³ Boczek Boleslaw Adam ; “Peacetime Military Activities In The Exclusive Economic Zone of Third Countries” Ocean Development And International Law vol 19, No 6 ; 1988

¹¹⁴ Opcit 81

undergone drastic changes and the newer dimensions have yet to replace the older laws. Whereas on the other hand, the law of governing the sea during peacetime have been modified in the three Conferences on the Law of the Sea-UNCLOS I in 1958, UNCLOS II in 1960 and UNCLOS III in 1982. As already mentioned before that there have been two developments in the present times that have greatly influenced the law of naval warfare. These developments are the UN charter and the UNCLOS III

3.4(1) U.N. Charter:

The law of the maritime warfare have existed since the older times, when the international balance was determined by use of force and states indulged in unrestricted warfares.¹¹⁵ With the formulation of this Charter, the unrestricted warring activities carried out by the States was curbed and the use of force was permitted of the sole purpose of self defence . The other major issue deal with by the charter is the ‘War Zone’. Even though the Charter does not support the purpose of declaring War Zones especially against the neutral powers is a provision of a ‘ Total Exclusion Zone’ for the purpose of self – defense under its Article 51.¹¹⁶ However , over the years it has been realized that this charter has failed to strongly influence all the countries, especially the major maritime powers. And despite the Charter prohibiting wars, a number of armed conflicts between different countries have been taking place over the years. With the rapid advancements in technology of sea. Weaponry and mode of warfare, the newer

¹¹⁵ Opcit 81

¹¹⁶ Opcit 81

principles of maritime law and strategy have not yet replaced the traditional and obsolete principles and laws.¹¹⁷

3.4(2)UNCLOS – III:

The second development that has affected the Law of the Sea is the Third United Nations Conference on the Law of the Sea- UNCLOS III was concerned with the aspect of peacetime management of the sea. It was initially based on the issue of seabed, soon resulted in the whole public field laid out for discussion, excepts the fact that the traditional use of the issue of debate were the “ Freedom of navigation” and articles relating to rules governing vessels on high seas.¹¹⁸

The tow protocols of 1978, that took up the issue of Tanker Safety And Pollution Prevention Conference have led to the growing public concern for better management and upkeep of ships and everything deficiencies and accidents. Traditionally shipping industry has been regarded as the most unregulated of all the transport industries.¹¹⁹ However, it is evident from the recent developments that this unregulated state of maritime transport is at an end and a new era for oceans will usher in, and vast ocean area and many types of ocean uses will be dealt with radical new control, domination regulation and jurisdiction.¹²⁰ And the various types of ocean use will be complicated by a global pursuit of the widely differing interests of humankind in an unevenly divided world.¹²¹

¹¹⁷ Opcit 81

¹¹⁸ Opcit 81

¹¹⁹ Opcit 113

¹²⁰ Opcit 111

¹²¹ Opcit 107

3.5 Changing Perspective of Maritime Transport Strategy :-

Maritime strength was considered to be a major source of prosperity and success of a country during the Dark and Middle Ages in Europe. However, there was little attempt to systematically theorize the execution of the importance and concept of 'maritime strategy', which is the applications of informed common sense to the problem of where to place forces in order to contest the control of the sea.¹²² With the arrival of the Colombian era and some technological developments, the sea-faring nations like Britain, Spain, Holland, etc. began establishing distant colonies, aided by faster means of transport and communication. These changing geographical and political perspectives had begun to reflect in the strategic writings by the end of the 19th century. The surface of the Earth had been mapped completely by this time and now it seemed possible for eminent scholars like Alfred Thayer Mahan (1840-1914), Sir Halford Mackinder (1861-1947), etc. to study the relationship between the political history of the world and the spatial pattern of global distribution of continents and water – bodies.¹²³ These scholars even tried to explain the contemporary world scheme by taking into consideration diverse factors like historical continuity, spatially shifting balance of world power and technological revolution in communication and means of warfare.

The great geopolitician, A.T. Mahan, an American who graduated from the US Naval Academy, was a great apostle of sea-borne transport and was thoroughly convinced that it was an essential condition for world power status for any State, by having an effective control of the seas. According to him, in the struggle for supremacy

¹²² Potter E.B. & Fredland J.R.; *The United States And World Sea Power*; Prentice Hall, N. J 1955

¹²³ Dikshit R.D ; *Political Geography*;- Tata Mc Graw-Pub.Co Ltd, New Delhi ; 1994

among the leading States of the world, the maritime powers always had the upper hand based on the strategic thinking, Mahan put forward four socio-political aspects on the role of sea-power in world politics and economics, which are.¹²⁴

- a) There is a continuous and unbroken system of oceans on the Earth's surface leading to a unified system of oceanic communication,
- b) There is a vast trans-continental and landlocked Russian Empire,
- c) This empire is bordered by maritime states of Europe and South-East Asia,
- d) Britain, Japan and the United States are the insular States disconnected from the Eurasian mainland.

Mahan considered sea as a great highway and in the modern world scenario, strategic oceanic location offered a distinct politico-economic advantage and on the other hand, a landlocked location is often considered as a disadvantage. Based on this principle, he considered Russia as greatly disadvantaged because of its enormous distances and inadequate internal communication that limited its internal conference. And because of its landlocked position, it could be 'shut-off' by a hostile sea-power. On the other hand, the strategic maritime location of Britain had helped it to become the strongest sea-power. And irrespective of Russia's trans-continental spread and size, it could be easily contained by the strong British navy. Mahan explained Britain's success with the help of a simple deduction that her prosperity and strength are a result of wealth derived from trade and commerce and this trade and commerce has to be protected and strengthened by the help of navies. Mahan also stated certain characteristics that were favourable for the development of sea-power. These are:

¹²⁴ Opcit 97

(i) Geographical position:

- (a) central in relation to maritime neighbours,
- (b) easily defensible from enemy land forces,
- (c) not conducive to land expansion,
- (d) giving easy access to the sea,
- (e) controlling at least one major trade route,
- (f) close to maritime rivals.
- (g) providing good bases for naval operations,
- (h) promoting concentration of naval operations.

(2) Physical conformation : Providing:

- (a) Insufficient agricultural and raw material resources,
- (b) Deep, defensible harbours with easy access to the interior.
- (c) Protected coastal waterways with easy internal transportation,
- (d) Undivided land area, or control of intervening water.

(3) Coastline : relatively long and populous(4) Population : in excess of area and resources, and therefore available for:

- (a) manning seagoing vessels,
- (b) industries that support sea-power,
- (c) Colonization

(5) National Character: conducive to :

- (a) real aptitude for commerce,
- (b) aptitude for development of external areas,
- (c) investment of national resources in a navy,

(6) Government : Controlled by element of the population dependent on external trade rather than by elements whose livelihood depends upon domestic consumption of agricultural or industrial products.¹²⁵

During the same period, another great scholar and the best known geographer in the non-geographic circle was the Scottish Sir Halford Mackinder who made counter-attacks on the sea-power theory and observed that the long superiority of sea-transport was largely due to the technological lag between sea and communications¹²⁶. He foresaw tremendous possibilities in land transportation with the steam-locomotive and internal combustion engine. Mackinder had first written his “Heartland Theory” describing Russia as an impregnable “Pivot area” strategically secure like a fortress, at the turn of the century (1904), and had based it upon the geopolitical view of the world at that time. According to him, ‘Geography changes with development in technology’. Therefore, even though the unchallenged supremacy of sea movement has lasted for almost four hundred years (from the time of Vasco de Gama and Columbus to the 19th century), at the time when Mackinder was writing during the early 1900s, great improvements had been made in land transport and it was beginning to be considered as an alternative means of transport.

Another British scholar of this period, Sir Julian Corbett, derived a balanced outlook from his historical research while writing the naval history, that no doubt maritime strategy is a major principle governing a war in which sea plays an important part.¹²⁷ But he also emphasised upon this fact that the sea power alone is not enough and success shall be achieved by a State by the achievement of a right balance and

¹²⁵ *Opcit* 97

¹²⁶ Mackinder, Sir Halford ; *Democratic Ideas and Reality* (London: Constable) ; 1919

appropriate use of both navies as well as armies. According to him in a war fought on land the basic objective was to seize the enemy territory whereas in a naval war, the main objective was to gain and secure the use of the sea. The ability to use sea communication for military and civil purposes and denying such use of the enemy was considered by him as, 'the command of the sea. Corbett agreed with Mahan's view that attacks against seaborne trade were a wasteful form of warfare, especially against a nation with a large merchant marine and a strong navy to ensure its command of the sea. However, he did stress on the fact that an attack on enemy shipping could have effects on its financial and industrial strength. To him there can be two strategies of attacking enemy ships. The first is the complete blockade which can be undertaken by the nation having a command of the sea. The other type is the intermittent attacks on enemy ships by individual raiders carried out by an inferior naval opponent. Corbett did not foresee any kind of new methods of onslaught on merchant shipping that would make command of the sea's surface largely irrelevant. He had also derived from his historical research that there had been a heavier loss of merchant ships in narrow water rather than on the high seas. Towards the end of the 19th century, various technological developments also helped in the protection of merchant ships carrying goods for trade. The new steam ship did not have to always follow the fixed routes and could be diverted from areas where enemy raiders were suspected. Corbett was well aware of the fact that with the rapid development in communication technology, it would be soon possible to even track down merchant ship convoys sailing secretly on the sea.

¹²⁷ Corbett J.S. ; Some Principles of Maritime Strategy ; Longmans, London ; 1918.

In order to analyse the future of maritime strategy in the post First World War period, Admiral Raoule Castex, a French who studied the significance of the war and came up with a theoretical survey of maritime strategy in 1929.¹²⁸ To him, even though with the development of technology and the growing use of submarines and aircrafts, there had been a considerable change in seaborne trade and naval war, the importance of the large surface ships had not lessened. And in fact, aerial supremacy had become a necessary condition of maritime supremacy. It was realised after the First World War that the command of the sea was still very necessary for achieving maritime success, however the degree of maintaining such a command had become more limited in terms of time and space. Even an absolute command over seas could not prevent the enemy ships from entering the seas. Hence it was realised that the command of the sea now meant of control the surface maritime communications for the purpose of seaborne trade and commerce and military activities.

German writers of this period even suggested that their country should altogether abandon the pursuit of command of the sea, especially after the debacle of the German fleet in the First World War, and should rather direct the Germany navy of a new 'war on commerce as trade warfare was going to become the main operative task of the strategy of naval war' in the years to come.¹²⁹

¹²⁸ Opcit 4

¹²⁹ Opcit 4

The potentiality of the maritime power was once again realised during the Second World War with the triumph of the British maritime strategy. At this time it was pointed out by Admiral Chester W.Nimitz of the US Navy that, the control of the sea which the US Navy exhibited during the war, was more absolute than that was ever done by the traditional maritime power Britain.¹³⁰ This shift in power witnessed in maritime supremacy was primarily achieved through the employment of naval air sea forces in the destruction of enemy sea-power during the war. The adoption of this new technology not only provided great advantages to the naval forces but also proved to be very useful in the protection of sea borne trade & commerce.

