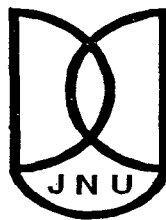


**GEOSTRATEGIC CONSIDERATIONS ON MARINE
RESOURCES – A CASE STUDY OF JAPANESE
PERCEPTIONS AND PRACTICES.**

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

MASTER OF PHILOSOPHY

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2005



Date: 25 July 2005

DECLARATION

I declare that the dissertation entitled "**GEOSTRATEGIC CONSIDERATIONS ON MARINE RESOURCES – A CASE STUDY OF JAPANESE PERCEPTIONS AND PRACTICES**" Submitted by me for the award of the degree of Masters of Philosophy of Jawaharlal Nehru University is my own work. This dissertation has not been submitted for the award of any other degree of this university or of any other university.

SAHANA BOSE

CERTIFICATE

We recommend that this dissertation be placed before the examiners for evaluation.

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**TO MY PARENTS
AND MY SISTER**

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*Sahana Bose
Sahana Bose*

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CHAPTER: 1

INTRODUCTION: EVOLUTION OF JAPAN'S GEOSTRATEGIC PERCEPTIONS

Japan is made up of several thousand of islands, the largest of all are Honshu, Hokkaido, Shikoku, and Kyushu, which lie in an arc to the east of the Asian Continent, mainly in the temperate zone. Their northern territory extremity is marked by Iturup Island at latitude, 45°33'N, the southern extremity by Okinotori Island at latitude 20°25' N, the eastern extremity by Minamitori Island at longitude 153°59'E and the western extremity by Yonaguni Island at longitude 122°56' E. Thus the archipelagos extend over a north-south distance varying by 25°8' and an east-west one varying by 31°3'.¹

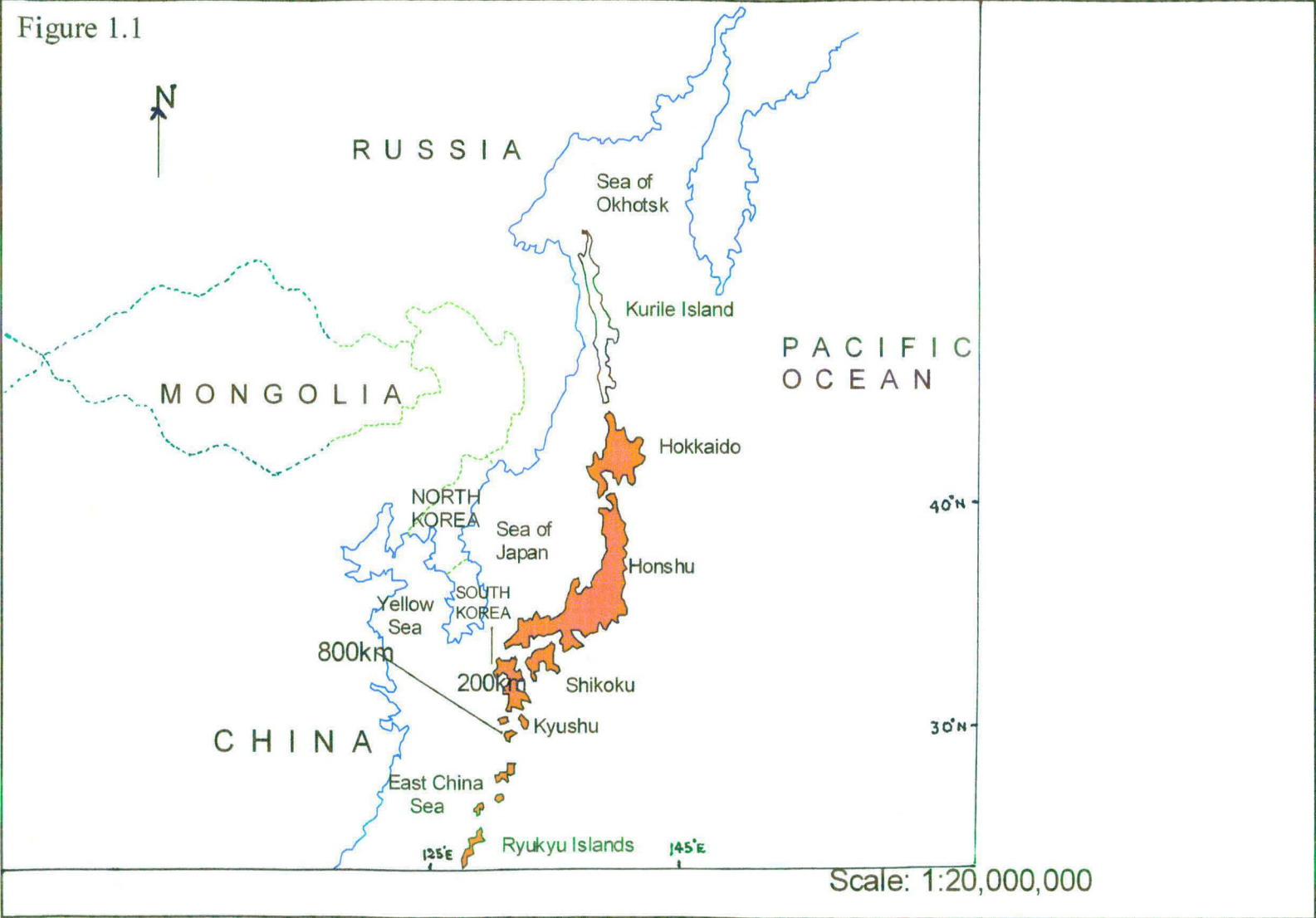
It situated in East Asia, with China, North Korea and South Korea in the east, separated by Sea of Japan and Yellow Sea. In the north it has Russia, separated by Sea of Okhotsk, and Taiwan and Philippines in the South separated by East China Sea. The wide Pacific Ocean lie in the western part of the country separates it from rest of the world. The distance between Japan and Korea is 200 Kilometers and with China, it is about 800 kilometers. Figure 1.1 shows the location of Japan in East Asia.

The Japanese Archipelago is made up of mountain ranges submerged in the ocean. About 80% of the land is mountainous, with plain areas mainly narrow and small. The country's mountainous terrain provides only a limited area of arable land. Fields under cultivation make up 11.9% of the national land total, with orchard land another 1.7% and pasture land 1.4%. By contrast, forested land makes up the largest percentage of the total at 66.8%.² Even the climate of the country varies from one region to another considerably. This has acted as a serious set back in the growth of crops. The efficient utilization of the country's steeply sloping land presents a serious challenge. That is why the country is more inclined to utilize sea resources at its best advantages.

¹ Trewartha, Glenn. T. *Japan: A Geography*, University of Wisconsin Press, Wisconsin, 1970, p. 118.

² Shimibun, Asahi. *Japan: A Pocket Guide*, Foreign Press Center, Tokyo, 1987, p. 9.

GEOSTRATEGIC LOCATION OF JAPAN IN THE NORTH WEST PACIFIC



Source: National Atlas of Japan, Japan Map Center, Tokyo, 1990.

Rivers are short and fast flowing, with great variation in flow from season to season. It provides a vast potential for hydroelectric power generation. Situated on the circum-Pacific volcanic zone, the Japanese islands are the sites of a number of volcanic belts, and the land is extremely unstable. Closely connected with volcanoes, are the earthquakes, of which Japan has more than any other country in the world. Even flooding, landslides, and typhoons are also common. Japan's seacoast areas are subject to danger from the heavy annual snowfall, and crop damage or other disasters resulting from extremes of weather. Japanese coastal plains are fully utilized for industrial purposes and human settlements. Since these areas are near to the sea, all the harnessed marine resources are processed in the industries for exports.

Because of physical constraints and weather extremities, Japan exists on sea resources. Over the years it has changed its perceptions and practices to cultivate sea resources. This study brings into light how Japanese geostrategy played a significant role in changing their perceptions and practices in marine resource exploitation.

Historical background

History played a very important role in shaping modern Japan. Today what ever Japan has achieved is only due to the preservation of their traditional culture and ideologies that they followed since time immemorial. A brief historical background is therefore required to understand how Japan, just little more than 100 years ago was a feudal state has sprung up as one of the most westernized and technologically advanced nation in Asia just within a span of fifty years after the World War II.

Evidence concerning the origins of the Japanese people and their culture is slight and often contradictory. Recent research has shown the existence of neolithic people in Japan in very remote times (5000 B.C. or earlier)³. The earliest Japanese culture of which anything much is known is called jomon, after the cord-pattern pottery with which it is associated. It belonged to a nonagricultural society beginning about the third millennium B.C., in which the people secured their food by hunting and by gathering roots and shellfish.

About the third century B.C., Jomon began to supersede in eastern Japan by Yayoi culture characterized by wet rice cultivation of Chinese origin. The center of their authority was the Yamato plain, near to the later city of Nara. From this area, they gradually extended their power to Izumo, another ancient cultural center around modern Matsue, on the Japan Sea coast. During this time Korean and Chinese culture penetrated into Japanese territory, Buddhism, the major religion of Chinese people secured the patronage of the Saga family of Japan, which was victorious in the struggle for power, establishing its own nominee on the throne after a succession dispute in A.D. 587-588. For the first time a Japanese

³ Cullen, G. B. *Japan: A Short Cultural History*, Princeton Press, New Jersey, 1982, p. 11.

constitution was drafted in A.D.604, which set out a code of behavior, both ethical and administrative, for officials of the court.⁴

Taika reforms began in A.D. 645-646, to assert the emperor's rights over the land and people of Japan as against the rights claimed by the clans and hereditary nobility⁵. All land was declared the property of the state. Some of it was to be allocated to the nobility as rann land or office land, but the bulk was to be distributed among the cultivators in proportion to the numbers in each family. In return the cultivators were required to provide taxes, chiefly in rice or cloth, and certain kind of labor service.

Nara became the capital in A.D. 710. Nara, however, was less well known as a cultural center than its successor, Heian. A decision to move the capital was taken in A.D. 784, possibly because of the growing influence of the great Buddhist religious houses that surrounded the court. By the end of the ninth century members of the Fujiwara family dominated Heian both politically and socially. Fujiwara family built up great wealth through landed estates in the provinces.

Accordingly, the growing wealth of the great Buddhist houses, together with of ensuring that by the 12th century the greater part of arable land was included in large, tax-free private estates called shoen to which local families often commended their own holding⁶. It was the breakdown of law and order accompanying these changes that undermined Fujiwara power, which led to the development of a system called vassalage, having leaders from a number of great military houses that became its focus. Of these, the two greatest were the Taira and the Minamoto, both descended from the imperial house.

⁴ Jansen, Marius B. *Japan & it's World: Two Centuries of Change*, Princeton Press, New Jersey, 1980, p. 72.

⁵ *Ibid*¹, p. 18.

⁶ Hane, Mikiso. *Pre-modern Japan: A Historical Survey*, West View Press, Tokyo, 1991, p. 258.

In the rivalry between the two, the Minamoto were for long the more successful. In 1180, Minamoto Yoritomo defeated Taira. In 1192 Yoritomo secured the title of shogun, and became the defacto ruler of Japan. His headquarters was at Kamkura known as the bakufu, which became the country's administrative capital. Kyoto (Heian) still remained the location of the imperial court, where Fujiwara and other nobles held high office, but it was no longer the center to political power.

To see that his decisions were carried out, the shogun appointed his own vassals (gokenin) as military governors (shugo) in the provinces and as stewards (jito) to most of the great private estates. After the death of Yoritomo power fell in the hand of Hojo Tokimasa. Hojo administration was concerned chiefly with controlling the samurai, the members of the military class, and with settling disputes concerning such matters as land rights, in heritage, or vassal status. There were, however, a number of factors making for discontent after the middle of the 13th century. The struggle for land continued, with samurai seeking to assert new privileges both against Kyoto and against each other, making the bakufu's position as arbitrator more and more difficult to maintain.⁷

Ashikaga Takauji took the title of shogun and established himself at Muromachi, a part of Kyoto. It was known as the Age of Civil Wars. Authority shifts progressively from Shogun to Matsunaga family. At this period, Europeans first arrive in Japan, bringing firearms, Christianity and overseas trade began⁸. Eventually, Oda Nobunaga banishes last Ashikaga shogun and succeeds in unifying a significant area of the country. After his death by treachery, a loyal retainer, Toyotomi Hideyoshi, completes his work. Christianity and foreign trade flourish under Nobunaga, and at first under Hideyoshi, but the latter eventually becomes suspicious of European territorial ambitions, and orders expulsion of

⁷ Ibid⁵, p. 261.

⁸ Sansom, George. *History of Japan*, Charles E Tuttle, Tokyo, 1977, p. 23.

missionaries. During the beginning of Edo period in early 17th century, Tokugawa appointed shogun by the emperor. Legal code for noble families established, to facilitate shogun ate control of court and emperor. Four class system-warriors, farmers, artisans, merchants emerged, and inter-class marriages were restricted. Within each class, feudal master servant relationships established. Tokugawa shogun ate becomes firmly established on this system, know as Baku-Han (shogun ate-fief).

By the end of middle Edo period, Baku-Han systems was progressively weakened by concentration of wealth in hands of merchant class, shogun ate experiences financial difficulties, and samurai and farmer sank into poverty. During this period, various foreigners landed in Japan, followed by Commodore Perry's arrival in 1853, demanding the opening of the country to trade in the name of the United States president. Forces within and outside Japan gradually push the country to abandon its policy of isolation and finally shoguns decides for trade with other nations.

At the end of 1867, the imperial capital was transferred to Edo, later on renamed as Tokyo. This event, the Meiji Restoration, taking its name from that of the era that continued until the emperor's death in 1912, marked the beginning of a determined attempt to modernize Japan along Western lines. Japanese society had already been modified by economic changes. A centralized system of administration, staffed by a Western style bureaucracy was established. The daimyos and samurai thus lost their rights as hereditary rulers. With these went some of their social privileges, together with their stipends, which were compulsorily exchanged for government bonds in 1876⁹. Throughout this period the government had pressed on with its plans for modernization. The army had been reorganized on Western models and armed with modern weapons. A navy

⁹ Cullen, T. L. *Pre- War Administrative Reform in Japan*, Foreign Press Center, Tokyo, 1984, p. 21.

had been created and substantial progress had been made in improving railways and communication networks.