The events of the Second World War were studied and analyzed by the historian of the British Royal Navy Capt. S.W.Roskill. He recognized the triumphant potentiality of the US maritime power and strongly believed that past experiences were very necessary in formulating the present maritime strategy which he defined 'as the means of bringing overwhelming forces to bear against the enemy in theatres of our own choice'¹³¹ He expressed his utter lament about the unpreparedness of the British navy due to more attention paid towards the 'continental strategies'. Even though he believed that the implementation of the British maritime strategy had been faulty, he showed that the potentialities of the Royal navy were undiminished.

¹³⁰ Potter E.B. & Nimitz C.W. ; The Great Sea War-The Story of Naval Action in World War-II; George Harrop & Co. Ltd, London ; 1960

¹³¹ Roskill, Capt. S.W. ; The War at Sea-1939-1945 ; vol. 1 ; London : HSMO ; 1954

In the post Second World War period, with the dynamic changes observed in the political arena of the bi-polar world and the advent of nuclear weapons led to a review of the maritime strategy by the naval thinkers like Admiral P.Barjot of France, Sir Peter Gretton of Britain, Edward Wegner of German navy, etc.¹³² Though all of them accepted the past importance of the sea-power, some of them argued that the naval theory of Mohan & Corbett about the exercise of sea-supremacy, the control of merchant shipping and SLOC had become obsolete with the impact ;of nuclear weapons on maritime operations¹³³ However, the naval thinkers like Edward Wegner of Germany who did not accept these views, counter argued that the importance of the sea, especially for seaborne trade & communication was growing tremendously and therefore, the surface navies were seeking new developments like strategic deterrence at sea in order to survive atomic attacks.

¹³² Opcit 4

¹³³ Opcit 4

Concluding Remarks:

The advancements in science & technology has necessitated the enactment & codification of international maritime rules known as the Law of the Sea, which in turn has effected the economic & strategic dimensions of the oceans. The politics in diverse foray at various levels has influenced the contents of the UNCLOS III Treaty and its subsequent signing and rectification. From the discussion on the sources and elements of sea-power, it is evident that none of these components of sea-power is static in nature and all of them are interdependent. A change or shift in one of these is bound to effect the other components as well. For instance, the political stability in a country may lead to its economic advancement, this in turn would help to produce newer methods and instruments of maritime transport and thus influence that country's maritime strategy and policies.

The issues of maritime warfare and strategy have been significantly overlooked despite several technological innovations and developments taking place in sea weaponry. In fact due to rapid advancements in technology the traditional principles and roles of maritime power has undergone drastic changes and the newer dimensions have yet to replace the older laws. Whereas on the other hand, the law governing sea during peacetime have been modified in the three Conferences on the Law of the Sea-UNCLOS I,II&III. The Charter of the United Nations & the UNCLOS have been the two major developments in the 20th century that have greatly affected the law of naval warfare.

CHAPTER-4

STRATEGIC DIMENSION OF SLOC IN THE NUCLEAR ERA

4.1 Maritime Strategy In the Nuclear Age:-

The political shape of the world had been completely transformed since the end of the Second World War and the period witnessed a disintegration of the imperialist domination of the world along with the end of Europe's hegemony. For over four decades the defeat of Germany, Japan & Italy by British and France, the greatest powers in the world were United States and the Soviet Union. These two countries exercised a sort of dominant role in world affairs and headed the two power blocs that came into being soon after the war. United States headed the Western Bloc, comprising of Western Europe, North America and the Pacific. And the Soviet Union was the dominant power in the Socialist Block comprising of Communist countries in Eastern Europe and later China and North Korea. A great number of changes were taking place within and between these two Blocs, but the position of the United States and the Soviet Union as pre-eminent military power in world remained unchallenged till about the end of the 1980's. Due to such a situation, the post-Second World-War period has been a period of tensions and conflicts, followed by a period of confrontation between the Western Bloc and the Soviet Bloc. This confrontation which continued throughout the greater part of the post Second World-War period has been termed as the Cold-War, accompanied by a race for destructive weapons threatening the very survival of the human race.

Development of Soviet and American naval vessels in all the world's ocean was done in order to maintain their global hegemony. These super power navies included large warships, aircraft carriers, cruisers and destroyers. However, the large warships had virtually become obsolete as weapons of war, as with the development of defence

technology, the anti-ship missiles could easily destroy them. With such a situation arising, a turn of events took place and the military activities in the oceans rather became dominated by strategic nuclear war activities than the conventional naval activities. The nuclear warfare was revolutionized by great scientific and technological development in both United States and Soviet Union. The Ballistic Missiles, anti-submarine warfare, anti-ballistic missiles and anti-satellite warfare systems were the strategic nuclear-war fighting weapons, developed by both the super-powers. As C.F.Barnaby of Stockholm International Peace Research Institute put forward that ‘the first step in a nuclear first strike would be the destruction of enemy’s reconnaissance and early warning satellites, his eyes and ears in space’.¹³⁴ Both these superpowers were working towards the development of anti-satellite technologies. And the one who would develop anti-submarine, anti-ballistic missiles and anti-satellite warfare technologies would have a significant advantage in able to launch a surprise nuclear attack against the other. And the ‘nuclear-war-fighting policies may then be replaced by nuclear-war-winning policies. Each shift of strategy would have further increased the risk of a nuclear world war, particularly the risk of an unintentional nuclear war during an international crisis’.¹³⁵

Therefore, its seen that with such technological changes of dramatic nature taking place during the past fifty years and these technological changes have not only transformed the economies of the advanced capitalist countries, but also their war-strategies, especially their maritime strategies.

The former Soviet Union and the United States have been the major opposing powers during the Cold-War era, and taking a closer insight into their respective thinking

¹³⁴ Barnaby C.F. ; “Superpower Military Activities in the World’s oceans” : Ocean Yearbook-1998; Ed Elisabeth M.Borgese and Norton Ginsburg ; The University of Chicapg Press, Chicago. p.224

¹³⁵ Ibid.

on naval strategy during this period from 1945-1980's, presents a closer picture of the role played by sea-power in the confrontation between the Western Bloc and the Soviet Union.

4.2 The United States Maritime Strategy during the Cold War Period:-

'It is often argued that hardly had the ink dried on Mahan's writings that new technological developments (initially the submarine and then the aircraft) appeared to discredit his theories'.¹³⁶ During the inter-war period, the importance of a far quicker and a more effective air-power grew, which could lead enemies into submission by an assault on not just their morale but their war-making capacity. Whereas on the other hand, sea-power could offer no defence against air-attack or mount operations against the land or offer defence against the enemy if it had a modern air-force. It was realised at this time by the American naval strategists that a comprehensive and theoretical approach to naval strategy was required in older ideas and replace the traditional works. At this time, emphasis was being placed on the understanding of certain areas of naval activities while others were being neglected, and the American naval strategy was dominated by activities like nuclear warfare, deterrence and organization of the armed forces.

The triumphant war waged out by the American naval mean against Japan, Midway and Leyte Gulf, clearly justified the Central theses of 'command of the sea' put forward by Mahan in 1890. And during the period of Second World War and then the Cold War, a number of American naval writers like Bernard Brodie, Anthony Sokol, Admiral J.J.Clark, Captain Dwight Barnes, William Reitzel, B.M.Simpson, etc., attempted to apply A.T.Mahan's theoretical ideas to the modern world naval strategy. However, rejection technology as irrelevant in establishing constant principles by Mahan

¹³⁶ Opcit 4

was strongly challenged by some American naval thinkers and the strategic ideas of Mahan and Corbett were considered no longer relevant by these naval thinkers in the light of technological developments, taking place.¹³⁷ These developments in naval propulsions, aircraft, ocean surveillance techniques, missiles, computation techniques, explosives, etc. completely changed the role of naval power in the war strategy. The larger surface ships that find their prime targets on shore now faced threats from submarines, aircrafts, and missiles. For a large United States navy, bombardment of the land became a dominant concern, strategically with missiles launched from submarines and aircrafts based at sea along with giving great attention to inshore operations.¹³⁸

During the period of 1960s and 1970s, the American navy's strategic role was looked upon in terms of 'sea control' and 'power-projection'. In 1976 Admiral Elmo R. Zumwalt of United States Navy had categorized four missions for the navy: Strategic Deterrence, Power Projection; Sea Control and Navy presence.¹³⁹ At that time it was also made clear that the United States industries trade and commerce depended a lot on the ocean traffic on both its eastern and western coasts, as most of its important trading partners were across the broad expanse of oceans along her coasts. Thus the United States economy required a large as well as an efficient maritime capability. Along with this, her political interests required her to have a large military influence overseas. Both these interests, made the presence of a powerful United States Navy preeminent. And thus the United States Navy has been pursuing the double mission of not just keeping the sea open for commercial and military traffic or what Admiral Zumwalt termed as the 'sea-control', but also applying military power overseas termed as 'power-projection'.¹⁴⁰

¹³⁷ Opcit 4

¹³⁸ Opcit 4

¹³⁹ Zumwalt Admiral E. ; On Watch ; Quadrangle, New York ; 1976

¹⁴⁰ Opcit 4

4.3 Soviet Maritime Strategy During the Cold War Period:-

The role that Soviet Union played in bringing the Second World War to an end by defeating Fascism had won her the admiration of anti-fascists all over the world. However, she also suffered the most as a result of this war and her economy was devastated. The Soviet Union launched a massive effort to reconstruct her economy as soon as the war was over the development of the economy was carried out through a series of Five Year Plans, and she rose to become the second most powerful economy in the world. The development of the economy was carried out through a series of five year plans, and she rose to become the second most powerful economy after the United States in terms of GNP in the world. One sector in which the Soviet Union got on to become more or less equal to the United States was her military capability. The developments in science and technology relating to the military sector were comparable to the highest in the world. And the massive expenditure on the military and the technology of armaments gave the Soviet Union parity in military strength with the United States. Such an effort can be said to have maintained the balance of power in the bi-polar world at that time, and also prevented the United States from imposing her will on the world. There was a time when in number of both submarines and major surface vessels the Soviet Navy was superior to the United States. In spite of this, she still lacked what the strategists would term as the operational strength.¹⁴¹ However she caused a shift in the balance of maritime power by challenging the hegemony of United States and her European allies in the use of seas. The growing strength of her maritime power accorded her naval capability in both war and peace, especially at the time when the strategic and economic dependence upon the free use of the seas by her main rivals the

¹⁴¹ Opcit 4

NATO group was increasing. In 1956, the Commander in Chief of the Soviet Navy, Admiral Sergei Gorshkov played a commendable role in publicizing the importance of maritime power to his country. He not only brought about a radical transformation in the role of Soviet Navy in the nuclear era, but also presided over the technology development in naval equipment's. Until 1960s, the traditional role of the soviet Navy had been to support the army and defend the country's maritime frontiers. However, Admiral Gorshkov launched a building programme for future naval expansion by developing large missile-armed destroyers in order to make the surface ships prominent.¹⁴² Besides this, Gorshkov published several articles that contributed a great deal to the country's maritime and nuclear strategy. He also pursued the task of developing the strategic and tactical thinking of his naval officers in harmony with the technological developments taking place at the time. Along with this was necessary an effective training programme and maintenance of high morale in order to be always ready for the combat.