From the beginning they had made every effort to increase agricultural production. A rise in per capita rice consumption was achieved, and agriculture was also enabled to bear a heavier burden of tax. This, in turn, gave the government the means of helping trade and industry. At government initiative tax-concessions were granted, trade fairs held, technical training centers and model factories set up, foreign experts hired, and Japanese students sent abroad.¹⁰

By this time Japan felt strong enough to pursue its own interest more vigorously on the neighboring mainland. It had already become involved in the affairs of Korea, where China was its principal rival, and in 1894, it insisted on pressing its claims to the point of war. By the Treaty of Shimomoseki (1895) China recognized Korea's independence and ceded Taiwan to Japan. Only the intercession of Russia, France, and Germany prevented Japan from securing the Liaotung Peninsula in Southern Manchuria. In 1902 an alliance was signed with Britain, marking a new advance in Japan's international standing. Attempts to reach a settlement with Russia broke down in 1904

Another successful campaign, during this time was the signing of Portsmouth Treaty in New Hampshire (1905), by which Russia recognized Japan's supremacy in Korea, transferred to it the Liaotung Peninsula of south Manchuria, and the southern half of the island of Sakhalin¹¹. These gains gave Japan a paramount position in East Asia. With the outbreak of World War I in 1914, Japan declared war on Germany and seized the German islands in the North Pacific, Japan also launched an attack on German bases in China's Shantung Province,

¹⁰ Ibid⁸, p. 72.

¹¹ Allen, G.C. *Short Economic History of Modern Japan 1867-1937*, Kokusai Bunka Shinkokai, Tokyo, 1971, p. 90.

paving the way for an ultimatum to China in 1915 that sought not only the transfer of former German rights but additional privileges throughout the country.

At the Versailles Peace Conference in 1919 Japan was one of the victorious Allies. Chinese opposition prevented formal recognition of its wartime gains on the China mainland, but Japan secured Germany's Pacific Island and a permanent seat on the League of Nations Council. It was in the 1920's that development arising from westernization, first became of crucial importance. During the World War I years, there had been a sharp increase in the pace of industrialization, since the temporary absence of European competition made for greater export opportunities, and shipbuilding especially made rapid progress, as did the production of coal and iron. As a result, more of the population came to live in cities and work in factories; agricultural production failed to keep up with population growth and the country had to face new social and political problems.

Universal manhood suffrage was introduced in 1925. The creation of an urban proletariat, the formation of labor unions in conditions of postwar depression, and a trend towards socialism under the stimulus of the Russian Revolution had all contributed to the development of groups of radical outlook. The government promptly banned the Communist Party of Japan, formed in 1922¹². The attack on China in 1937 brought deterioration in Japan's relations with the United States, Britain, and the Soviet Union. Japan had signed an Anti-Co - Intern Pact with Germany in 1936 directed against the Soviet Union. In 1940 it entered into a Tripartite Pact with Germany and Italy providing for a broad mutual assistance. The outbreak of World War II in Europe had strengthened Japan's position by reducing the chance of European intervention.

There arose a strong demand within Japan for a move into Southeast Asia to create a so-called Greater East Asia Co prosperity Sphere under Japanese

¹² Inada, L. M. *A History of Japan: 1582-1941*, Cambridge University Press, Cambridge, 2003, p. 21.

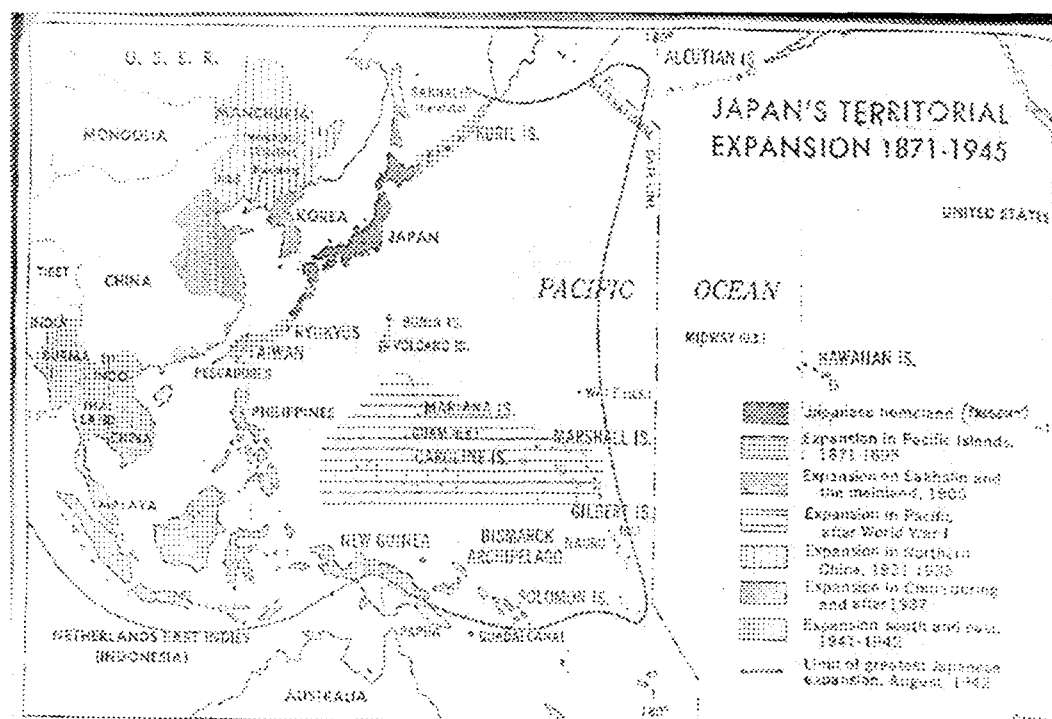
leadership. Only United States opposition seemed to threaten this plan. After long and fruitless attempts to secure United States neutrality by diplomatic discussion, the decision was at last taken under an army Prime Minister, Tojo Hideki to remove the threat by attacking United States installations in the Pacific. The attack on Pearl Harbor on Dec. 7, 1941, made the war worldwide.

Japan was first successful everywhere, pushing its zone of occupation in a matter of months to the frontier of India, almost to the shores of Australia, and halfway across the Pacific. It failed, however, in the economic and political exploitation of these successes, and when the United States counterattack was launched, Japan was unable to contain it. In August 1942 atom bombs were dropped on Hiroshima and Nagasaki, and the Soviet Union entered into the war. Japan, already exhausted by submarine blockade and conventional bombing, agreed to unconditional surrender.

After its surrender Japan, now reduced in area to its four main islands. Political parties were encouraged to form again and in 1947 a democratic constitution was provided. Various laws were enacted to give equality to women and to stimulate the growth of labor unions. The postwar generation of Japanese has therefore become better informed about and more confident in dealing with the ideas and habits of the Western world than even their predecessors of the 1920's. To some degree they have also lost touch with their own traditions¹³.

¹³ Kosaka, Mastaka. *Hundred million Japanese: The Post War Experience*, Kondansha, Tokyo, 1972, p. 20.

Figure 1. 2. Expansion of Japanese territories from 1871-1945.



Source: The National Atlas of Japan, Revised Edition, Japan Map Center, Tokyo, Japan, 1990.

Japan's remarkable economic growth has most clearly characterized its history since 1952. From an almost complete standstill at the end of the war, industry gradually recovered and the next decade saw production increase to more than four times its prewar level, an impressive advancement is achieved in the production of chemicals, machinery, electrical equipment and transportation equipment. Japan in the 1960's was the world's largest shipbuilder and a leading exporter of precision goods. It had achieved a standard of living comparable to that of many countries in Western Europe, economically, if not politically Japan had regained a position among the great powers.

The Study Area

The study area for this research work is North West Pacific, to show Japanese geostrategic perceptions in marine resource exploitation. The North West Pacific extending from the Bering Sea in the north to the East China Sea in the south is the second great center of the world fisheries development. Unlike the Atlantic, the continental shelves are wider and the fisheries are shared among a small number of large fishing nations. The pattern is dominated by the long established fisheries of China and Japan and by the relatively recent ones of United States in the east and Russia in the West. The enclosed seas surrounding Japan - the Sea of Okhotsk, Sea of Japan, Yellow Sea and the East China Sea are used for intensive forms of in shore as well as deep-sea fishing.

The North West Pacific is also one of the most important marine regions. Marine region refers to the man made demarcation of the geographical area having homogeneity in the spatial distribution of marine resources, which are cultivated preserved and managed by a particular group of countries as a whole¹⁴. This region is an area of intense usage and clears importance, with a history of cooperation manifested through an existing network of international organizations. Despite differences in size, political and economic systems, the countries possess the capabilities essential to rational management of marine resources.

This region has experienced considerable growth in marine resource harnessing technology after World War II with the reemergence of Japan as one of the most economically powerful nation of the world.

¹⁴ Miles, Edward. *The Management of Marine Regions: The North West Pacific*, Ocean Development and International law Journal, Volume 6, June 1980, p. 26.

The Geography of the Region.

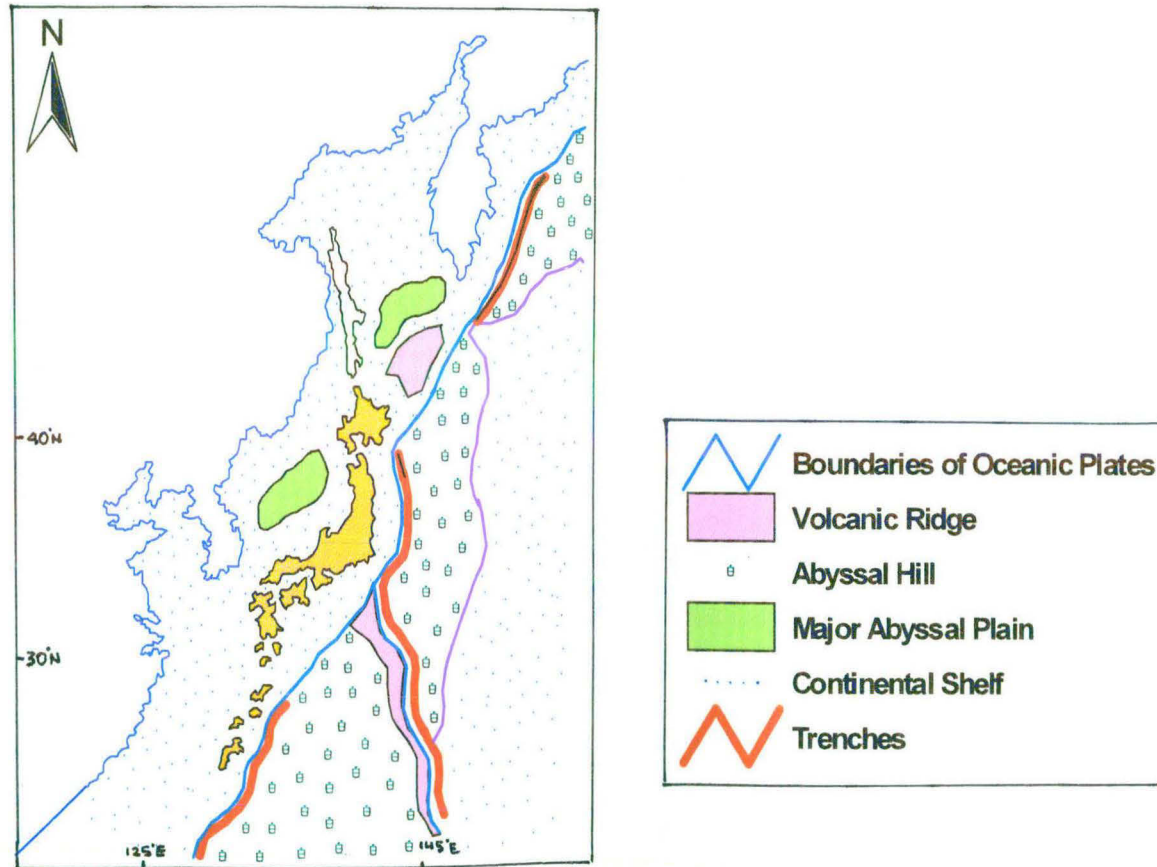
The North West Pacific lies within the zone of tectonicity in the junction of three crustal plates namely Pacific Plate, Eurasian Plate and Philippine Plate. This region is the zone of several oceanic trenches and basins. Trenches usually refers to the long narrow and steep sided depression on the ocean bottom where as basin refers to the valley found between the two trenches. The world's deepest trench, the Mariana trench is located in south of Japan, followed by Ryukyu Trench in southwestern part, Kurile Trench in the north and Japan Trench in the east. Among the basins the important one are Kurile Basin, North West Pacific Basin and Japan Basin.

Figure. 1.3. shows the spatial distribution of sea morphological feature. The continental shelf, geologically a part of the continent, which composed of same kind of rocks and minerals of the continent, submerged in the sea, is wide around the coast of Japan, China, Korea and Russia. Since it contains almost all the marine food, provides good ground for mineral exploration is new subjected to various political legal significance in the international politics. It also shows the other features as well. They include abyssal plain located in the middle of Sea of Japan and Sea of Okhotsk, which is an absolute flat plain covered by sediments both of terrigenous and shallow water origins. A part of volcanic ridge is also seen, which is a submerged ridge, forms the longest mountain chains on the ocean floor. Sometimes their summit can be seen on the ocean water in the form of islands. This ridge is bounded by abyssal hill, which is quite extended in the south of Japan and near to the sea of Okhotsk.

The presence of warm Kuroshio and cold Oyashio Ocean current is a great boon to Japanese fisheries, since it helps to produce ideal conditions for plankton

SEA FLOOR MORPHOLOGY OF NORTH WEST PACIFIC

Figure 1.3



Scale: 1;20,000,000

Source: National Atlas of Japan, Japan Map Center, Tokyo, 1990.

growth. Plankton refers to the collective terms for the millions of microscopically small organisms, which are found in seawater, they form food for zooplankton.¹⁵

The coast of Japan has wide continental shelf, provides shallow water with warm temperature for their growth, which in turn helps in survival of other fish species. More over Japan is located in high latitudes of temperate climatic zone where sea temperature never goes above 20°C, which helps, in the commercial exploitation of marine resources.¹⁶ Japan is a fragmented country, made up of several thousand of islands, which helps in the resource exploitation at distant water. The indented coastline of the country with bays and sheltered inlets provides good sites for fishing ports and villages. Japan, has already developed good network of marine transportation in North West Pacific after World War II to carry out the sea borne trade with other parts of the world. Thus the geography of the country has a bearing on its economy, polity and other socio-cultural dimensions.