According to the Soviet military doctrine, there have been no efforts or claims to show that maritime power has a predominant role in modern war or that naval strategy can be superior to continental strategy.¹⁴³ Infact It has been clearly maintained that a unity in strategic doctrine or operational command is very necessary for a success in war. And the historical experiences have shown that the final victory is achieved when the land forces occupy the enemy territory.¹⁴⁴ However, it was also realised that during peacetime, maritime powers were useful in pursuing the State's policy by demonstrating its strength and achievements. Undertaking voyages, carrying out naval exercises,

¹⁴² Gorshkov S.G. *Navies In War and Peace* ; Naval Institute Press ; Annapolis ; 1974

¹⁴³ Ibid

¹⁴⁴ Ibid

exploring maritime resources and developing an efficient merchant navy were considered some of the effective ways of increasing a country's influence. With the development of science and technology, it was realised that sea is just not means of communication, but also a huge storehouse of food, energy and raw materials. And the Soviet Navy soon realised that the countries that neglected their maritime power would decline both politically and economically and on the other hand, those states with effective naval strength could take ample advantages of the sea's economic benefits. Gorshkov claimed that the Modern Soviet Navy was specifically designed to meet her country's military and economic needs, and was not just an imitation of the United State Navy.¹⁴⁵ The main feature of the Soviet Navy had been to challenge the enemy's maritime nuclear forces by making use of submarine based latest weapons and electronic systems. Along with this Gorshkov had also emphasized on the self-defence capability of strong surface forces. It was also realised that the effectiveness of the Soviet Navy would not be due to its number and size of vessels but by an optimum combination of weapons and weapon platforms, as a balanced force by Gorshkov. This concept of a balanced fleet has been one of the core themes of the Soviet Maritime Strategy.¹⁴⁶

4.4 Role of Maritime Transport In the Nuclear Era:-

In the period after Second World War, with great changes observed in the political arena of the world and tremendous advances made in the field of science and technology, it is felt that the role of maritime transport has not only become more important but also more essential. The conventional role of maritime power in

¹⁴⁵ Ibid

¹⁴⁶ Opcit 4

protection of coastal territories against enemy attacks and its economic role in trans-oceanic trade and communication have been maintained to the present times. However, with the bi-polarity in political balance of the world and formation of numerous allies and military blocs, a newer role of the navies as deterrent power for preserving peace and guarantying national security had been an important development of the Cold War Era. By analysing the development of each of these conventional and newer roles of maritime transport in the Nuclear era, it can be examined whether the establishment of SLOC in the conventional era of maritime supremacy has continued to present nuclear era as well or not.

4.4(1) Protection of Coastal Territories :-

With the growing political, economic and technology interest of many countries, the sea is now being considered as an important new source of food, energy and even raw materials. The sovereign littoral countries have become more aware and particular about their jurisdiction over their territorial waters. The older tradition of sea control have been now replaced by co-ordinate global maritime policies and new patterns of administration.¹⁴⁷ The extraction of minerals from the ocean depths and growing fishing activities have been dealt under various international agreements and effective regulations in order to ensure the cordial use of sea resources. Similarly the control of the sea pollution has also been a much supervised and regulated issue in ocean affairs. Over the past fifty years, the size of world's shipping fleet has drastically increased and even the SLOC have become more regulated. In the backdrop of these growing maritime activities, the role of the world navies and the maritime activities, of not only the present but even the future has been affected. Disputes over territorial limits and lines of jurisdiction have been the predominant issues in the international diplomatic scene. In regions where relationships among the different countries are not every congenial, there has been a fierce competition among these countries over the occupation of disputed islands in the form of dangerous naval operations. Such a situation was witnessed during the 1960s in the oil rich South China Sea. There have been numerous disputes over the allocation of sea resources and mineral extraction in which the role of naval forces and good sea-keeping has been sought. Besides this, maritime forces have also been employed in control of sea pollution, protection of trawler fleet and also dealing with smuggler and pirates. Since the protection of coastal

¹⁴⁷ Opcit 4

territories has been one of the most important role of the naval power, various politico-legal development have taken place to decide upon the limits of sea zones and an increase in the use of fast patrol boat and anti-ship missiles has taken place.

4.2 (2) Peacetime Maritime Activities:-

As discussed earlier that statesmen and policy makers have always considered maritime strategy and use of naval forces as an integral part of a country overall national strategy. And it has been realised over the years that maritime strategy of any country should not only prepare an efficient navy for war, but also pay great attention towards the naval activities in peacetimes.¹⁴⁸ In order to achieve this purpose many maritime powers resorted to a demonstrative display of their large navies and ships for the purpose of prestige.¹⁴⁹ The Soviet Admiral of the Fleet S.G.Gorshkov felt that 'demonstrative actions by the navy in many cases have made it possible to achieve political ends without resorting to armed struggle, merely by putting on pressure with one's own potential might and threatening to start military operations'.¹⁵⁰

And Admiral Stansfield Turner has discussed the 'Naval Presence Mission' as a use of naval forces, short of war, to achieve political objectives¹⁵¹. He has also discussed two approaches to this role, 'preventive deployments' where the appearance of naval forces prevents a problem from becoming a crisis, and 'reactive deployments' where naval forces respond to a crisis.¹⁵² Such naval activities, as described by the modern strategists as naval diplomacy has been considered as an important instrument and

¹⁴⁸ Opcit 4

¹⁴⁹ Opcit 93

¹⁵⁰ Opcit 142

¹⁵¹ Stansfield Turner, Admiral ; Mission of the US Navy ; Naval War College Review ; March-April 1974

¹⁵² Ibid

principle mission of foreign policy during peace times and even war times, by serving the same interest using different approaches. For instance, in peace, navies may try to guarantee the suppliers, but in war they may try to do the same thing by measures of trade protection and military objectives of trade, the conquest of territory etc, are ultimately political acts for war itself.¹⁵³

It is evident from all these views that naval action has a great effect as an instrument of diplomacy. There are advantages in pursuing naval diplomacy in the present Nuclear era, due to its mobility and tactical flexibility over a wider geographical area. However, there are certain writers who feel that due to zonation in sea use, increasing importance of world opinions and views, introduction of new technology in maritime weaponry, etc have in fact reduced the importance of naval diplomacy in world maritime relations today. Nevertheless, the surface ships are still considered as the principal agents of naval diplomacy rather than the aircrafts and submarines. And it has been clearly realised that 'good communication links have to be established between the participating ships and their political controllers'.

4.3 3 Deterrence:-

According to A.T.Mahan, 'the surest way to maintain peace is to occupy a position of menace.'¹⁵⁴ Or in other words, to acquire strength at sea or command of sea would be the best strategy of maintaining peace and protecting national security. And for doing this, it is considered necessary to give a 'sufficient account of oneself'.¹⁵⁵ or as Admiral J.F.Eberle says that 'the greatest deterrent will be provided by the enemy's

¹⁵³ Ibid

¹⁵⁴ Opcit 97

¹⁵⁵ Eberle, Admiral J.F. ; Designing a Modern Navy ; Adelphi 123 ; 1976

knowledge that if he hits you, you can hit back a bloody sight harder'.¹⁵⁶ Maritime deterrence is rather a preventive role among the traditional maritime activities, which the ships of a particular country carry out. According to Admiral Stansfield Turner, since ships cannot be designed for deterrence a general deterrence against the potential enemies can be undertaken by an apparent efficient ability to perform conventional maritime activities.¹⁵⁷ And concentrating on the combative maritime functions will also take care of the general deterrent role of maritime power.

¹⁵⁶ Ibid.

¹⁵⁷ Opcit 151

4.5 ISSUES OF MARITIME CLAIMS IN THE NUCLEAR ERA.

The politico–strategic and economic significance of the Exclusive Economic Zone EEZ has been already mentioned in the earlier chapter. The demarcation of the EEZ of the coastal states have led to a reduction of area from the traditional high seas by a considerable percentage (Refer Table no.9)

Table 9: Percentage of EEZ Area In the Oceans

Oceans	Percentage of area subtracted from the high sea area
World Oceans	35.81
Atlantic & Arctic	35.59
Indian Ocean	32.34
Pacific Ocean	36.29

Source: Ocean Development and International law, Vol.19, No.6 1998; p – 447

This reduction in size of high seas has set off serious concerns among the major naval powers of the world, especially the United States and the former Soviet Union. These superpowers feared that the coastal states would restrict the passage of their navies under the EEZ jurisdiction of coastal states and even ban the military use of the strategically sensitive ocean passages. In today's Nuclear era, the improving naval warfare technology and military use of sea involves not only the water surface but also the seabed and subsoil. Some of the major peaceful military activities that are the present being carried out in the EEZ and high seas are navigation, routine cruises,

weapon tests, recovery of sunken warships, overflight, collecting strategic and military information, setting up installations for missile launching fixing antisubmarine warfare devised, deploying sound surveillance system , etc.

During the mid-1960s, some of the major maritime powers had started conversations in order to prevent the infringement of the traditional freedoms of sea. of these maritime powers the purpose of organizing such international conferences was not just to maintain freedom of navigation and overflight on the deep seabed regime but also the freedom to conduct military activities beyond the territorial waters. However, the third United Nations conference on the Law of the Sea had been reluctant to adopt a clear and unambiguous solution to this problem. In the Conference at Caracas in 1974, a large number of states spoke for some or the other kind of economic zone, but sharp differences emerged on the issues like : what would be the rights of other states in it. This deadlock between the objective of maritime powers to accommodate their naval interests in foreign economic zones and the repeated attempts of coastal states to limit foreign military activities in their zones was attempted to be resolved in 1977, through a compromise made by a representative fifteen-state negotiating group incorporated in the Informal Composite Negotiating Text (ICNT) of 1978. According to this convention, where on one hand the nature of the EEZ as a separate functional zone of oceans was accepted, it was also specified on the other hand that the coastal states maintained sovereign rights and jurisdiction over this zone. In other words, the international community would enjoy the traditional freedoms of navigation and over flights by warships and military aircrafts and can also lay submarine cables and pipelines in a foreign EEZ. However, the text of the convention specifically stressed upon this fact that both the coastal and other states must have due regards for each other's rights and the

foreign states must comply with the laws and regulations adopted by the coastal state with the provision of rules of international law. The freedom of navigation can be restricted by the coastal state in regard to pollution control and the presence of artificial islands and structures emplaced by that state in the EEZ. However, this right of the coastal states to construct and operate artificial islands and structures in their zone would not be established where such installations would interfere in the use of the recognized Sea Lanes of Communication essential to international navigation. Thus, even though the wider acceptance of the convention may secure the right of routine navigation and overflight by foreign warships and military aircraft's, the controversial issues of weapon tests, maneuvers and emplacement of military devices in the EEZ still remain to be completely resolve the national laws of certain coastal states still deny the foreign navies some of the rights under the freedom of navigation guaranteed by the convention and these states are reluctant to bring their laws in conformity with the provision of the Convention.