Distribution of marine resources in North West pacific.

The spatial distribution of marine resources varies from one place to another. Several co-factors also co-exist along with its variations, for example the temperature of the sea surface, ocean currents, precipitation, salinity and density of sea water, growth of plankton, shallowness of the continental shelf and so on. Variations also happen due to the interference of mankind, over exploitation of one species generally leads to the depletion of the other and gradually affects the whole eco system. North West Pacific has certain sea floor morphology and distinct climatic conditions for the survival of certain fish species and provides growth for other marine resources. The primary productivity of this area ranges from 50 mgC/m² per day in the open ocean and 200 mgC/m² per day in the coastal

¹⁵ Ibid³, p. 29.

¹⁶ Tsuru, Shigeto. (ed). Growth and Resources Problems to Japan, International Economic Association, Tokyo, 1978, p. 59.

areas. Distribution of the high productivity area corresponds to that of the continental shelf.

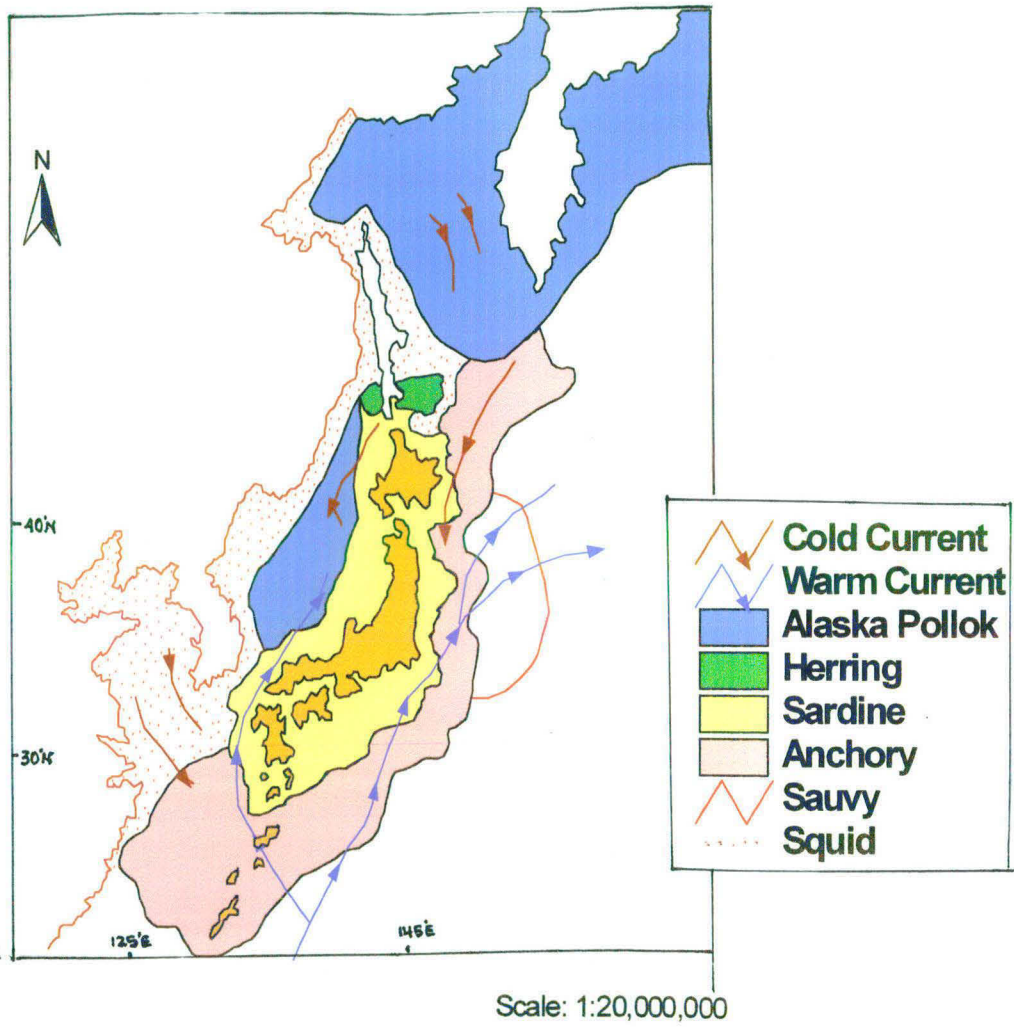
Various fish species exist in one particular area between different layers of water, even their area of production overlaps with one another. Figure 1.4. Shows the spatial distribution of fish resources in North West Pacific. These species have been selected on the basis of their long-term importance to the fishery, provides exceptionally large harvest compared to other fish species present, and became major sources of conflict. Both pelagic and demersal fishes exist in the North West Pacific region. Among the pelagic fishes are saury and sardine, distributed mainly on the Pacific side of northern Japan. The sardine population comprises of four subpopulations distributed from Northern Kyushu to the western part of the Sea of Japan. This fish is littoral in nature and its fishing grounds are usually found near the coastline.

Saury, is highly pelagic and is distributed in a very wide range in the northern Pacific waters. Saury in the Sea of Japan is a large sized fish, survives well due to confluence of Kuroshio and Oyashio currents. Among the other species, common squid and mackerel, chiefly found on the Pacific side of northern Japan and in the western part of the Sea of Japan and East China Sea. Common squid is a one-year fish that is supposed to mature and die in a year. The main fishing grounds are located off the Pacific coast of northern Japan but the catch in these waters showed a conspicuous drop from around 1990 and instead, offshore fishing grounds are developed in the Sea of Japan.

Anchovy, a pelagic variety is more extensive than that of the sardines stretching from Hokkaido to Taiwan. This fish is more prone to live near coasts and in inlets than sardine but it is also widely distributed in the high seas.

DISTRIBUTION OF MAJOR FISHERIES IN NORTH WEST PACIFIC

Figure 1.4



Source: National Atlas of Japan, Japan Map Center, Tokyo, 1990.

Yellow tail is also widely distributed along the coasts of Japan. It is an intensive fish eater. The spawning ground of yellow tail stretches from south west of Kyushu to the East China Sea.

There is a large variety of demersal fish in Japanese waters. Among the cold-water demersal species, Alaska Pollock is of greatest importance. The biggest catch of this fish is noted near the Kamchatka Peninsula. Atka mackerel is second only to Alaska Pollock in importance among fishes in the waters near Hokkaido, the continental shelf that spreads on the pacific side of Northern Japan constitute the major fishing ground for this fish. Tanner crab, another demersal variety economically the most important species in the Sea of Japan, but its stock has declined due to over fishing.

Among the other varieties porgy, hair tail, cod, croakers are distributed off western Japan, and give rise to an important part of the trawl fisheries in the East China Sea. Sand lance is caught in the Sea of Okhotsk and various parts of the pacific waters off Japan flat fish found in large quantities in various part of the country. Shrimp are caught mainly off western Japan and constitute important fish resources in the Seto Inland Sea.

Whales depend upon migratory pelagic stocks that are migratory in nature, found along the deep waters of North Pacific region. Today the largest whaling nations are Japan and Russia exploits Baleen whale to a large extent. Whale oil is still the leading products of this farming. Liver is used for proteins and bones are used for fertilizers. In order to save whales from complete destruction, International Whaling Commission was set up in 1946.

Pearl culture is another important activity of Japan. Genuine pearls are derived mainly from oysters largely manufactured at Toba in Ise Bay located in

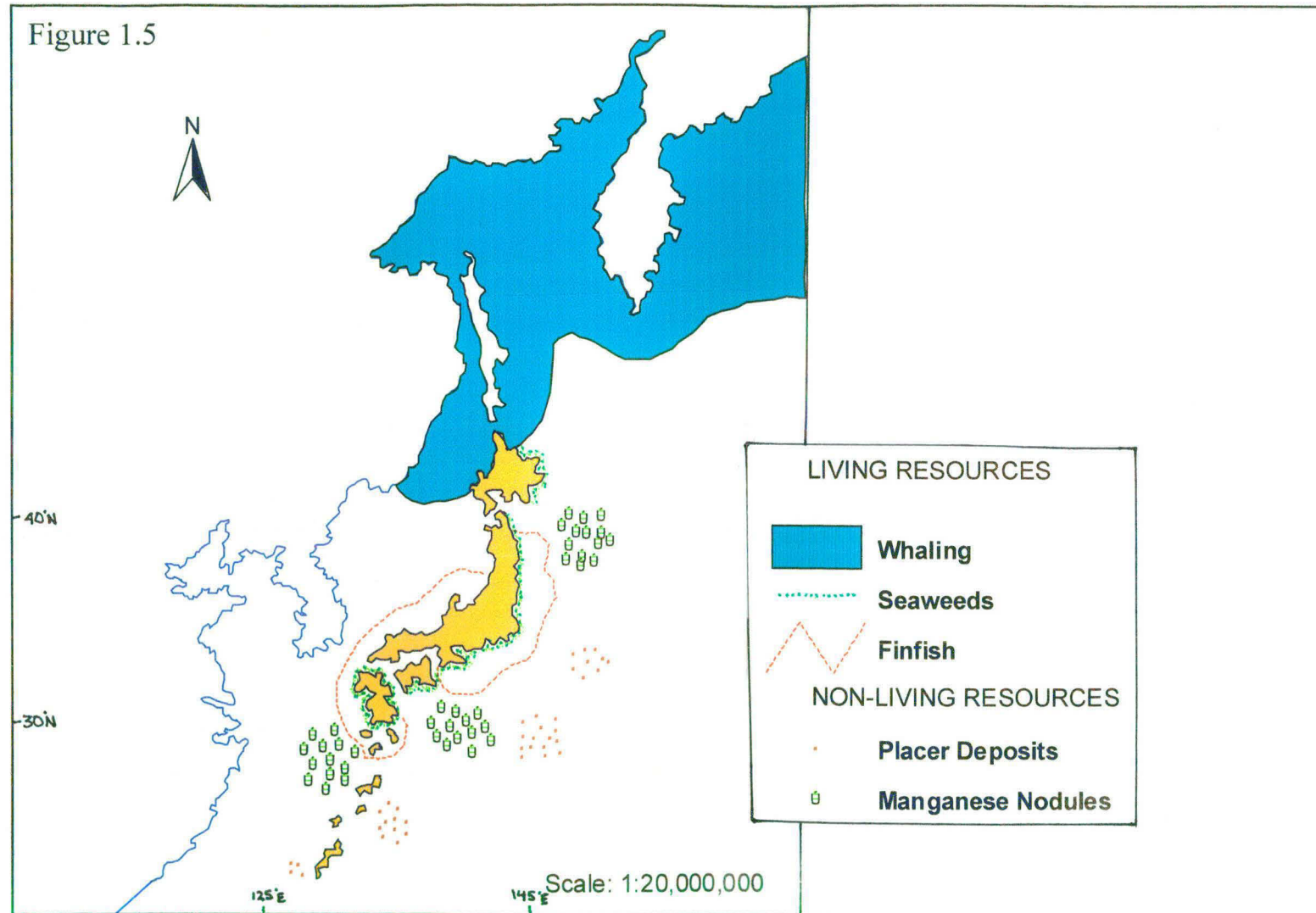
south of Honshu. Seaweeds or more precisely sea-algae grow throughout the coastal region of Japan since it is a rich source of vitamins, iodine and calcium. The map shows the concentration of production of seaweeds in North West Pacific for human consumption. Among the other seabed mammal, finfish, mussel, clam, scallop, cockle, crustacean are of great significance in the coastal water of Japan.

Figure. 1.5. shows the spatial distribution of Sea mammals as well as various Seabed resources of the North West Pacific. The width of the continental shelf along the coastal state of North West Pacific has helped in the formation of several seabed minerals, which further provides nutrition to other mammals. The important seabed minerals are as follows: marine phosphate deposits, produced due to the sediment deposition of rock, they frequently occur as nodules, varies from pebbles to boulders. Phosphorite is a term used to describe rocks and unconsolidated sediments of marine origin in which the phosphate mineral occurs in significant amount. It is a good source of fertilizer.

Manganese nodules are also abundant here they occur in different shapes, sizes and forms. Areas of erosion or extremely low sedimentation rates such as red clay or siliceous ooze provinces, or areas with high currents at depths in excess of 4000 meters, are particularly favorable for their occurrence. Other minerals like marine aggregates comprise of sand, gravels and shell deposits are also found. Most popular is the placer deposit, which is the concentration of heavy resilient and chemically resistant minerals, eroded from existing ore bodies by mechanical weathering are also found in abundant quantities. Sometimes technical problems, uncertainty over profitability and international debate, over the rights and obligations of States in relation to the resources of the deep seabed inhibits the exploration of these resources¹⁷.

¹⁷ Ibid⁵, p. 2.

DISTRIBUTION OF MAJOR SEA MAMMALS AND SEABED RESOURCES



Source: National Atlas of Japan, Japan Map Center, Tokyo, 1990.

Japanese Geostrategic Perceptions.

A State's geographical position and its historical development are the prime-determining factor of its geo strategic location. Although the location of a place on the earth is fixed, the political values and implication of its locations are continuously changing¹⁸. The word geostrategy refers to the utilization of the geopolitical factor in the context of security therefore a state's geostrategic location and its existing resources both territorial as well as marine resources not only can impose its will on its neighbors but interferes in their decision making processes as well. This is how the geo strategic location of a particular state with its available resources gives it strength in establishing power relationship with its neighbors and maintains its defense and maritime securities.

Japan being elongated in shape having lesser in width compared to its length has less area far away from sea. This shape also has a bearing on its internal space relationship, dictates the type of government, and the type of transportation network the country should have. The geographical size of the state is in enviably expressive of its economic and military potentials. Large size, may often tend to develop centrifugal forces, even the empty area of a large size state can act as a hindrance to the growth of socio-cultural homogeneity of the state. Though the concept of the size of the state varies from one individual to another, yet we can list Japan, in the category of a medium size state, suitable for better administration. These three spatial attributes are vital to evaluate the geopolitical necessities of a particular state with its immediate neighbors and also with other distant countries of the world and geography is the best expression of this element.