Concluding Remarks:-

The post Second World War period has been a volatile one from the point of view of political developments witnessed at the global level. The emergence of a bi-polar world political order and a race for possessing sophisticated nuclear weapons strengthened the conventional role of maritime power in protection of coastal territories and that of its economic role in trans-oceanic trade and communication.

In the Nuclear era, besides these conventional roles, the role of maritime deterrence or preventive role against the potential enemies has become an important aspect of the maritime strategies of the maritime states.

The United States and former Soviet Union had been the major opposing powers during the Cold War era and pursued their respective maritime strategies in order to establish a large and efficient maritime capability in order to maintain their political as well as economic influence over the global affairs.

CHAPTER-5

THE EMERGENT TRENDS IN MARITIME TRANSPORT

5.1 Changing Perspective of SLOC in Retrospect:

The Cold War period witnessed a bi-polar structure of international political system organized around the NATO and the Warsaw Pact military alliances. The main doctrine of the Western powers was deterrence against the threat perceived for the Soviet Union and the Eastern Bloc. The maritime arrangements were primarily organized to assume the following three important military roles:- for deterrence; gaining sea control and battle space dominance.¹⁵⁸ However, with the end of the Cold War since 1989, the maritime strategy and planning has experienced two major implications:¹⁵⁹

- A) There has been a decline in the threat posed to the NATO maritime forces by the former Soviet Navy,
- B) With the withdrawal of superpower forces in Asia, there have been increasing incidences of territorial water disputes and regional confrontations due to inter and intra-state conflicts. These radical changes witnessed in the global security system of the world today has been reflected in the Western maritime planning and policies, with a fundamental shift from sea control and sea denial to littoral activities and supporting the land based forces. And well into the post Cold War era, the maritime forces as well as maritime aviation have assumed significant world roles in peace-keeping operations, power projection, maintaining law and order at sea, and of course its traditional role of protecting the SLOC.

¹⁵⁸ Norman Friedman; *The US Maritime Strategy* (London: Jane's, 1988)

¹⁵⁹ Smith M.L. and Jones D.M. 'ASEAN, Asian Values and the Security of South-East Asia in the New World Order', *Contemporary Security Policy*, vol. 17, no 1 April 1996, p.127

5.2 Measuring Maritime Strength:-

During the post Cold War era, with the ushering in of the 'information age' there arises a need to assess the naval strength of the maritime powers by not just quantification, but by adopting the new criteria for measuring the effectiveness of navies. Such an approach for measuring the effectiveness of navies. Such an approach for measuring naval strength and effectiveness called the 'core factors' has been proposed by Norman Polmar.¹⁶⁰

These core factors include –

- a) Space and its active use by employing space systems like satellites etc for effective navigation and ocean surveillance purposes,
- b) C3I or the effective Command, Control and Communication for Intelligence collection and processing, and
- c) Well trained and motivated personnel.

However, some of the political leaders and maritime thinkers have preferred to invest in newer technology and weapons rather than in recruiting and training personnel for the effectiveness of navies. The influence of politics on maritime power has been considerable, therefore, in order to have an effective maritime fleet in the present times, it becomes imperative to adopt newer measures of naval strength and effectiveness.

5.3 Maritime Superiority :-

The relationship between maritime power and international politics has not only determined the primary uses of SLOC over the ages, but have also led to changing strategic situation affecting their future uses. The traditional roles of maritime power

¹⁶⁰ Andrew Dorman & others (Ed); The Changing Face of Maritime Power ; (London : Macmillan)

during the conditions of war and peace as given by Mahan have discussed in an earlier chapter. These traditional roles of maritime power for achieving political and diplomatic ends have continued over the centuries till the present times. However, the period after the Second World War has in fact witnessed intense effect of international politics on SLOC. Such a situation has been due to the emergence of a bi-polar superpower system in the Cold War era and the development of nuclear technology. The development of nuclear weapons which were also termed as the 'weapons of mass destruction' brought a change in the conduct of war and international politics. The protection of seaborne trade and SLOC has become an important concern of the NATO countries. Today the spread of political, economic and military power has made the strategic environment more complex and sensitive.

Such a situation has made necessary the use of maritime power in accordance with international agreement and consensus rather than merely relying on force to achieve political or economic ends. With the spread of advanced weaponry and their access to many states, the naval capabilities and strategies of smaller and regional powers have posed a growing maritime threat to large navies and surface capital ships.

5.4 Emergent Pattern of Maritime Power :-

The growing world population and the increasing economic activities will further accelerate the international exchange of goods and services in the years to come. This will definitely intensify the use of seas for the purpose of trade and communication. However, with more rapid growth of air-traffic a great proportion of the seaborne traffic is seen to be getting transferred to air whereas seaborne trade is

increasing rapidly in absolute terms. Over the recent years a shift has been witnessed in the economic activities of the traditional industrial nations like the United States and Western Europe who have assumed their roles as information driven economics have moved away from production towards financial and tertiary service. This has resulted in reduction of quantity of goods traded from their ports, but on the other hand this situation has led to a greater demand for imported stuff procured through the seaborne trade from Japan and other Far- Eastern nations.

A few years ago it was assumed that the development of nuclear technology would lead to a decline in the trade of bulky fuels. However at present, oil infact constitutes about 20% of sea traffic and it is apparent from the past and the present trends that the supply oil even in the 21st century till the oil trade starts declining either due to reserve depletion or the adoption of an inexpensive and efficient alternate source of energy.¹⁶¹ Other forms of fuels that have become significant over the year are natural gas and coal. The natural gas is increasingly being transported through pipelines and the 21st century is likely to witness and increase in number of bulk carriers for transporting coals from coal rich regions to deficit region. Growing commercial significance of seas is expected to lead to an expansion in sizes of the seas routes and SLOC.

The future prospects for sea transport in Arctic Ocean do not seems feasible in the near future due to high costs involved in making use of ice breakers and setting up semi-submersible transport plate forms. However, due to Russia's demand for an alternate means of transport in the form of seaways due to vast land expanse and

¹⁶¹ Naval Forces, No.II/1987 p.15

uninhabited areas restricting railways and roadways, it is likely that some use of northern waters may develop in the future for transport and exploring oil reserves.

Besides these above mentioned important economic uses of sea, over the last four decades, sea has been realised as an important source of food and minerals and this alternative form of sea use of resource extraction has become a major economic activity with great future potential. Exploitation of marine life has become an important extractive sea activity and Japan, former Soviet Union and Norway are the greatest fishing nations of the world. Fish is a rich source of protein in human diet and is also important animal feed and fertilizers. The major fishing nations have recently started exploring new types of marine catches like the Krill, which is a very rich source of protein and also used as animal feed. A large number of small countries like South Korea, Taiwan and Communist countries, like Cuba, Poland, China, etc have taken to distant deep seafishing. Many a time conflicts arise result due to these activities in those areas with disputed sovereignty. This situation has led to most maritime countries to develop a sort of 'maritime safety agencies' like maritime police force or coast guards to prevent encroaching and maintaining sovereign regulations.¹⁶²

Besides just exploiting the marine life, a substantial quantity of hydrocarbons has been extracted from the seas. And these resources have transformed the economic conditions of some countries. The maritime extraction from the seas. And these resources have transformed the economic conditions of some countries of some countries. The maritime extraction of limited supplies of non-fuel minerals like manganese nodules, nickel, cobalt, copper, etc is likely to take place in the North-East

¹⁶² Ibid

Pacific Ocean in the near future, after taking into consideration the profitability of these operations and resolving the ongoing debate on the ownership of seabed resources.

The complex network of maritime activities and an interdependent world economy is leading to growing internationalization of all activities at sea. 'Military navies' built with the purpose for war have in fact found their main usage in peacetimes and in deterring conflicts at sea and maintaining international laws and regulations. With the growing significance and diversity of economic utility of sea, the role and importance of naval forces will definitely grow steadily in the future. Growing incidences of piratical raids on merchant shipping has been considered as a result of separation of roles of merchant shipping from military shipping.¹⁶³ Bigger maritime powers are hesitant in interfering in activities taking place in other countries' sovereign waters. This makes it imperative for other regional maritime powers to undertake their international maritime law and order responsibilities sincerely.

During the present times the United States navy is considered to be a major representative of naval diplomacy undertaking roles as described by Admiral Watkins in 1986 such as maintaining presence, conducting surveillance, threatening use of force, conducting naval gunfire or air strikes, landing marines, evacuating civilians, establishing a blockade or quarantine, and preventing interference by Soviet or other forces.¹⁶⁴ Even the Soviet navy despite its small size, has been pursuing 'diplomatic interest by transporting friendly troops to reinforce client forces on land and even carrying out the odd limited bombardment'.¹⁶⁵ These super powers, even in the post Cold War era, are expected to region as supreme maritime powers in the

¹⁶³ Ibid

¹⁶⁴ Watkins J.D ; 'The Maritime Strategy' In the Maritime Strategy, brochure issued with U.S.N.I Proceedings Jan. 1986, p.172

¹⁶⁵ Optic 161

foreseeable future. However, a small group of medium powers like Britain, France, Japan, China and India are likely to develop their naval capabilities in order to project significant influence beyond their maritime zones in the near future. In other words, these regional maritime powers will exercise limited naval force in order to assert their sovereignty in their off-shore zones of control. With a growing number of medium and smaller nations developing maritime forces in order to pursue their maritime interests and ambitions, navies will continue to play an important role. Even though the navies may not actively participate in fighting, but they will play an important role in limited and local wars and act as a deterrent against the threats posed by enemy naval power. The peacetime role of maritime power in maintaining peace and security will continue to be crucial to world's economic development and prosperity in the years to come.

Concluding Remarks

International economic and political conditions have always been the major determinants in influencing the uses of SLOC. Especially the period after the post Second World War has witnessed intense effect on international policies on the SLOC with emergence of a bi-polar superpower system and development of nuclear technology. However, the end of Cold War era in 1989 has witnessed two major changes in the maritime strategy and planning: a decline in threat posed to NATO forces by maritime forces of former Soviet Union and with the withdrawal of super power force in Asia increasing regional confrontation and territorial water disputes.

In the future, the growing world population and increasing economic activities are expected to accelerate the international exchange of goods and services in the year to come. In the present times, the traditional use of SLOC for seaborne trade and communication and military activities have not only continued but has also increased as more and more sovereign countries are taking to sea activities in order to pursue their maritime interest and aspirations. The future prospects of SLOC seem very bright with an expected inclination towards its economic aspect in exploitation of resources and mineral wealth from the sea water rather than the military aspect, which will, however, remain that of maintaining peace, security or deterrence against the threats posed by enemy naval powers.

CONCLUSION

With the first use of sea for trade purposes in 2800 B.C., avenues were opened for the use of the most convenient and cheapest means of transportation. The growing use of the seas for carrying trade goods and increase of sea commerce attracted predatory seafarers to capture booty. The merchant vessels had to organize naval communities to patrol and guard their commercial sea lanes. Thus the primary role that the navies played was to safeguard sea routes by acting as a means of deterrence and defeating potential rivals and also denying them the sea routes they required.

With the passage of time sea-power became an effective means of not only dominating trade and SLOC but also acquiring colonies in far flung areas and maintaining them. The State that was successful in achieving this mission was said to have command of the sea. The power of nation was measured by not just the quantity and quality of its maritime fleet but also by other characters such as its population, political organization, commercial shipping, overseas trade, quality and number of ports & harbors, overseas colonies and location of the state in relation to the major SLOC. During the 19th century, an American Navy Captain Alfred T. Mahan wrote a book 'The Influence of Sea-Power upon History 1660-1783', which aroused enormous interest among not only the Americans but also the Europeans for maintaining a strong maritime power.

However, during the 20th century with the spread of the new technology, missiles, torpedoes, mines, sub-marines, land-based aircrafts, etc., the strategic outlook of the world changed. The importance of a far quicker and more effective sea-air power grew

which could lead the enemies and their morale into submission by its assault and war making capacity. On the other hand, it was seen that sea-power could offer no defence against air-attacks and could not launch operations against the land territory. With the ushering in of the Nuclear era in the second half of the 20th century, there took numerous developments in naval propulsion aircrafts, missiles, explosives, techniques of computation, etc. and old arguments about the sea-power were once more raised. Modern strategists especially of the western powers realized the importance of military and commercial shipping and argued that the maritime and continental strategies should be worked out as a whole and not as two discreet entities. In present times the maritime strategy not just includes the traditional role of naval power, but also the strategic role performed on the sea by ship and maritime weaponry system. With scientific and technological developments taking place, a great variety of sophisticated weapons are now available to the strategists, which has definitely changed the context of sea power today. Along with this the geopolitical factor have also been in determining a country's attitude towards maintaining sea-power as was witnessed during period the period of the bi-polar world political system or Cold-War era in the case of the United States and Soviet Union.

The development of technology has not just been confined to military components, but newer techniques have increased the economic importance of seas. Since centuries the most important economic use of the sea has been that of a sea resource house of fishes and that of SLOC. A transformation has been brought about in the sea and new prospects have come up for using sea depths and sea-bottom for a variety of military and non-military purposes. Today even though the merchant shipping is much

faster and larger than before, it is facing increasing competition from the aeroplanes, pipelines and underwater tunnels. However, the absolute increase in the volume of sea-borne trade is still very great. With the rapid increase in world population and growing economic activities, world shipping capacity is expected to increase further in the near future. The increase in maritime activities has led to a massive expansion in the ship building industry and other auxiliary industries. Growing merchant shipping activities are a source of foreign exchange for a country, and the owning of a fleet is its pride. The merchant ships may require protection against perspective enemies and interference by naval powers.

There are certain geographical elements of SLOC as well, that may extend & strengthen the economic, commercial & military interests of a country. These elements include good seaports and harbors that act as important maritime trade nodes, and, straits and canals, that serve as essential transit passages. These are the primary elements that are necessary for any country to partake in maritime activities and influencing its political and maritime strategy. It has been realised over the years that, the maritime strategy of any country should be so formulated as to not just meet the maritime military threats posed by the enemy naval forces but also getting involved in the international political, diplomatic and commercial activities during the peacetime. Therefore, for a country to have an efficient maritime strategy and develop a superior sea-power, the peacetime principles and wartime principles should be integrated and considered inseparable. Some eminent maritime strategic thinkers such as A.T. Mahan, Geoffrey Till, Sir Peter Gretton, etc., have put forward the input/output models of sea-power. According to which the input being, 'sources' and 'elements' and the 'sea power' being the output. The elements

may include maritime community, resources, styles of government and geography. And the sources may include merchant shipping, overseas bases, weapons and fighting instruments, transit rights, interdependence in foreign affairs & maritime co-operation.

With the advancements in science and technology and shipping becoming an important part of international politics and strategic concerns, has led to the enactment and codification of international maritime rules known as the Law of the Sea. The two major developments that have effected the economic & strategic dimensions of oceans in the 20th century have been the Charter of the United Nations and the Third United Nations Law of the Sea. In the post Second World War period or the 'Nuclear era', besides the conventional role of maritime trade & communication & protecting coastal territories, the role of maritime deterrence or preventive role against the potential enemies has become yet another important aspect of maritime strategy of the maritime states. With the end of the Cold War era in 1989, there have been two major changes witnessed in the maritime strategy and planning at the global level. Firstly, there has been a decline in threat posed to NATO forces by maritime forces of former Soviet Union and secondly, with the withdrawal of super-power forces in Asia, regional confrontations and territorial water disputes have increased as various regional maritime powers are increasing.

Regarding the future prospects of the SLOC, it is expected that the growing economic activities in the world will definitely accelerate the international exchange of goods & services and the traditional uses of SLOC for maritime trade and military activities will continue to remain quite significant. With such situations foresighted, enactment and implementation of more stringent Laws of Sea will become absolutely

necessary, so as to ensure a diplomatic & peaceful use of the seas considered as one of the most important 'Common Heritage of Mankind' by all countries across the world.

APPENDIX

TABLE –1

**Development of International Seaborne Trade of selected years.
(Goods loaded in millions of tonnes)**

Year	Crude oil & Products	Other dry products	Main bulk commodities*	Total (all goods)
1970	1440	1165	448	2605
1975	1644	1428	635	3072
1980	1871	1833	796	3704
1985	1459	1923	857	3382
1990	1755	2253	968	4008
1991	1790	2330	1005	4120
1992	1860	2360	990	4220
1993	1945	2385	993	4330
1994	2007	2478	1082	4485
1995	2049	2602	1082	4651
1996	2127	2631	1092	4758
1997	2177	2764	1149	4941

Sources: Compiled by the UNCTAD secretariat on the basis of data from the UNCTAD data bank and specialized sources.

***Iron ore, grain, coal, bauxite/alumina and phosphate.**

Table-2

Cargo Movements on Major Liner Trade Routes for 1995-1998
(thousands of TEUs*)

	Trans-Pacific			Asia-Europe		
	Asia to USA	USA to Asia	Total	Asia to Europe	Europe to Asia	Total
1995	4009	3471	7480	2834	2306	5140
1996	4104	3520	7624	3142	2584	5726
Growth(%)	2.4	1.4	1.9	10.9	12.1	11.4
1997	4662	3615	8277	3290	2734	6024
Growth(%)	13.6	2.7	8.6	4.7	5.8	5.2
1998	5221	3326	8547	3487	2710	6197
Growth(%)	12.0	-8.0	3.3	6.0	-0.9	2.9

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by the Japan Maritime Research Institute; DRI/McGraw-Hill, World Sea Trade Service Review, various issues; Containerization International, various issues, and other specialized sources.

- TEU= Twenty-foot equivalent unit

TABLE -4

WORLD SEABORNE TRADE IN 1997

(% share of Trade by Type of cargo and country groups)

COUNTRY GROUP	GOODS LOADED	GOODS UNLOADED
Developed Market Economy countries	43.4	68.1
Countries of Central & Eastern Europe (incl. Former USSR)	3.8	3.1
Socialist Countries	2.1	2.2
Developing Countries	50.7	26.5
World	100.0	100.0

Source: Compiled by UNCTAD Secretariat on the basis of data supplied by reporting countries, the UNCTAD data and other specialized sources.

TABLE -5
The 35 Most Important Maritime Countries And Territories,
As At 31 December 1997

Country or territory of domicile	Number of vessels			Deadweight tonnage
	National flag	Foreign flag	Total	Total as % of world total
Greece	848	2240	3088	17.63
Japan	882	1925	2807	12.71
Norway	863	657	1520	7.65
United States	473	752	1225	6.45
China	1574	432	2006	5.41
Hong Kong	101	506	607	5.06
Korea	485	370	855	3.54
United Kingdom	390	465	855	3.11
Germany	530	1046	1576	3.08
Sweden	174	201	375	2.73
Taiwan	179	278	457	2.29
Singapore	439	253	692	2.25
CIS	2356	246	2602	2.11
India	369	75	444	1.76
Denmark	427	215	642	1.73
Italy	429	152	581	1.68
Saudi Arabia	66	62	128	1.60
Brazil	197	22	219	1.39
Turkey	440	34	474	1.34
France	175	110	385	1.08
Iran	146	5	151	0.89
Switzerland	15	218	233	0.87
Netherlands	476	204	680	0.77
Malaysia	227	20	247	0.65
Philippines	337	13	350	0.64
Indonesia	466	94	560	0.60
Belgium	26	133	159	0.60
Ukraine	476	98	574	0.60
Romania	208	21	229	0.53
Thailand	234	59	293	0.52
Spain	120	188	308	0.49
Australia	67	29	96	0.46
Croatia	74	90	164	0.46
Finland	111	47	158	0.46
Kuwait	30	6	36	0.44
Total(35countries)	14410	11266	25676	93.60
Percentage	56.1	43.9	100	
World total	16772	12347	29119	100.00
Percentage	57.6	42.4	100	

Source : Lloyd's Maritime Information Services (London).

TABLE -6
Maritime Engagement Of 30 Major Trading Nations
(As At The End Of 1997)

Country/territory	Share of world trade generated in terms of value	Share of world fleet beneficially owned in terms of dwt*
United States	14.4	7.65
Germany	8.7	3.08
Japan	6.8	12.71
United Kingdom	5.3	3.54
France	5.1	1.08
Italy	4.0	1.68
Canada	3.8	0.14
Hong Kong	3.6	5.06
Netherlands	3.4	0.77
Belgium-Luxembourg	3.0	0.60
China	2.9	5.41
Republic of Korea	2.6	3.54
Singapore	2.4	2.25
Spain	2.1	0.49
Taiwan	2.1	0.29
Mexico	2.0	0.21
Malaysia	1.4	0.65
Sweden	1.4	2.73
Switzerland	1.4	0.87
Thailand	1.2	0.52
Australia	1.2	0.46
Austria	1.1	0.02
Brazil	1.1	1.39
Russian Federation	1.1	2.11
Ireland	0.9	0.03
Saudi Arabia	0.8	1.60
Indonesia	0.8	0.60
Denmark	0.8	1.73
Norway	0.8	7.65
Turkey	0.8	1.34
Total	87.0	72.20

Source: Data on world trade based on the World Trade Organization (WTO) Press Release, PRESS/98 of 19 March 1998; data on fleet ownership