Japan's insular location has had a profound impact on its history and culture. The seas have been a major regulator of contact with the outside world. Being an insulated state, politically it is more stable. Homogeneity in culture has

¹⁸ Brill, Heinz. *Political geography, Geopolitics, Geostrategy: An Attempt at Systematization*, Strategic Studies, Volume 8, July 1984, p. 87.

taught Japan, two ways of relating the outside world that of a self complacent “insular nation” of introverted inhabitants and that of a maritime nation of people open to the world beyond¹⁹.

Location continues to play the most decisive role in its internal and external space relationships. Japan has the most powerful nations surrounded to it. It is evident that geographical space is directly related to political viability²⁰. Much of its foreign policy is determined by its external space relationship. Criteria’s for maritime security, improvement in defense technology, naval diplomacy, and marine policies are the prime areas that should be focused upon for a country like Japan.

The geographical conditions and the uses of the seas are so varied and diversified that the sea’s importance differs from country to country. Some countries have no coastline and others have short ones. Their maritime interests thus differ widely. There is also a conflict of interest between nations that are extensively engaged in fishing and that are not. As in case of Japan, several fishing disputes have surfaced with its immediate neighbors and more are gaining ground. There are countries which use nation for military purposes others do not. The whole ocean is criss-crossed by different marine regions.

The composition of marine resources is by far more complicated than those on land and access to them is difficult. To think that control of marine resources is easier than that of land resources is quite indicrous²¹. Japan lies in the hub center of world’s major trade routes. Japan has found in the ocean a cheap traffic lane for

¹⁹ Fukushima, Yoriko. *Japanese Geopolitics and its Background: What is the Real Legacy of the Past?* Political Geography, Volume 6, June 1997, p. 422.

²⁰ Saburo, Okita. *Significance of Geostrategy in Nuclear Age*, Strategic Studies, Volume 12, August 1983, p. 17.

²¹ Gibbs, Stephen. *Management of Marine Transportation in the North West Pacific*, Ocean Development and International law Journal, Volume. 10, June 1985, p. 18.

transporting goods and resources in bulk. Last but not the least, the ocean has been the source from which the Japanese have got a wide variety of foods including fish, shell fish, sea weeds and other marine products to Japanese the sea has been perceived as something without compensation, the produce called the “riches of the Sea”²².

The value of its strategic location varies with the balance of political forces with the changes in technology. The history of Japan reveals how the perceptions and practices of Japanese have changed in utilizing their resources, maintaining relationship with other nations over the years. The maritime barrier has protected Japan from several instances. Japan’s insularity made it possible for a regime like the Tokugawa shogun ate to restrict contact with the outside world in the interests of domestic order and stability.

The seas have also been the principal channel of communication, cultural infusion and trade. During the early centuries Chinese and Korean influences constantly trickled into Japan, while the Japanese themselves in the 7th and 8th centuries sent many large embassies to China to acquire advanced knowledge of continental civilizations. In the 16th century, Iberian missionaries and traders brought Christianity, guns and western culture to Japan and the Dutch maintained a trading post in Nagasaki.

Having recognized the potent influence of naval power and maritime commerce, the leaders of the Meiji government gave great attention to building up a Japanese navy and merchant marine as vital components of a rich and powerful modern nation state²³. Even in these days of rapid air travel, Japan still relies on the sea for its highly successful trade. The country is heavily dependent on imports of foodstuff and raw materials and on exports of manufactured products. Most of

²² Ibid⁶, p. 25.

²³ Masao, Takahashi. *Modern Japanese Economy*, Kokusai Bunko Shinkokai, Tokyo, 1967, p. 10.

those import and exports are carried by Sea. The heavy dependence on exports and imports moving via extended sea-lanes contributes to a sense of vulnerability on the part of many Japanese, while it is at the same time undeniably a source of recent prosperity²⁴.

The world political situation underwent a drastic change. From 1960 onward the independent nations of Asia and Africa not only increased in number but also became politically active and took issue in the distribution of marine resources. They objected to foreign fishing boats operating within 200 nautical miles of their shores and desired to secure the right of future resources development in that area. They therefore demanded extension of coastal state's exclusive jurisdiction through the widening of territorial water for the establishment of fishery. International demarcation of sea zones has begun to affect Japan's fishing industry; the proclamation of 200 nautical mile fishing zone drove many Japanese fishermen out of the Sea²⁵.

Earlier nations were not interested in fishing and Japan was left with all the resources to exploit at its will. With the growing demand of oversea resources and better technology, coastal countries in North Pacific started taking their share interfering in Japanese fisheries. Military and scientific development since World War II have made the world so small as to require national boundaries even on the sea. Needless to say the nuclear, powered submarine is mainly responsible for this situation. The technology of spy satellite has not yet advanced enough to detect the position of submerged nuclear submarines. Anti submarine tactics based on cooperation between surface vessels and helicopters have therefore been regarded as the main method of countering them.

²⁴ Lockwood, William W. *The Economic Development of Japan*, Princeton Press, New Jersey, 1968, p. 17.

²⁵ Kosaka, Masatka. *The International Dynamics of Roping off the Sea*, Japan Echo, Volume IV, Number 3, 1977, p. 34.

Recently the role of surface vessels has acquired greater importance as a means of communication. With submarine operating in distant seas, it has become necessary to establish a communication network linking ground bases, satellites, surface vessels, submarines in operation and this had added a new aspect to naval supremacy for Japan. Japan should protect its sea-lanes on its own. Its sea-lanes can only be secured by offering economic assistance to other countries, maintaining a certain level of self-defense capability and adhering to some alliance policy. Order of the sea has been basically commercial maritime order.

The destiny of an island nation is to defend its sea. Such as nation's government must more than anything, else first understand that need. Because of its nature the sea unlike the land is difficult to take complete possession of even if it is partitioned. Various capabilities of a maritime nation determine its own future.

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CHAPTER: 2

JAPANESE PERCEPTION OF GEOSTRATEGY IN PRE- WAR AND POST- WORLD WAR II IN MARINE RESOURCE HARNESSING

Japanese perception of geostrategy before and after World War II widely differs in each and every respect. This is mainly because of the fact that throughout its history, it has experienced many ups and downs, leading to the formation of new events. And Japanese utilized their geostrategy according to the changes made in the outside world. The repercussions of each and every war had profound influence on Japanese political set up, economic foundation, domestic affairs and so on. The period between Pre-World War II and Post-World War II is always taken as a demarcating line to distinguish between traditional Japan and modern Japan, since this war has completely changed the Japanese perceptions and practices. More over it was the wisdom and farsightedness of the Japanese to predict for the future change and grasped the opportunities for using the geostrategy, according to the demanded situation.

Japan is represented worldwide by a maritime nation and will be represented by this only in the near future. It is the geostragic location that has made it so. There were many factors, which actually influenced the changes in the application of geostrategy from time to time. Among them the major ones are the political set up, the economic development, trade relations, domestic affairs, demographic structure, quality of human resources and other socio- cultural factors.

Pre-World War II Phase

Taking Tokugawa period as the point of departure, for studying the application and role of geostrategy, in the pre World War II, references can be made about the political administration, economy and socio-cultural dimensions. A military dictatorship was established in Japan during this time, after the prolonged civil wars for hegemony among the feudal lords. Since then the emperor of Japan was relegated to the background without any hand in the government, which was actually run by the Tokugawa military dictators called shogun¹. Coming to the economic structure, agriculture was the main occupation of the country, with a population of just 30 million, peasant accounting for 84% of the total work force and the rest belonged to military groups, and workers in other

¹ Toyodo, Takeshi. *History of Pre Meiji Commerce in Japan*, Kokusai Bunka Shinkokai, Tokyo, 1967, p.17.

fields.² Peasants were subjected to feudal exploitation and lived at subsistence level; they had to barter some of their products for goods, which they could not produce.² Gradually economy started to change, specialized class known as merchants developed who facilitated such exchanges. As economy expanded, money as well as the financiers became necessary, thus leading to the growth of industries in various fields. Further improvement in transportation facilitated the process of expansion of exchange economy. This may be considered the beginning of the modernization as well as the disintegration of the feudal economic system of Japan from within.

Traditional type of fishing techniques were used to fish around the seas of Japan. It was more a labor-intensive job, farmers used to depend on natural stocking and fertility of water bodies. Japanese divers were both men and women, who used to search seafood like fishes, pearls, sea cucumbers, and seaweeds by submerging themselves deep into the sea, put their catches into net bags hung around their waists. They either send the bags up by rope to nearby boats, or surface and place them in wooden tubs or floating net bags. At intervals of about 30 minutes they climbed aboard boats or swim ashore to warm them. Since there was absence of external trade, most of the cultivated fish was consumed domestically.³

The feudal period created a system of strictly controlled, well-defined property rights that extended into the sea for coastal villages. Fishing grounds were considered to be the common property of all residents of designated fishing villages. Some area were called “iriai” the shared fishing grounds among nearby villages, specified Japanese sea right system that evolved during feudal times. Although feudal order ended in the late 19th century, since then Japanese government has revived this ancient system of fishing rights. Modern Japanese fisheries management is based on the fishery laws and the Fisheries Cooperatives Association (FCA) law of 1948. FCA’s were established to better define coastal fishing grounds rights of feudal times and to coordinate their use among fishing villages. In addition to using the time-honored system of fishing rights,

² Sansom, George. *History of Japan*, Charles E. Tuttle, Tokyo, 1977, p.18.

³ *Japanese Food: Past and Present*. About Japan Series, Volume 21, Foreign Press Center, Tokyo, p.21.

participants in Japan's coastal fisheries today are also utilizing the same techniques of conflict management and resolutions of the Edo period.⁴

Traditional small-type coastal whaling in Japan has been practiced since prehistoric times. Whaling was the lifeblood of the peasant communities. They relied on it for nutritional and socio-economic well-being. Species like gray and white whales were hunted, using whaling boats, hand harpoons and nets. Gradually the area of whaling expanded, people discovered many new techniques. Whalers used to move from one whaling ground to another as circumstances required and because of the special skills involved in whaling and in the making of nets and boats, they took teams of skilled workers with them.⁵

Thereafter, the center of whaling gradually shifted from the southwest of the country to the northeast. Whalers from Kyushu, Shikoku, the Seto Inland Sea area and Wakayama, thus moved with the operators to pursue the occupations of their ancestors, resulting in a long tradition of whaling culture transmitted from father to son with no major discontinuities. In 1820, Japanese discovered the rich hunting grounds between Hawaii and Japan and soon hundreds of foreign vessels were operating in Japanese waters. Many whaling groups encountered serious financial difficulty during this period, and it became clear they would have to modernize if they were to survive. They started using steam ships equipped with grenade harpoon guns. During the outbreak of Pacific wars the Japanese whaling was firmly established. This method was so effective that 20 whaling companies came up.⁶

Till the middle of the 19th century, the Tokugawa regime maintained the policy of isolation, insulating the country from foreign influences. When Commodore Mathew C. Perry of the United States navy landed at Tokyo Bay in July 1853 with a letter from the President of the United States, demanding establishment of trade relations, the Tokugawa

⁴ Ibid ³, p.16.

⁵ Tsuru, Shigeto (ed). *Growth and Resource Problems to Japan*, International Economics Associations, Tokyo, 1978, p.102.

⁶ Ibid ⁵, p.70.

regime was shaken to the bone and thrown into total confusion. The size and guns of the American black ships appalled the Japanese as they called them, and the steam-powered vessels, which moved up the bay against the wind, amazed them.⁷ By that time, Japanese had seen little more than small steamers and other unimpressive vessels and saw no reason to comply with foreign wishes to open Japanese ports for trade. Prior to Commodore Matthew Perry's arrival, on the coasts of Japan to negotiate opening trade relations with the United States, the Japanese had no incentives to open their country to foreign intervention. Americans viewed Japan as the ideal location to establish a Treaty Port, in which their ship can reload food, water, and coal. However, Tokugawa regime was forced to sign the Unequal Trade Treaty with the United States, when Perry returned to Tokyo Bay in February 1854, thus ending the one and a half centuries long policy of isolation.⁸

The options open to Japan after abandoning the policy of isolation was either modernization of the economy or colonization of the country by the western powers. Japan chose the first. With the opening of Japan to the outside world, foreign trade began to flow in and out of the Japanese ports. And because of this foreign trade, the financial and trading activities of the foreign merchants expanded. The penetration of the western powers into the Japanese soil also means the importation of the western ideas and knowledge in science and technology. The hostile feudal clans even encouraged the Japanese scholars to go abroad for learning the western methods of production and other branches of knowledge against the explicit restriction of the shogun.

All this made the Japanese scholars and the people more critical of the feudal systems of the economy and oppressive type of government. More so, they become apprehensive of the dangers to which Japan was exposed after the breach of the policy of isolation. Moreover, the impact of foreign intervention was tremendous and sent the Japanese economy into a downward spiral. In absence of the industrial revolution the Japanese economy had established itself on the production of labor-intensive goods, and

⁷ Edwii, O. *Japan-Past and Present*, Charles E Tuttle Company, Tokyo, 1979, p. 110.

⁸ *Ibid* ¹, p.74.

handicrafts. Japanese markets were loaded with foreign goods without any restriction of tariffs on imported goods.

Japan realized that it could no longer exist as a feudal society of uneducated peasants. The goal of the Japanese was to learn from the western countries by borrowing the best technology available while avoiding their mistakes of the past that have been traditionally associated with industrial development. With the power of hindsight, Japan would successfully enrich the nation and strengthen their military, so that they could use their geostrategic location in a proper way. In 1868, the Samurai class collectively stepped down to induce a controlled revolution in which the new emperor, Meiji would reclaim his divine right to rule and restructure the society.

Since the Meiji restoration, Japan had passed through the most momentous stages in its history, full of hopes and despairs, slums and booms. The Meiji took upon themselves the most arduous task of building the new nation by establishing capitalistic economy with advanced technology and management methods from abroad and creating all essential pre-conditions for modernization. Soon after the Meiji Restoration, the government carried sweeping reforms to pave the way for modernization as well as for consolidation of the new regime. By a decree of 1869, the last vestiges of feudalism were abolished and the feudal clans surrendered their proprietary rights to the government.⁹

The restrictions on free trade, movements of men and material between places and choice of professions were all lifted. After its political power became more or less stable, the government took more decisive steps to develop capitalist economy besides improving industrial environment. It pioneered, financed and operated many new industrial ventures in the early years and transferred many of them to private ownership at low prices. It is believed that the beneficiaries of such industrial transfer became eventually the leading industrialist of Meiji Era known as Zaibatsu. The government also imported advanced industrial technology and management methods from abroad and

⁹ Mikiso, Hane. *Premodern Japan: A Historical Survey*, Boulder: West View Press, 1991, p.69.

introduced them in key industries. In 1968, Japan's first-ever ship dock was constructed in Nagasaki.

The Meiji government not only enlarged the industries established in the last years of the Tokugawa era such as iron-smelters and foundries, munitions factories, cotton spinners and glass wares, but also set up new industries in diverse fields such as mining, sulfuric acid manufacturing, paper, cement, sugar etc. The strategy was then one of making a strong and rich nation-strong militarily and rich economically.¹⁰ Heavy industries such as shipbuilding with government subsidies in 1896 and the state run Yawata Iron and Steel works were developed in 1897. This was the first iron and steel mill equipped with blast furnace in Japan. The new confidence gained from the victory in Sino- Japanese war and the subsequent expansion in armaments paved the way for Japan to enter into another war with Russia in 1904.

No less important, probably more important, than anything else is the diffusion of education, especially the widespread primary education that provided the solid foundation for modernization. Massive mass campaigns were launched to get the people interested in education and to educate themselves. The government proclaimed that the people of Japan had three civic duties that are to go to school, to pay tax and to serve in the army. The middle grade institutions provided the large number of small entrepreneurs and agriculturists with the technical knowledge, which enabled them to improve agricultural and industrial techniques and to adopt the scientific practices required for modernization. In short, Japan developed during the early stage of modernization.¹¹

The period of three decades following the outbreak of World War 1 was marked by the most momentous stages in the history of Japan. The World War 1 left great impact on Japanese economy, though for a short time. The Japanese economy was in a long recession and the government was virtually on the verge of bankruptcy just before the outbreak of the war. The suspension of international trade and shipping operation after

¹⁰ Johnston, B.F. *Agricultural Productivity and Economic Development in Japan*, The Journal of Political Economy, Volume 9, February 1951, p. 499.

¹¹ Makoto, Aso. *Education and Japan's Modernization*, Ministry of Foreign Affairs, Tokyo, 1972, p.18.

the outbreak of the war precipitated crisis affecting both export and import trade of Japan and throwing many industries into bankruptcy. This was, however, short-lived and soon the events began to take a new turn. The large orders from the allied powers for military goods and other supplies began to pour into Japan.

The Asian markets, which were monopolized by the European countries, suddenly opened to Japanese textiles and other products. Riding on the wave of such rising demand for both military supplies and the other goods, Japan increased its exports fourfold. Japan also earned substantially from trade such as shipping. As a result Japan became a creditor country rather than a debtor one. Both heavy and light industries recorded a spectacular growth during this period. Industrial productions like coal, pig iron steel, cotton fabric and silk fabrics increased by almost fivefold from 1914 to 1918.

Japan started looking for more areas of harnessing resources with the growth of its external as well as internal demands. The rapid modernization of Japanese fishing fleets through motorization, and the utilization of more durable fishing gear in the early twentieth century resulted in the development of off-shore and distant water fisheries, including industrial bottom and midwinter trawls, tuna long lines, skipjack pole-and-line and purse seine fisheries. The Sino-Japan War, Russia-Japan War and the First World War expanded Japan's overseas territories and interest over the Pacific from the Bering Sea to the South China Sea and to the South Pacific. Not only did expansion create greater fishing opportunities for its distant water fleets but also the economic boom following the First World War generated a sizeable demand for fish products. Furthermore, canned salmon and crabs took on an increasing role as valuable export commodities. Even many up gradation has been done to enhance whaling. The expansion of near-seas whaling grounds to include the Kurile Islands to the north in 1913 and Taiwan, and the Bonin Islands to the south in 1919 was remarkable. The rate of expansion was so great that the government decided to introduce regulation with the aim of securing resources for the future and preventing over-capitalization.

Impact of Second World War

Japan's vital foreign markets were all gone so also was the merchant marine, on which foreign trade depended. The factories were either destroyed or close for lack of materials. The cities of Japan were for the most part destroyed. All but the hard central core of concrete buildings and the wooded suburban fringe of Tokyo has been wiped out in two great fire bombs raids in 1945, in which over 100,000 lives have been lost. The city people were homeless and destitute. It is believed that the damage inflicted upon Japan was more than necessary for its defeat and surrender. Japan accepted the terms of unconditional surrender proposal of the allied powers at Potsdam on July 26, 1945 and signed the terms of surrender aboard the battleship Missouri in Tokyo Bay on September 2, 1945. This was followed by six and a half years of allied occupation of Japan, which means essentially an American occupation of Japan until the San Francisco Peace Treaty came into effect on April 28, 1952.¹²

Japan emerged from the war as a defeated and demoralized nation with its people physically and spiritually exhausted and its economy totally in a prostrate condition. The situation was one of chaos and confusion, one of frustration and disillusionment. The acute shortage of food, raw material and consumer goods sparked off rampant inflation and people were virtually in rags and half-starved. The immediate post-war period had to grapple with the most difficult situation of acute shortage of food and essential consumer goods and industrial raw materials. The food situation was grave due to totally inadequate domestic production and the worldwide poor harvest in 1945. With the loss of colonies in Korea, Manchuria and Formosa during the war, Japan lost considerable supplies of rice, soybeans, and sugar for its population.¹³

Thus slashing to pieces the nation's ability to supply itself with important food and industrial commodities. This has made the situation all the more hopeless. The acute shortage of raw material, especially coal, affected the reconstruction and rehabilitation of many critical industries such as iron and steel plants, metallurgical industries, thermal

¹² Cohen, Jerome B. *Japan's Post War Economy*, Indiana University Press, Texas, 1958, p. 93.

¹³ Devison, Edward F. *How Japan's Economy Grew so Fast: The sources of Post War Expansion*, Washington D. C. Booking Institution, Washington, 1976, p. 79.

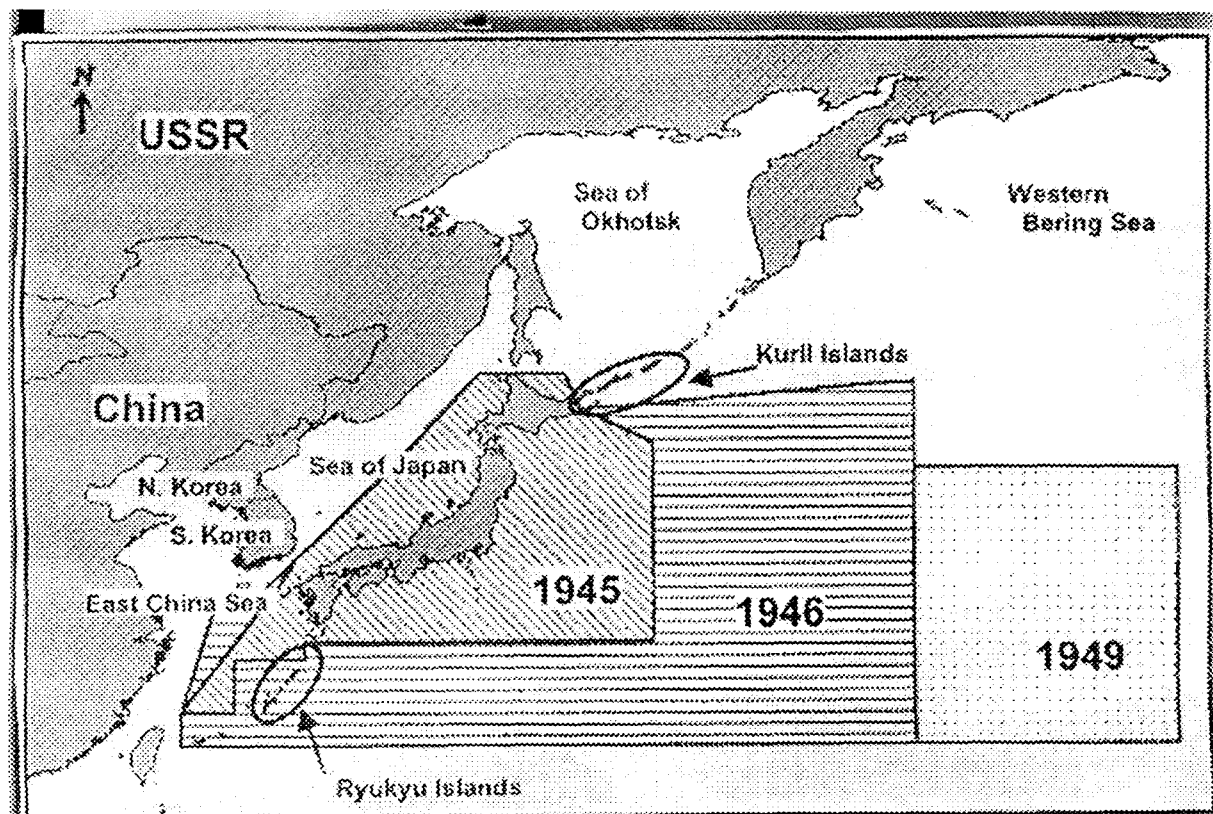
power plants, railway transport, chemical fertilizers and cement industries. There were a large number of technicians, engineers and workmen who were without jobs and were waiting for an opportunity to return to work. The progress made in science and technology for production of war materials, could also be easily used for peaceful purposes. The Japanese industries remained less competitive for a long period after the World War II due to lag in technological development in Japan and industrial scale and production capacity, too, were relatively smaller than in Europe and United States. Besides, the Japanese economic structure was conspicuous by dualistic nature with a fairly advanced industrial sector co-existing with a large sector of small enterprise and semi-feudalistic rural economy, accounting for a large proportion of employment.

The effects of the Second World War on Japanese fisheries were devastating. Allied bombing of the Japanese mainland led to widespread destruction of port facilities and Japanese vessels were requisitioned by the military and converted to mine sweepers and transports and supply vessels. Japan also experienced a severe shortage of their resources required for effective fishing for example fuels and gears. Japanese fisheries ceased to operate following Japan's unconditional surrender in August of 1945, when a total ban on navigation by all Japanese vessels was imposed. At that time, Japan had lost all of its mother ships, 72% of its trawlers and half of its tuna fleet. The Ryukyu Islands and the Northern Islands was stripped off from the mainland territories, resulting in an enormous loss of fishing grounds. Following the surrender, Japan came under the occupation of the United States dominated allied power, headed by general Douglas MacArthur, which instituted sweeping political, social, economic reforms in an effort to democratize Japan.

Fishing industry at that time was a crucial area for revitalizing, since it would provide an important source of animal protein for a country facing an impending food shortage. Moreover, the recovery of Japan's fishing industry would relieve the United States of burdensome expenses and would allow Japan to use fish products for exports in order to meet its financial reparations to the allied countries. The rebuilding of fisheries-related industries such as ironworks and shipbuilding would also stimulate the recovery

of Japan's economy. In 1946, 795 steel fishing vessels were constructed and by 1949 the Japan fishing capacity had exceeded its Pre-World War II levels.¹⁴

Figure 2.1 The Extension of Japanese Fisheries in Post-World War II Phase.



Source: www.photons.com/wfb2000/countries/japan/japan_geography.html.

Figure 2.1 shows the extension of Japanese Fisheries in Post World War II Phase. A key element in the rebuilding was the availability of cheap labor since in the post World War years saw an influx of the urban population to rural fishing communities, largely due to the destruction of cities, the collapse of city-based military-related industries and the return of civilians and military personnel from overseas territories. This created an increased rural population, whose members could participate in the fisheries. The ban, which was put on the Japanese vessels in 1945 regarding their rights to fish in the coastal areas within 12 nautical miles from Japanese shore were lifted. Just two weeks after this, Japanese started performing offshore and distant water fishing within the

¹⁴ Ibid³, p. 98.

narrowly defined area of approximately 630,000 squares nautical miles known as the MacArthur Line. Consequently, Japanese fisheries operated in only 40% of the areas to which they had access in the pre-World War period. There were expansions both to the east and to the south in 1946 and 1949 respectively, which significantly helped the distant water tuna fisheries, expansion to the East China Sea and Bering Sea, which had earlier been important fishing ground for its trawl fisheries was still restricted.

The geographical expansion of Japanese fisheries began in 1952 when Japan regained its sovereignty, all the fisheries restrictions imposed by the allied powers, including the MacArthur Line, were lifted. The Japanese government in 1954 implemented a policy of fleet relocation under the slogan “from coastal to offshore, and offshore to distant water”. Favorable conditions also existed during this period that assisted the expansion of distant water fisheries. Fuel prices were low, the increase in vessel size and gear mechanization, in addition to an expansion of fishing grounds and an extended travel distance to fishing ground, resulted in increased fuel consumption, thus the availability of a cheap and abundant fuel supply was of critical importance in order for such expansion to be economically viable.

Second the availability of many unexploited fisheries resources in high seas provided opportunities for expansion. The significant economic growth experienced in Japan between 1960 to 1969, the Japanese gross national products increased by an average of 11.4% led to a growing domestic demand for fish products, moreover, with the development of processing and preservation technologies has fasten the growth. At the onset of their expansion, Japanese fisheries were predominantly export-oriented, targeting markets in North America and Europe. From 1952 to 1962, Japan’s total fish exports increased 3.5 fold. Moreover, the export of canned salmon and tuna grew considerably following the revival of the North Pacific salmon fisheries. The reliance on exports markets allowed the Japanese distant water fisheries to undergo significant expansion in their landings while the domestic market for their catch developed at a slower rate. Additionally, these fisheries were seen as important generators of foreign

currency for the Japanese economy, which was still recovering from a post-war depression.

The expansion of the salmon fishery spearheaded the development of distant water fisheries. The United States and the Soviet Union were concerned about the impact of this expanding fishery on salmon bound for the rivers in their territories. As a consequence, Japanese salmon fisheries in the North Pacific were forced to operate under two distinct international management frameworks. One was the International Convention for High Seas Fisheries of the North Pacific Ocean (INPFC), as ratified by Japan, Canada, and the United States. The other was the Convention Concerning the High Seas Fisheries of the North West Pacific Ocean between Japan and the Soviet Union.