*dwt :-dead weight tonnes

TABLE NO-7

MERCHANT FLEET OF THE WORLD BY FLAG OF REGISTRATION &

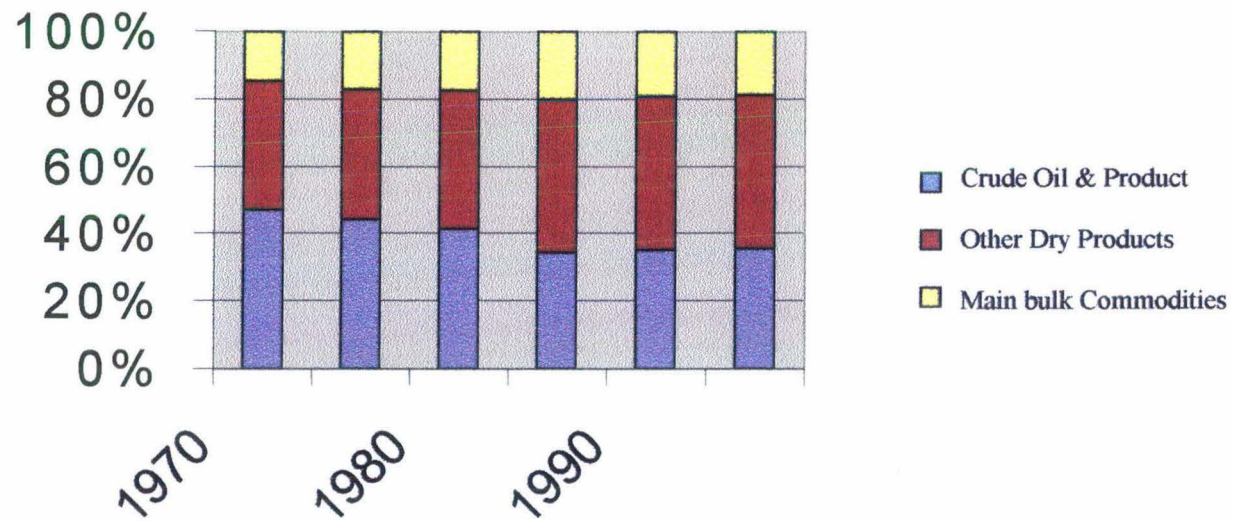
TYPES OF SHIP AS ON 31ST DEC.96 (IN GRT*)

Area	Total fleet	Oil tankers	Bulk carriers	General cargo	Container ships	Other types
World total	509465246	147138791	155754511	90377595	43290409	7290392
Developed Market Economy Countries	142248403	44983385	30836923	18786667	15948718	3169271
Developing countries	97383918	22598519	33994996	21280970	7502196	1200723
Open registry countries	216419510	72877969	75546325	33079798	15526312	1938910
Central & Eastern Europe (Inc former USSR)	26628474	3213120	5466785	9999047	469356	7480166
Socialist countries of Asia	18505825	221 4617	6950766	6365437	1388957	1586048
Other unallocated	8279116	1251181	2958716	865676	24548870	748673

Source:Lloyd's Maritime Information Services Ltd. London.

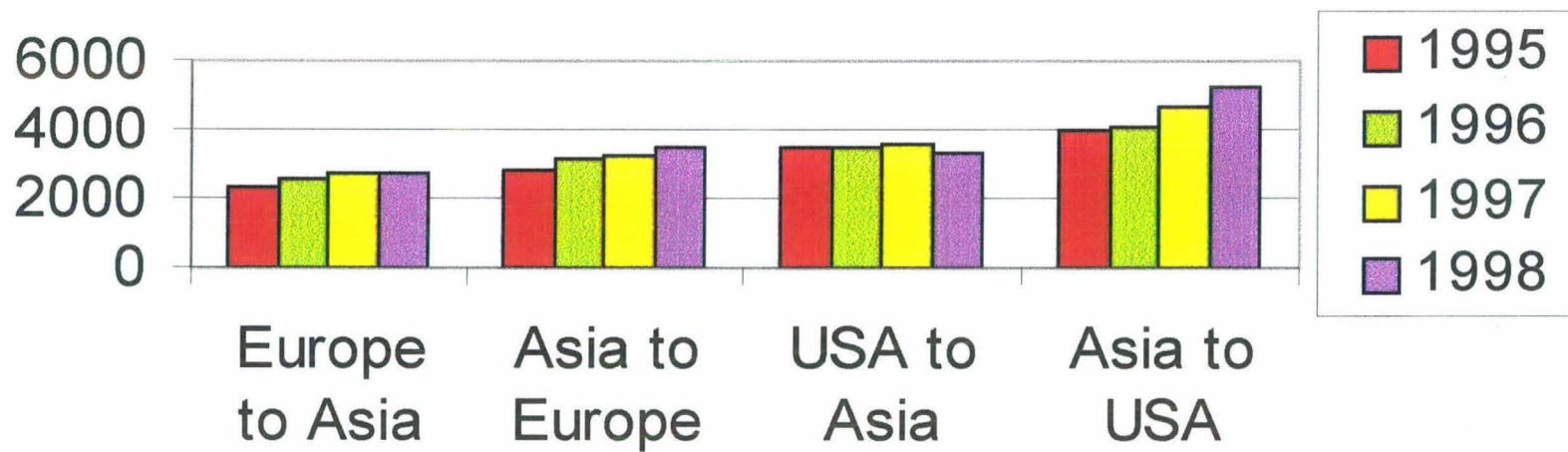
* GRT=Gross Registered Tonnes

Graph -1: International Seaborne Trade for Selected Years



Source: Review of Maritime Transport, various issues

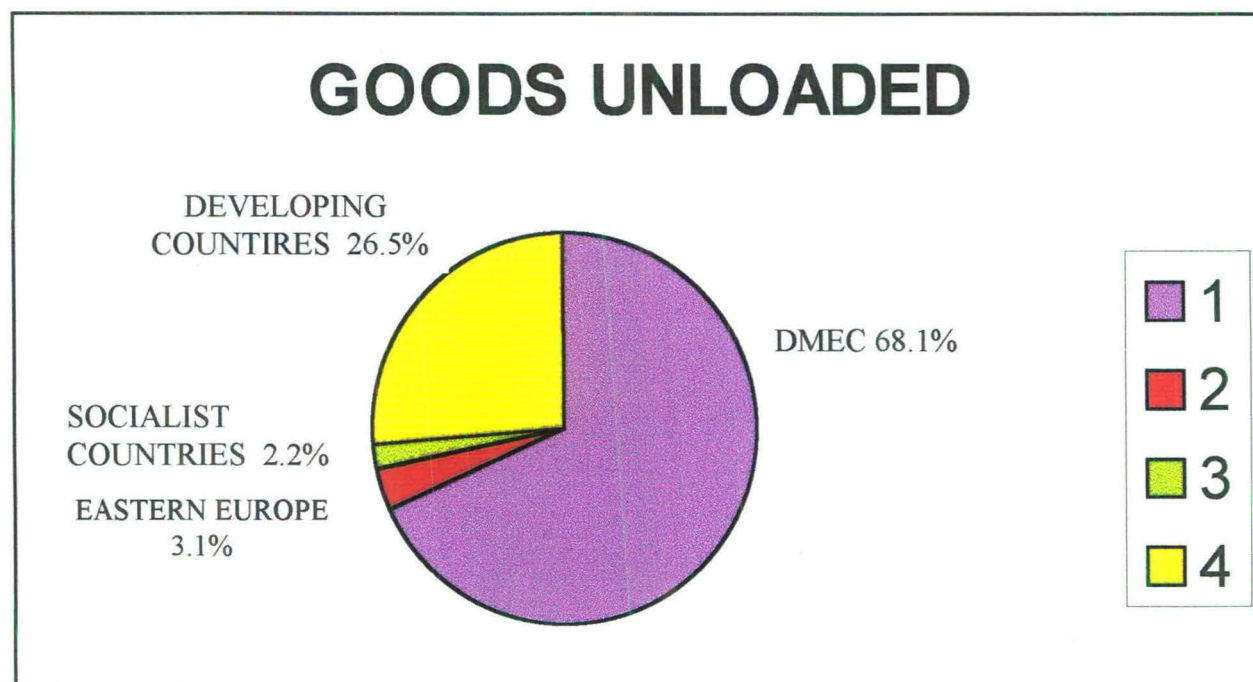
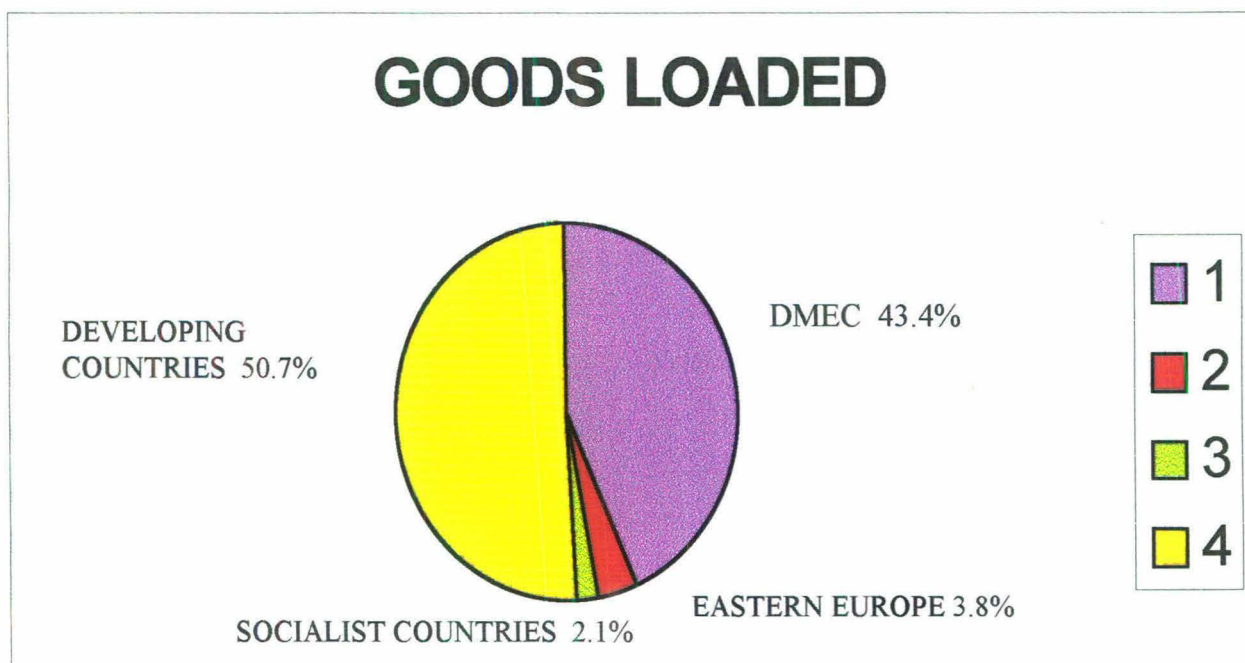
Graph-2: Cargo Movements on Major Liner Trade Routes For
1995-1998
(thousand of TEU)



Source: Based on Table-2

Graph-3: World Seaborne Trade In 1997

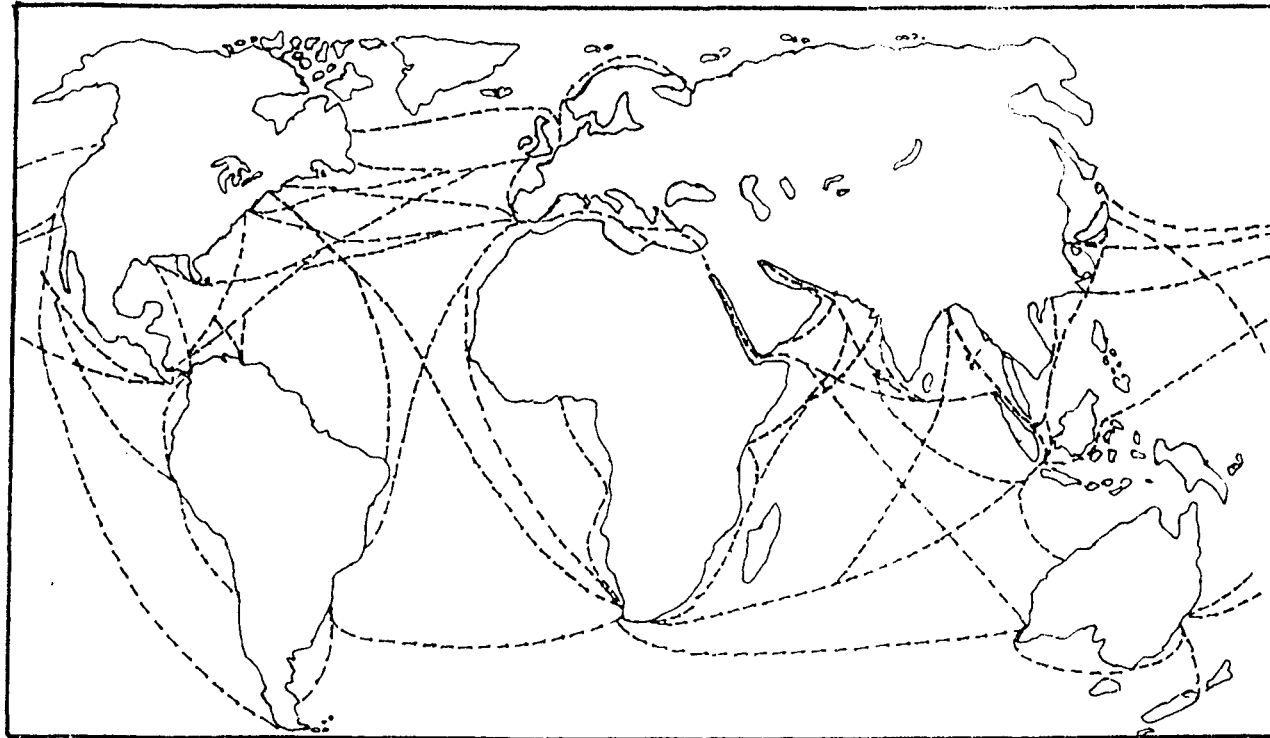
(Percentage Distribution Of Tonnage)



Source : Based on Table-4

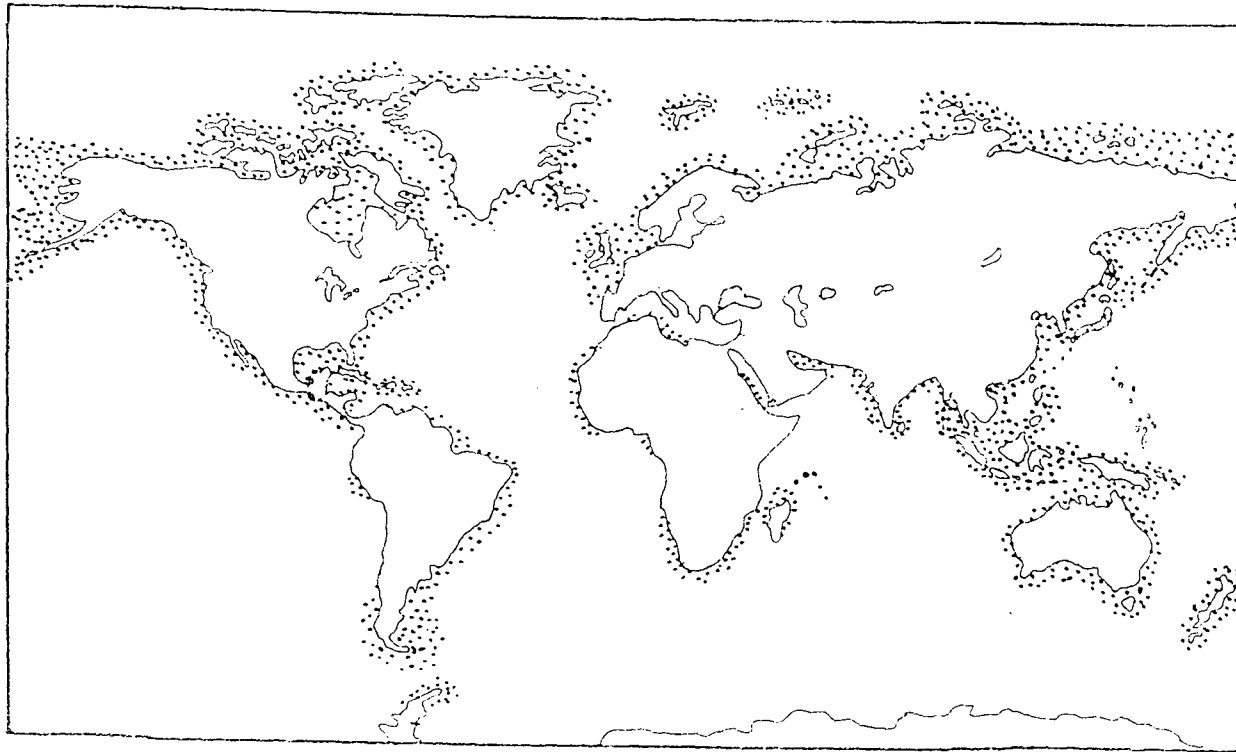
FIG.2

Major Sea Lanes of Communication



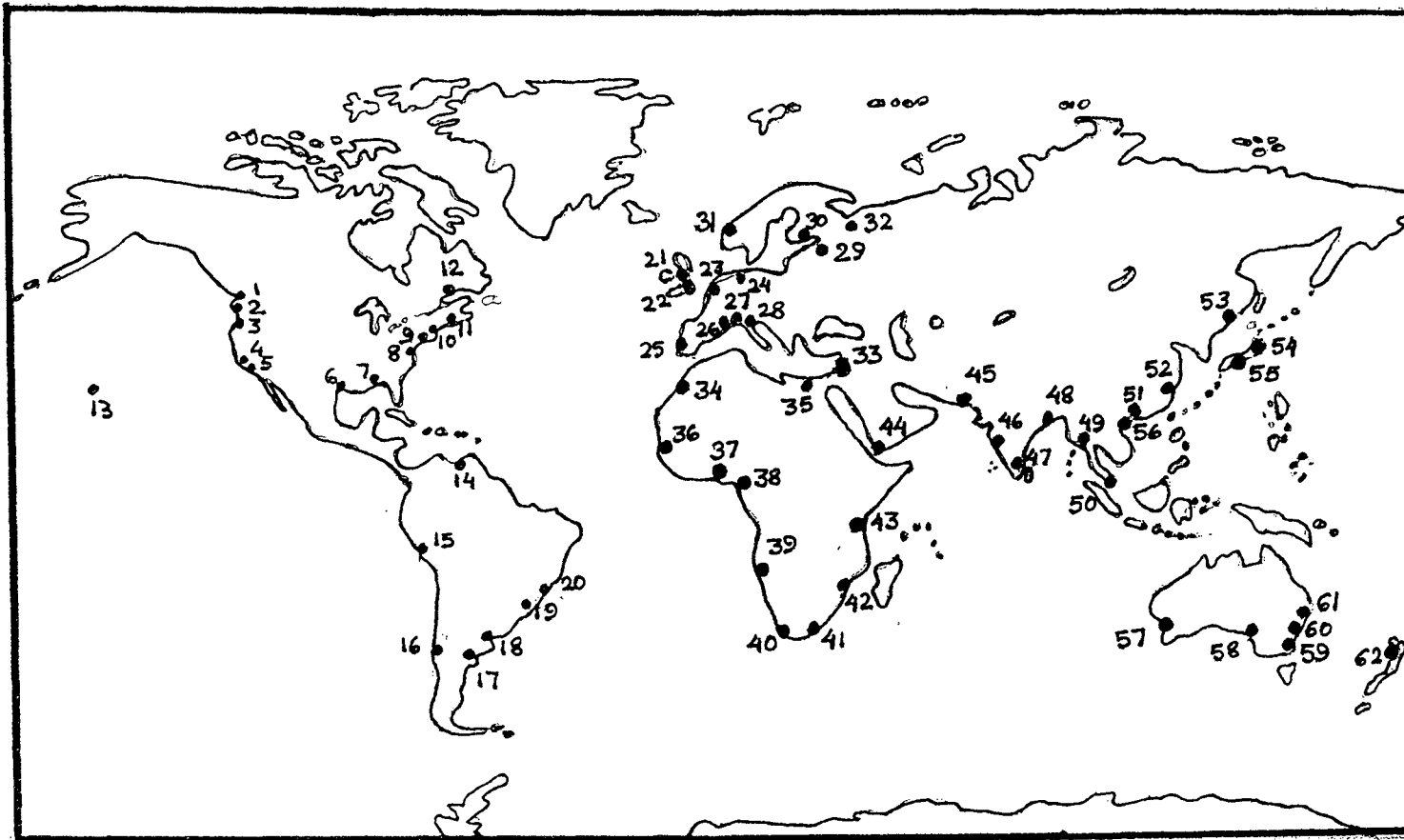
Source:- Philip's Atlas of the World ; George Philips Ltd, London; 1991; p-39.