Another fishery that played an important role in the initial expansion of Japanese distant water fisheries was tuna long lining. Tuna long line fleets, by their nature, operate in the high seas thus allowing for practically no restrictions on their operations. Its fishing grounds expanded drastically, by 1959 it reached up to Indian Ocean and it expanded further into the Atlantic in 1965. Although salmon and tuna long line fisheries were undoubtedly the leaders in terms of the development of Japanese distant water fish fleets in the 1950s, the area of the fastest growth in the 1960s was the trawl fisheries, in particular the North Pacific groundfish fishery, which began its development in 1954. The 1960s saw the expansion of trawl fisheries beyond the North Pacific. There was significant overexploitation of traditional distant water fishing grounds in the East China Sea, Yellow Sea, and the South China Sea. This expansion was further encouraged by the high uncertainty of the future of the North Pacific salmon fisheries, which were being increasingly restricted under the Soviet-Japan Agreement.

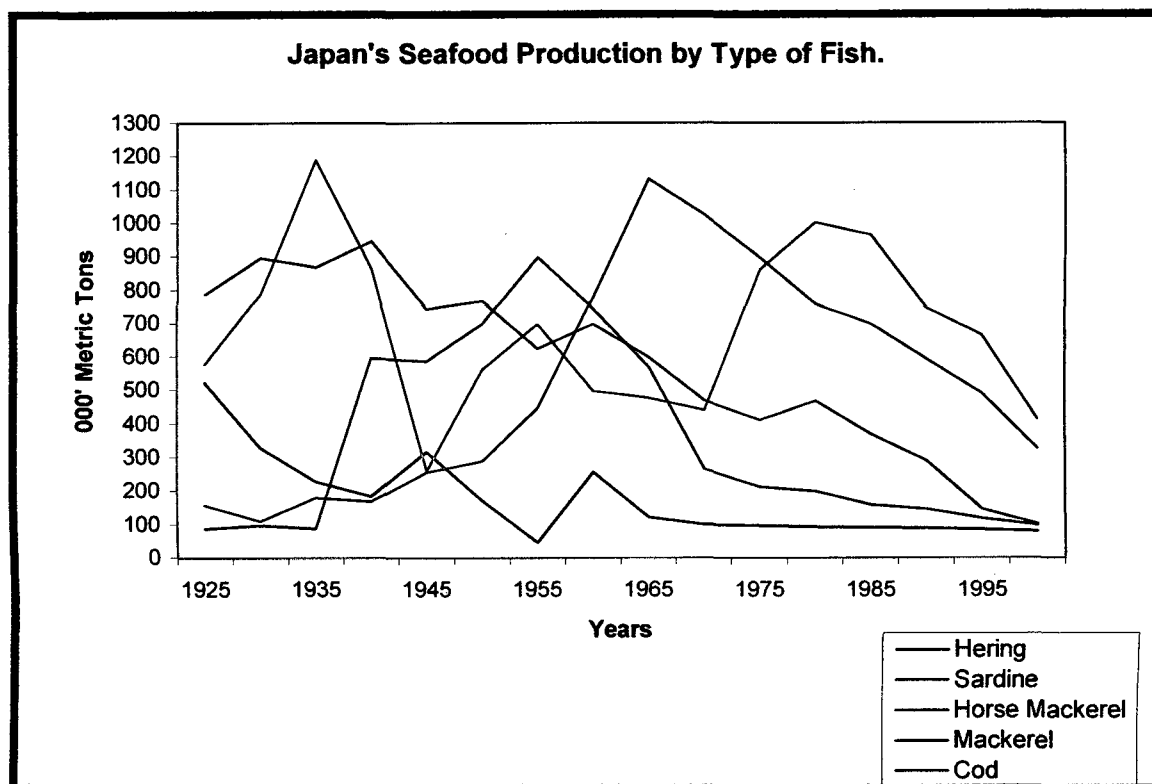
The 1960 also witnessed the declaration of extended territorial seas from the conventional 3 nautical miles to 12 nautical miles by numerous coastal countries. In order for Japan's distant water trawl fleets to continue their operation within these productive waters, a series of bilateral agreements were reached. For example, 24 Japanese trawlers agreed to financially compensate the Chinese government in exchange for fishing access

to its waters. Similar agreements were negotiated with Australia (1968), and Indonesia (1968). In addition to these bilateral agreements, Japan also participated in numerous multilateral agreements that were established to jointly manage and conserve the resources of high seas. Japan joined the International Commission (IC) and the International Commission for Northwest Atlantic Fisheries (ICNAF) in 1970 and the South Atlantic Fisheries Organization (SAFO) in 1971.

By the early 1970s the distant water fisheries had become the most important sector in Japanese fisheries. However, from 1973 onwards, major changes occurred, which drastically altered the structure of Japanese fisheries. Political instability in oil-producing regions, namely due to the war of 1973 between Israel and Egypt and the Iranian Revolution of 1978, resulted in two pronounced energy crises, with the price of fossil fuels sharply increasing. In Japan, the price of petroleum used in fishing vessels increased 3 fold from 1972 to 1978 and because of this the large-scale distant water fisheries got affected. The Third United Nation Conference on the Law of the Sea (UNCLOS III) convened during the period of the oil crisis. One of the major areas of discussion was the expansion of fishery jurisdiction by coastal countries beyond their territorial seas and the establishment of a 200 nautical mile Exclusive Economic Zone.

Given the considerable growth of distant water fisheries, there was a corresponding movement by the coastal countries toward official recognition of their sovereignty over adjacent waters. In 1977, Canada, Soviet Union, and the European Economic Community, declared 200 nautical miles. This has altered the relationship between coastal countries and the distant water fishing nations. The productive continental shelf waters, which accounted for over 95% of the world catch, were now at the discretion of the coastal states. For Japan to continue its distant water fisheries would need to operate under the framework of fishing access agreements of coastal countries.

**Figure 2.2 Japan's Seafood Production by Type of Fish.
Japan, 1925-2000.**



SOURCE: Ministry of Agriculture, Forestry and Fisheries, Government of Japan, 1950-2001.

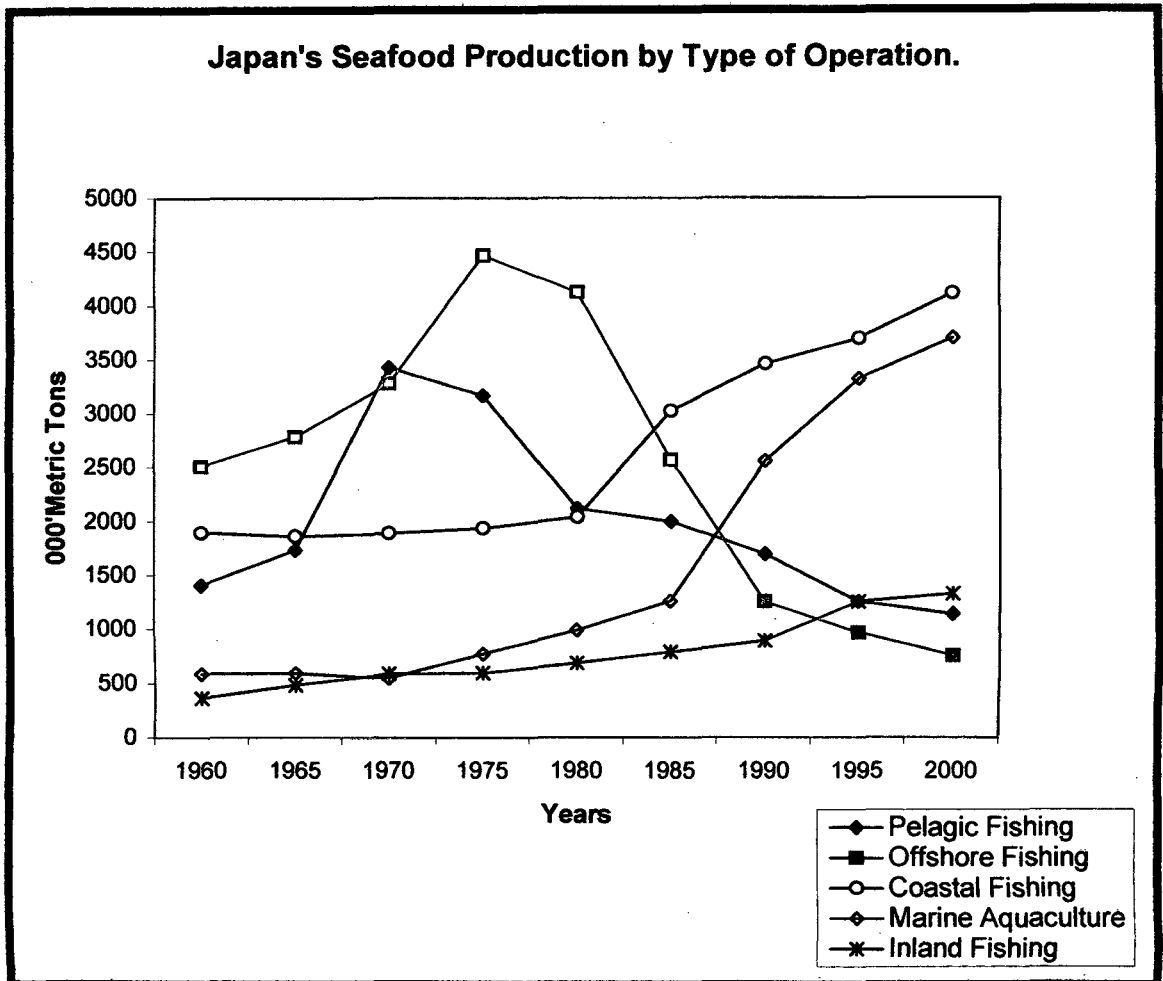
Figure 2.2 shows the type of fish production of Japan from the year, 1925 to 2000. Five major fish types have been shown namely herring, horse mackerel, mackerel, sardine and cod. The over all production of all fishes shows an increasing trend during the pre World War II days compared to the initial periods of post World War II in 1945. Again the production increased during 1960s onwards and this trend continued till 1975. By 1960's Japanese economy was already undergoing the fast structural changes. Investment along would not have generated the necessary momentum to maintain the high growth of the 1960's without adequate efforts for technological adaptation and innovation. In fact, the high rate of plant and equipment investment was partly the result of technological improvement and sophistication. Japan had all essential conditions for effective absorption of imported technology- the skilled manpower, substantial

technological base, research establishments, high savings and investment, dynamic private sector, efficient management and supportive government policies.

The graph shows a declining trend in the fish production after 1975. This was mainly because of the fact that despite there was increase in the supply of fish in 1960s, but the fish prices in Japan continued to increase. However this does not affected people since at that time Japanese economy was prospering, but the oil crises of 1970s halted the growth rate of the country. Moreover, the emerging popularity of meat consumption caused the domestic fish demand to stagnate.

The Japanese fisheries sector under went considerable restructuring, with the restriction put to curtail the freedom of high sea fishing. Japanese lost most valuable fishing grounds. Restrictions were put on the catch allowable catch for groundfish resources to foreign fleet operating within its Exclusive Economic Zone, with the objective of gradually phasing out all foreign fleets and replacing them with domestic fisheries. Thus Japanese fleets were completely phased out from all foreign waters and reduce the fish production drastically. In 1980, Japanese government instituted a 20% reduction in the number of its distant water fisheries, according to the report published by the Ministry of Agriculture and Forestry of Japan, 1985.

Figure 2.3 Japan's Seafood Production by Type of Operation.
Japan, 1960-2000.



SOURCE: Ministry of Agriculture, Forestry and Fisheries, Government of Japan, 1950-2001.

Figure 2.3 shows Japan's Seafood Production by Type of Operation from 1960 to 2000. The period between 1960 to 1975 is considered to be the best fish production period of Japan after post World War II. During the period of high economic growth in the 1960's the high rate of investment in plant and equipment, technological innovation, and improved labor productivity contributed to boost in exports, especially those of heavy industrial products and seafood. The balance of payments position of Japan as compared with the position of other advanced countries considerably improved and large trade surplus accumulated without being counter-balanced by the net capital outflows.

Both pelagic fishing as well as offshore fishing shown a drastic growth till 1980s, but after this they showed a declining trend. A different picture is produced for coastal as well as marine aquaculture. This is because during 1960s emphasis were not given on these type of fishing but as the international issues rose one after another, reducing the area of Japanese fishing grounds in foreign grounds, there was a tremendous growth of coastal fishing and practice of marine aquaculture. And this trend is continuing till date.

With considerable growth in aquaculture production, many people see this as capable of solving the problems of marine fisheries, by relieving pressure on marine resources. A new trend has developed in cultivating crustaceans, molluses, echinoderms, fresh water crabs, shrimps, diadromous, jelly fish, and corals. Although this may be true for the farming of herbivorous species, the current trend toward intensive farming of commercially valuable carnivorous species, which requires a large input of wild fish in the form of feeds, tend to reduce net fish supply rather than adding to it. Japan is required to preserve and manage marine biological resources in exclusive economic zone as a coastal country. Therefore the task is to find the most effective way of harvesting natural resources. The most effective method is to cultivate from all levels of the food chain. That is the practice of fish ranching, which is an environment friendly cultivation of fish. In this sense Japanese fishing industry is the most effective, they produce varieties of processed sea food. Since Japanese has the habits of eating many varieties of marine products, which, makes the production pattern economical.

The adoption of 200-nautical-mile economic zones put into effect in 1977, gave serious blow to the Japanese fishing industry. Distant water fishing, which was the backbone of the industry, suffered the most. Fish imports have risen steadily, thus increasing the dependency of Japanese domestic food consumptions on imported foods. The fishing industry is facing with many problems like reduction of fishing products by lowering of resources conditions and deterioration of fishing products. In June 2001, the government enacted the Basic Fishery Law designed to secure stable supplies of fish products and to promote the sound development of the fishing industry. In March 2002, it

formulated the Fishery Basic Plan, which sets a target of 65% for the seafood self-sufficiency ratio by 2012.