FIG-3
World: Continental Shelf To 200 meters



Source:- Martin L.W.; *The Sea In Modern Strategy* ; Chatto & Windus, London, 1967

FIG-4
Major Maritime Trade Nodes



Source :- The Times Atlas of Oceans
(KEY OVERLEAF)

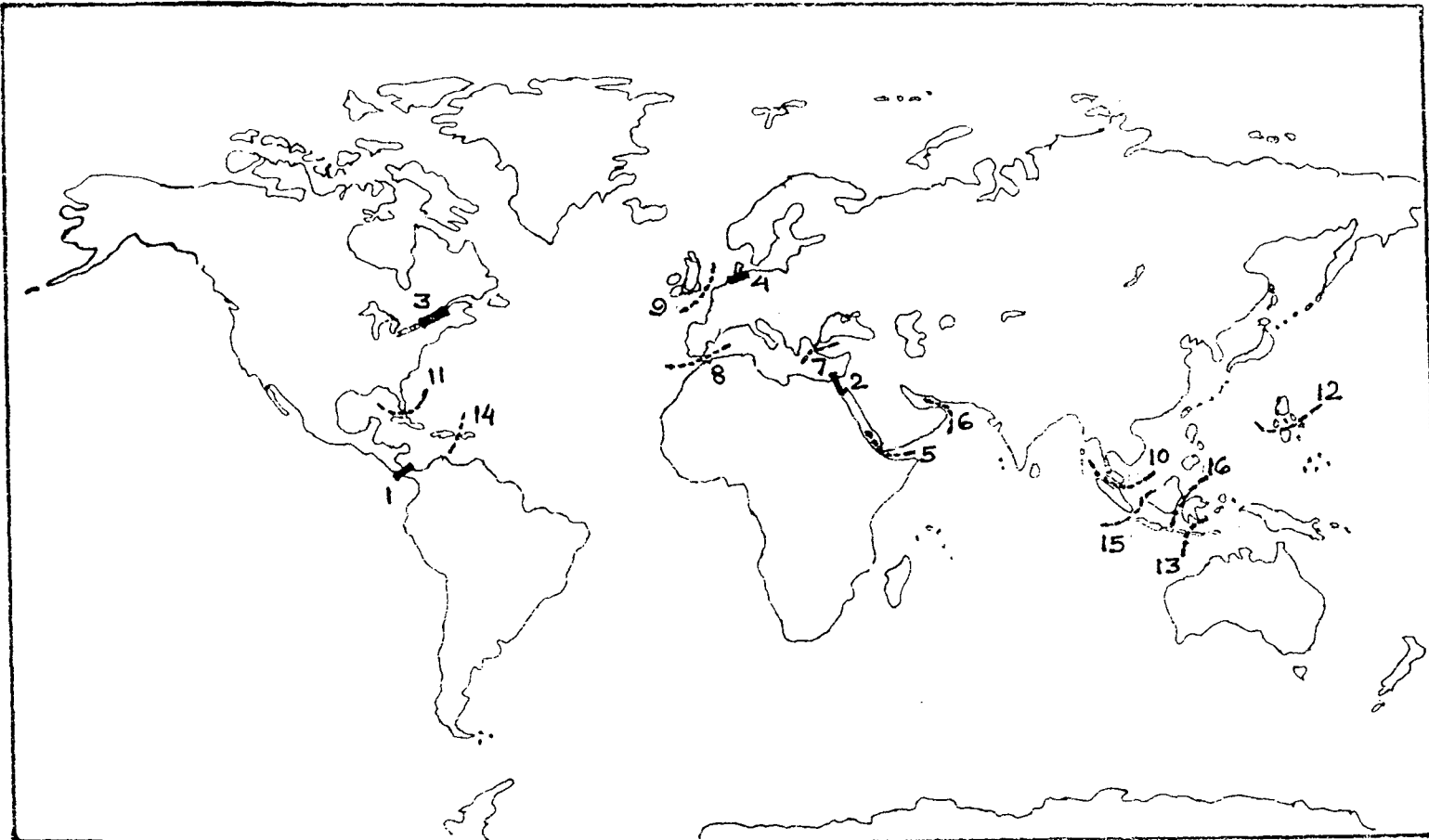
Key to Figure-4

Major Maritime Trade Nodes

1. Vancouver	32. Arkhanguisk
2. Seattle	33. Tripoli
3. Portland	34. Casablanca
4. San Francisco	35. Alexandria
5. Los Angeles	36. Dakar
6. Houston	37. Lagos
7. New Orleans	38. Douala
8. Philadelphia	39. Lobito
9. New York	40. Cape Town
10. Boston	41. Durban
11. Halifax	42. Beira
12. Montreal	43. Mombasa
13. Honolulu	44. Aden
14. Caracas	45. Karachi
15. Lima	46. Bombay
16. Valparaiso	47. Madras
17. Buenos Aires	48. Calcutta
18. Monte Video	49. Bangkok
19. Santos	50. Singapore
20. Rio de Janeiro	51. Canton
21. Liverpool	52. Shanghai
22. London	53. Vladivostok
23. Rotterdam	54. Yokohama
24. Hamburg	55. Nagoya
25. Lisbon	56. Hong Kong
26. Marseilles	57. Perth
27. Genoa	58. Adelaide
28. Venice	59. Melbourne
29. Leningrad	60. Sydney
30. Helsinki	61. Brisbane
31. Bergen	62. Auckland

Source:- The Times Atlas of Oceans

FIG-5
Some Important Straits and Canals



Source:- Emirates Concise World Atlas ; Liber Kartor AB, Sweden; 1995.

(KEY OVERLEAF)

KEY TO FIGURE -5

Some Important Straits and Canals

Canals

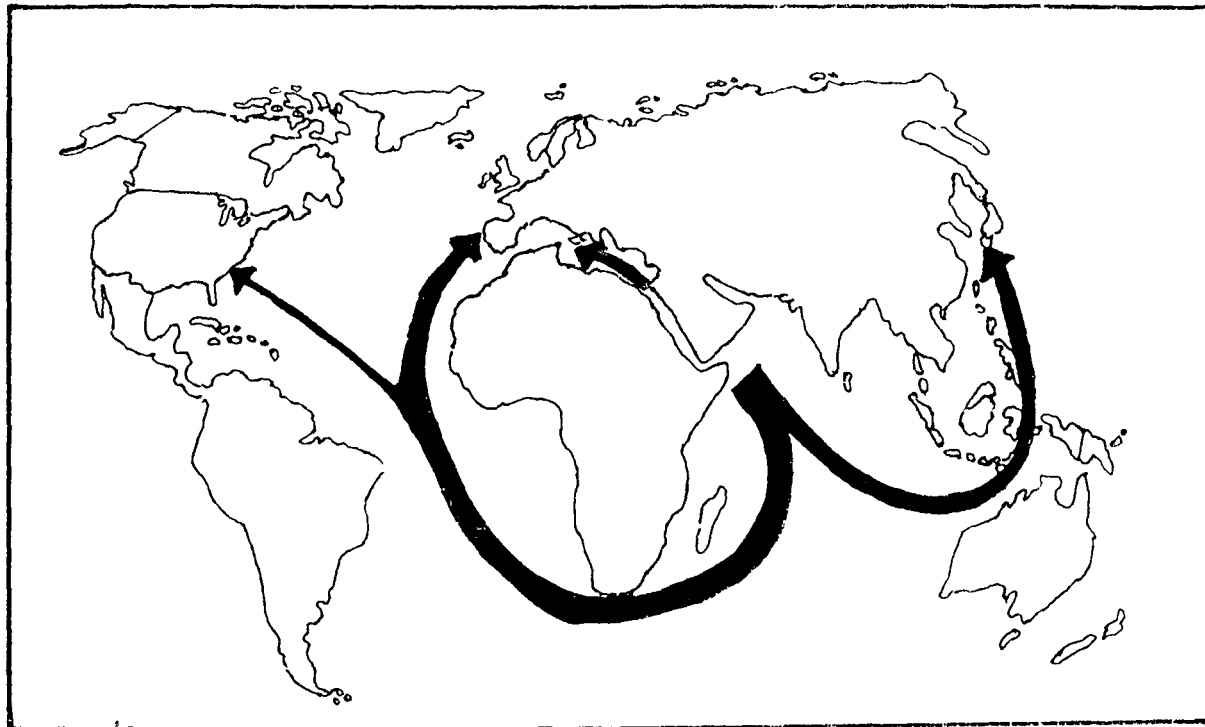
1. Panama
2. Suez
3. St. Lawrence Seaways
4. Kiel

Straits

5. Bab el Mandeb
6. Hormouz
7. Dardanelles
8. Gibraltar
9. Dover.
10. Malacca & Singapore
11. Florida
12. Luzon
13. Lombok
14. Mona
15. Sunda
16. Makassar

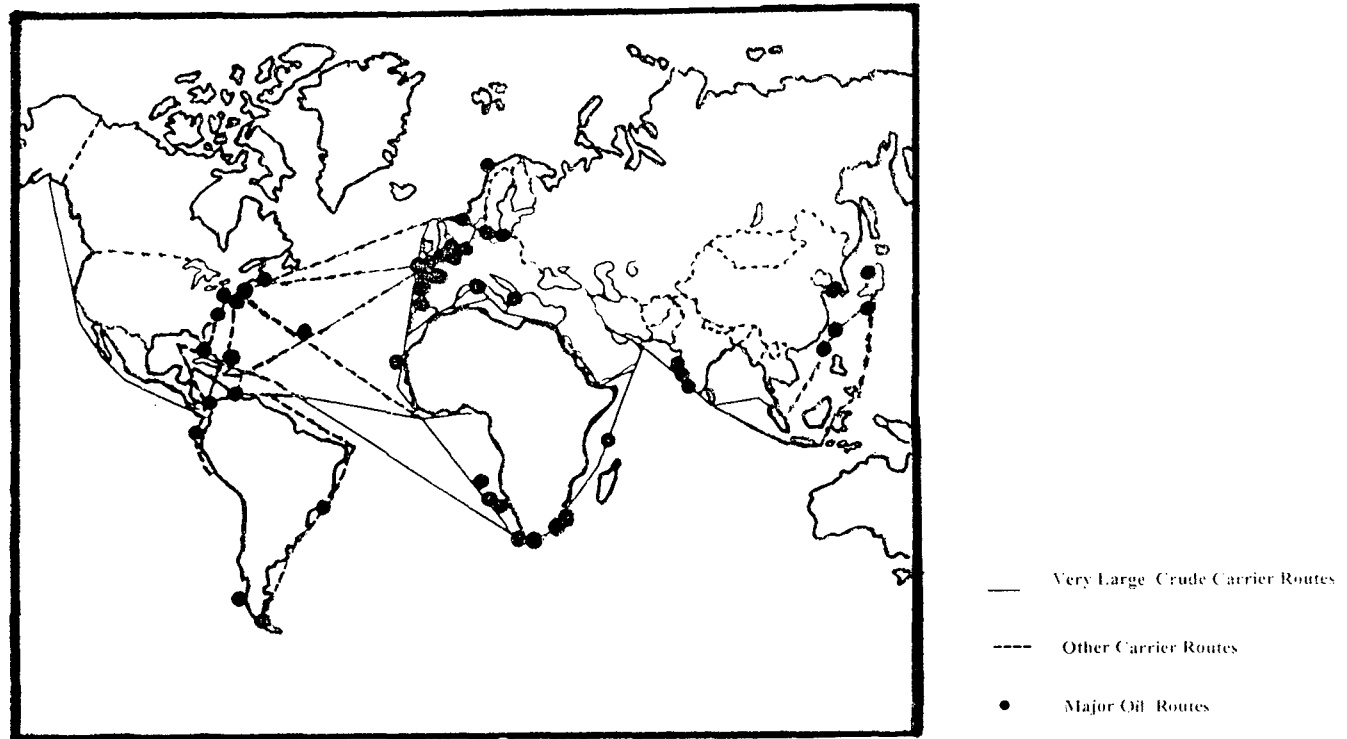
Source:- Emirates Concise World Atlas ; Liber Kartor AB, Sweden; 1995.

FIG-6
Direction of International Oil Trade



Source:- Philip's Atlas of the World ; George Philip Ltd, London, 1991 p-33

FIG-7
Main Tanker Routes and Major Oil Spills



Source:- World Resources ,1990-1991; A Report by the World Resources Institute, Oxford University Press; New York;1990. p-11

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