As an island nation, Japan has historically looked to the sea to supplement the limited food supply derived from its small agricultural land area. The Japanese diet has traditionally relied mainly on rice for calories and on seafood for animal protein. Japan's per capita fish consumption has consistently ranked among the highest in the world. Japan's consumption of fish has experienced a steady increase since 1960's. Japan's consumption of fish has experienced a steady increase since 1960's, reaching The latest estimate for Japanese per capita fish consumption is 69.1kg/year in the year 2001, far exceeding that of the world average, 16.0 kg/year or 13.6kg /year excluding China, according to the report published by the Ministry of Agriculture and Forestry of Japan, 2002.

The increase in the total fish consumption reflected the growth in the per capita consumption, amplified by the population increase. Although the Japanese population continues to consume a high volume of fish, the increasing consumption of beef and other meats over the last half a century, owing to the popularity of the North- American style diet, has diminished the role of fish in the Japanese diet.

Japan has traditionally been one of the world's largest consumers of fish products, with considerable dependence on foreign fisheries resources, initially through the operation of its distant water fleets and later through the purchase of foreign catches as imports. Despite the reduction of its distant catches fleets, Japan maintains high-level consumption throughout the world oceans via its increased reliance on the imports of foreign catches. Japan is not only a major consumer of fish products, but also an important exploiter of the world's fisheries.

Traditionally, fish has played a significant role in the diet of the Japanese, more recently the considerable buying power generated by its strong economy has enabled Japan to become one of the largest market for international fish trade. It is the human

factor, whether it is called knowledge and skill or motivation and management, that should be accounted for much of the success in economic development of Japan. Japan has already completed the process of industrialization and reached a stage of mature economy. It has not only caught up with the west but also even surpassed it in many respects. It now represents the second largest economy, only next to the United States. Thus it is clear that with the changes in the world order, Japanese perceptions and practices also changed. They have equipped themselves with right strategies to exploit marine resources.

CHAPTER: 3

JAPANESE STRATEGIC TRADE ROUTES AND SEABORNE TRADE

International transportation is a means to compete on the global economy. Developing transport systems has been a continuous challenge to satisfy mobility needs, to support economic development and to participate in the global economy. The control of strategic places is an important part of international transportation. That is why the world maritime trade routes are subject to intense geopolitical considerations. The geostrategic location of a particular country determines a country's accessibility to maritime trade routes.¹

Since maritime routes are a function of obligatory points of passage which are strategic places of political constraints such as coasts, winds, marine currents, depth, reefs and of political border. These routes are forced to pass through specific locations corresponding to passages, capes and straits. These routes are generally located between industrial zones of East Asia, North America and Western Europe.² Maritime transportation has always been the dominant support of global trade. In terms of weight about 96% of the world trade is carried by the maritime transportation. Marine transportation operates on its own space, which is at the same time geographical by its physical attributes, strategic by its control and commercial by its usage. Geographical considerations tend to be constant in time, strategic and especially commercial considerations are much more dynamics. This has been particularly important for maritime nation like Japan seeking to support the existing trade, expand it and secure its circulations.³

As already discussed, Japan was isolated from the rest of the world during feudal age. This isolation was broken during the Meiji era. Japan for the first time established trade routes, developed ports and then seaborne trade started to take place. With the passage of time, many historic events took place

¹ Kaneda, Hideaki. *Japan's Maritime Strategy in the New Era*, Lotus Press, Tokyo, 2002, p.117.

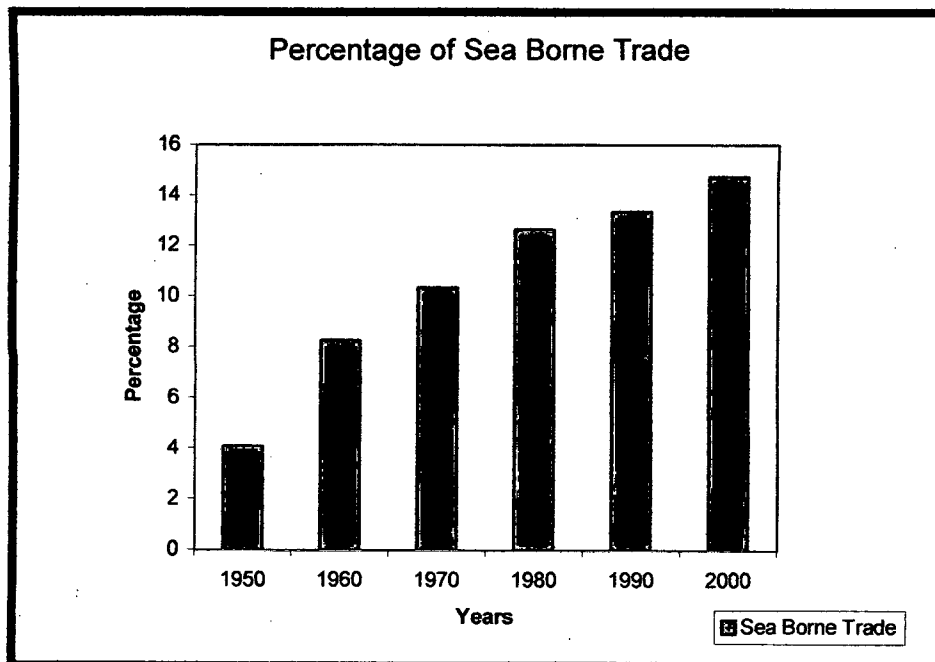
² Oda, Masao. *Transportation of Japanese Seaborne Trade and Related Laws an Regulations*, Ocean Development and International Laws, Volume 6, p. 23.

³ Stephen, Gibbs. *Management of Marine Transportation in the North Pacific*, Ocean Development and International Laws, Volume 6, p. 103.

regarding Japan's global trade. Japanese economy started to prosper, gave Japan the worldwide opportunities to establish itself as one of the major maritime trading nation of the world. Sea borne trading is an age-old legacy in Japanese culture. Moreover geography of Asia dictates that most international trade should move by sea. Japanese economy rests on maritime trade and the use of the oceans, since Japan is made up of groups of islands, and 3091 square kilometers of Japan's area is comprised of water, therefore ocean has a significant role to play in every day life. Japan's 1770 kilometers of water ways transport people between islands many of which can only be reached by sea.

Today, no nation is self-sufficient. They are all involved at different levels in trade processes. The volume and efficiency of international trade have certainly increased over the last 30 years. Global trade allows for an enormous variety of resources – made more widely accessible. The sea routes have acquired more strategic significance than ever before.

Figure 4.1 Japan's Sea Borne Trade.
Japan, 1950-2000.



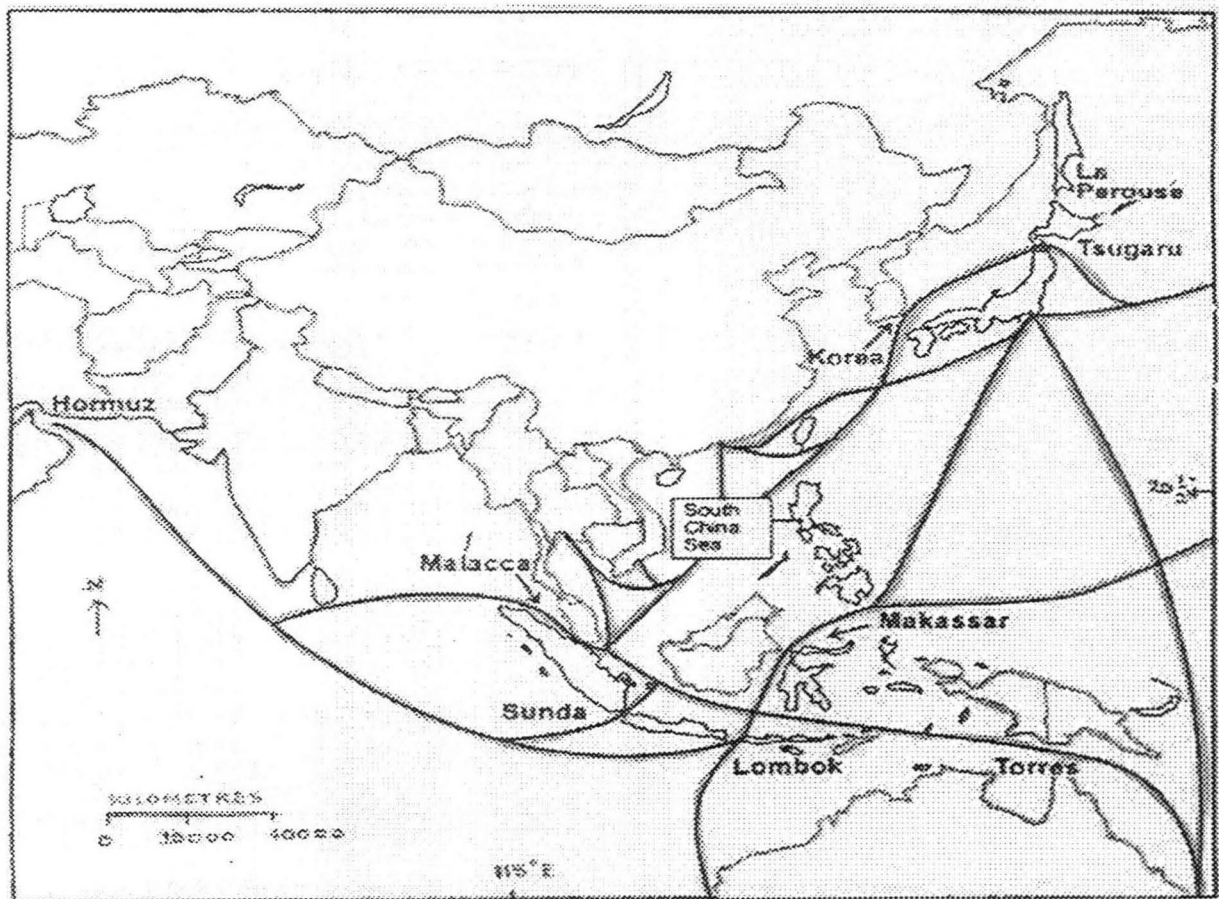
SOURCE: Facts and Figures of Japan, 2001, Foreign Press Center, Tokyo, 2002.

Figure 4.1 shows the Japanese sea borne trade from 1950 to 2000. It is seen that during the post World War II, the share of Japan's trade was 4.08% and increased to 14% in 2000. It shows the importance of Japan's dependence on sea and its resources for its existence.

Strategic Trade Routes

Japan's dependence upon open maritime trade is the fact that almost all its imported as well as exported goods pass through some of the world's most treacherous choke points. Figure 4.2 shows major maritime trade routes linking Japan to the rest of the world's trading economies.

Figure 4.2 Major Trade Routes and Straits of Asia



SOURCE: www.eia.doc.gov/emen/security/choke.html.

Passages right in East Asia are crucial to trade and economic development as well as security interests, and all nations of this region are focused on keeping trade routes open. The term “Sea Lanes of Communication” or “SLOC” is widely used in the region to emphasize the importance of free passage.⁴ The SLOC are a matter of life and death for the Asian Pacific countries, and SLOC security has been a fundamental factor contributing to Asian Pacific economic development.⁵ Japan depends on these open trade routes via the seas for every one of its resources.

Fig. 4. 3 Major Shipping Routes of Japan.

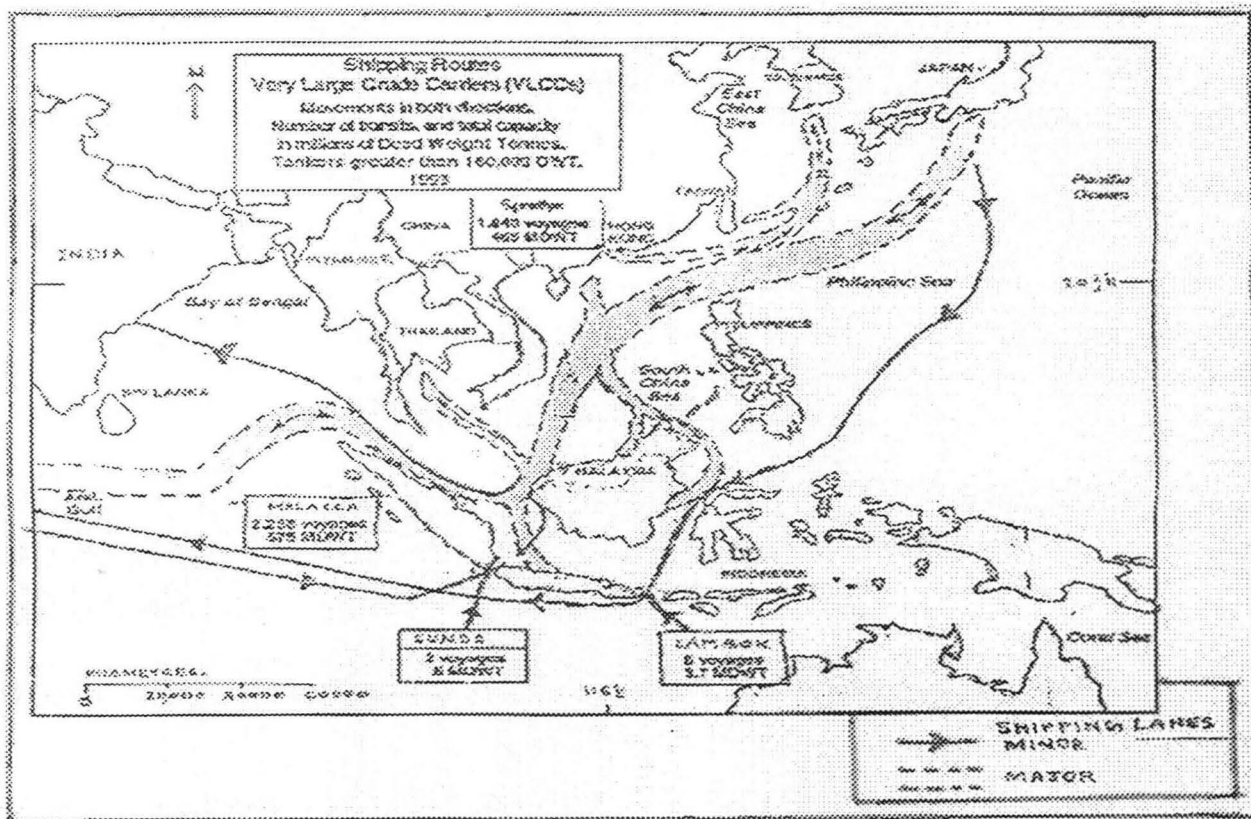


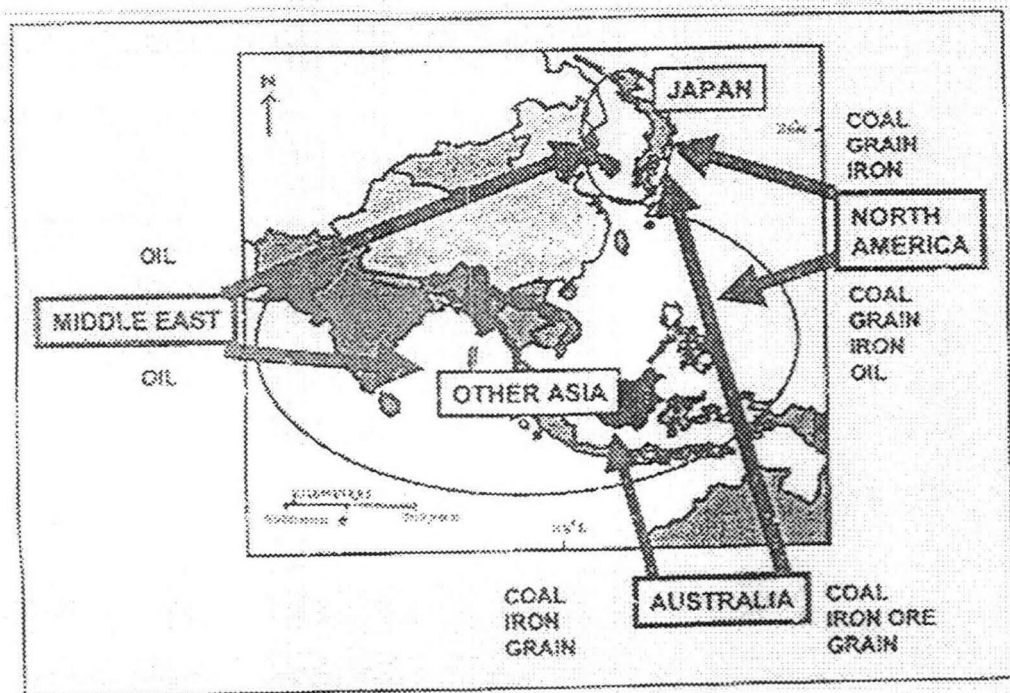
Figure 4.3 shows the major shipping routes of Japan. It is clear from the figure that the thickenings of the ship lanes are found near the straits of

⁴ Ibid², p.104.

⁵ Reynolds, Peter. *The importance of Maritime Choke Points*, National Security and the Convention of the Sea News, Ministry of Defense Publication, 23rd January, United States, 1995, p.3.

Malacca, Sunda, and Lombok. All the ships then start entering into to South China Sea followed by East China Sea, Sea of Japan and so on. The dispute over the South china Sea is, in large part, a dispute regarding the rights of free passage through this important waterway where 41,000 ships cross each year. South Korea and Japan have limited their territorial sea claims to three nautical miles around their lands bordering straits in order to permit free passage through these areas.

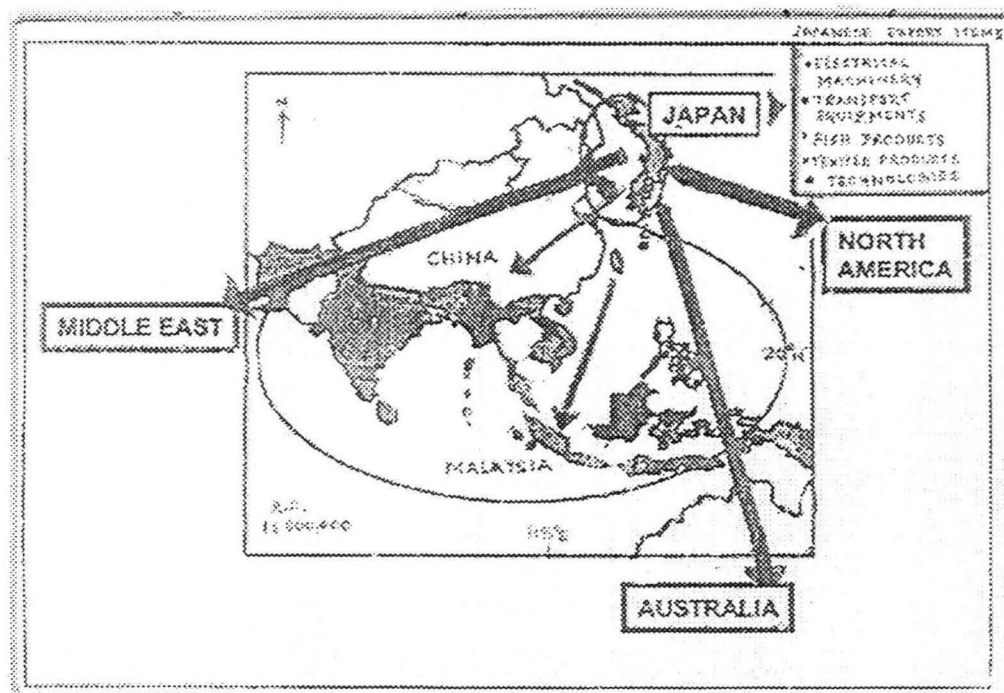
Fig. 4.4 Major Sources of Japan's Imports.



SOURCE: www.sea_ex.com

Figure 4.4 and figure 4.5 shows the relative location of Japan with respect to its major exporters and importers and the different kind of commodities' inflow and outflow from it. It is seen that large tonnage of low value resources shipped through Southeast Asian trade routes to reach the industrial economy of Japan, who on the other hand then add value via manufacturing processes, and ship

Figure 4. 5 Major Sources of Japan’s Exports.



Source: Sea_ex.com

out relatively smaller tonnage of high value goods to the rest of the world, much of which passes through South east Asia or Trans-Pacific routes.

Table 4.1 Japan’s Major Trading Partners, 2003

Origin	\$ Million	Percentage	Destination	\$ Million	Percentage
Total Imports	383,304	100.00	Total Export	471,822	100.00
China	75,564	19.70	United States	115,890	24.60
United States	58,924	15.40	China	57,461	12.20
Korea	17,928	4.70	Korea	34,821	7.40
Indonesia	16,432	4.30	Taiwan	31,307	6.60
Australia	15,058	3.90	Hong Kong	29,907	6.30
Saudi Arabia	14,568	3.80	Germany	16,406	3.50
Others	184,830	48.20	Others	186,030	39.40

SOURCE: Japan 2005, An International Comparison, Tokyo, Japan, 2004.

Table 4.1 shows Japan's major trading partners of 2003. For both imports and exports China and United States top the list. Korea, Indonesia, Australia and Saudi Arabia are major exporters to Japan where as Korea, Taiwan, Hong Kong and Germany is major importers of Japanese goods. It is very interesting to note the stage and rate of economic development; the trading policies and the geographical location of its trading partners affect the Japan's foreign trade and overseas market in recent years.

Table 4.2 The Origin of Main Resources Imported to Japan, 2003

Items	Top Three Origins (Percentage of import values)			Share of Top 3 (Percentage)
	1	2	3	
Coal	Australia (57.6)	China (17.7)	Indonesia (10.8)	(86.1)
Crude Oil	Saudi Arabia (25.6)	Kuwait (23.8)	Iran (15.6)	(65.0)
Iron Ore	Australia (54.7)	Brazil (20.9)	India (10.7)	(86.3)
Fish and Shell fish	China (50.78)	United states (24.8)	Russia (16.7)	(92.3)
Wood	Canada (25.4)	United States (15.7)	Russia (12.2)	(53.3)
Cotton	United States (40.1)	Australia (31.7)	Brazil (7.0)	(78.8)
Wheat	United states (54.1)	Canada (23.2)	Australia (22.3)	(99.6)
Milk	Australia (93.1)	New Zealand (4.5)	France (2.3)	(99.9)

SOURCE: Monthly Statistics of Japan, Ministry of Trade, Economy and Industry, October 2004.

Table.4.2 shows the destinations and the percentage of main resources imported by Japan in 2003. It reveals Japan's dependency on industrial raw materials like coal, crude oil, iron ore, wood, cotton and even on fish and fish products. If Japanese foreign trade considered by markets, the trade relationship with almost all the countries of the world except few are vertical and complementary. Traditionally, Japan has depended on the Middle East for 80% to 90% of the supply of oil. As revealed from the table 4.2, Japan imported almost 65% of oil from Saudi Arabia, Kuwait, and Iran in 2003.

After the oil crisis in 1970s Japan's relationship with Middle East as its export market has been promoted rapidly. They are the major importers of Japanese finished products. For Japan, Southeast Asia's importance is geo-strategic. Oil is a strategically important resource. All imported oil from Middle East passes through the Strait of Hormuz which forms a strategic links between the oil fields of Persian Gulf, Gulf of Oman and the Indian Ocean, then it passes through the Straits of Malacca and Taiwan into the South China Sea. Tanker traffic through the Strait of Malacca leading into the South China Sea is more then three times greater than Suez Canal traffic.

Nearly two thirds of the tonnage passing through the Strait of Malacca, and half of the volume passing the Spratly Island is crude oil from the Persian Gulf. This region had become one of the world's busiest shipping lanes. The South China Sea is rich in natural resources such as oil, natural gas and hydrocarbons. They drew attention of all Asia-Pacific countries. Liquidified Natural Gas (LNG) shipments through the South China Sea constitute two thirds of the world's overall LNG trade. Japan is the recipient of the bulk of these shipments; in 1996 Japan was dependent upon LNG for over 11% of its total energy supplies.⁶

Japan deliberately tries to maintain friendly relations with South China Sea littoral to make sure that trade routes remain open all year round. Countries like Australia and New Zealand considered being hopeful new markets for Japan, because of their geographical location and their economic policies, they have begun to attach greater importance to their economic relation with Japan. It imports coal, grains, wool, and iron ore from Australia and milk and milk products from New Zealand.

⁶ Bjorn, Moller. *Military Aspects in War or Peace in the South China Sea?* Japan Echo, Volume.X. Tokyo, 2001, p.27.

Japan uses the shipping lanes of Lombok and Makassar Strait and continues into the Philippine Sea. More than half of Japan's annual merchant fleet tonnage passes through the Strait of Malacca, Sunda, and Lombok, with the majority continuing on, into the South China Sea. Japanese shipping in the South China Sea is dominated by raw materials that it imports from Middle East.

Table 4.3 The origin of Main Exports from Japan, 2003.

Items	Top Three Origins (Percentage of import values)			Share of Top 3 (Percentage)
	1	2	3	
Transportation equipment	United States (38.8)	Australia (20.4)	United Kingdom (16.5)	(75.7)
Electrical machinery	United States (26.34)	China (18.24)	Hong Kong (8.7)	(53.28)
Textile products	United States (30.48)	Canada (25.67)	Korea (18.40)	(74.55)
Fish and fish products	China (21.25)	United States (18.48)	Russia (18.4)	(48.13)
Other sea foods	United States (20.48)	Russia (18.64)	China (15.49)	(54.61)

SOURCE: Monthly Statistics of Japan, Ministry of Trade, Economy and Industry, October 2004.

Figure 4.3 shows top three main importers of Japan's commodities in 2003. The main commodities imported are transportation equipments, electrical machineries, textile products, fish and fish products. Japan's trade relationship with the United States is vertical as well as complementary. United States imports maximum Japanese products as revealed from the above table itself. It takes the routes of east pacific to load and unload the cargoes. Even Russia, North Korea, and South Korea provide good markets for Japanese goods. Since they have a close proximity to Japan. For geographical and historical reasons, Japan's trade relations with the African countries, European countries and Latin American countries have traditionally been weak. However potentials for developing proper trade routes to get access to their trade market are in the forefront.

All these sea routes are very important for Japan. Basically all its raw materials like coal, iron ore, natural gas, food stuffs, cotton, and wool are imported from different parts of the world as already mentioned. The trade statistics reveals the importance of Japanese trade worldwide. Thus maintaining friendly relationship with the major trading partner and strengthening sea lines of communication is vital for its economy.

Japanese Port System

To carry out sea borne trade, proper transport infrastructure is required for loading and unloading the cargoes. Maritime transport infrastructure such as ports and canals are subject to various geopolitical considerations as they can provide access to strategic resources or key markets.⁷ Therefore to set up any port, three things should be kept in mind, the strategic location of it, and degree of accessibility to local, regional and global market and modern technologies to upgrade it.

Japan displays a diverse geography. The dominant features are major peninsular with long coastlines and extensive sea areas covered by island archipelagos. The majority of maritime circulation takes place along coastlines. This is why sea transport is important in the area's domestic regional and international transport and hence in the economic development of the countries, bordering the sea.⁸ The concentration of ports in Japan is a striking feature. Its rate of economic development has resulted in one of the heaviest concentration of seaports in the world. Technological changes in shipping have accelerated the green field sites along the coastal areas.

The major location factors of each of these ports are obviously to serve a large concentration of population and industrial activities. It is subjected to various geopolitical considerations such as its strategic locations connected with the major trade routes of the world, resulting into competition over a

⁷ Ibid⁶, p.129.

⁸ Ota, Issamu. *An Industrial Geography of Japan*, St. Martin Press, New York, 1980, p.63.

particular area, negotiating with other countries for getting access to strategic resources and market areas. These conflicts arise over here and finally maintaining cooperation to work together.

There are all total 1020 ports in Japan, 22 of which are main ports of special purpose, 106 main ports and 892 local ports. These seaports are vital for Japanese economy since it handles 98.8% of international trade. For Japanese seaports are national assets like that of sea-lanes of communications.⁹

Each major port has its port master plan made by the port management body. The aim is not to gain profit from the port activity but broader influences on the economy while estimating the relationship between costs and profit. In Tokyo Bay, Tokyo port is mostly filled with domestic shipping to local ports such as ferry services. The foreign trade at the port was commenced from 1941 to serve trades with Asia but interrupted by the World War I. In 1967 the first container ship arrived at Shinagawa area for trading. Now this area has the world's largest concentration of industrial ports with Yokohama as the major gateway. This port for over the years remains as the top container port of Japan. It handles a wide range of Liquid and dry bulk cargoes.

Kawasaki is a major industrial port north of Yokohama where refineries, steel making, chemical and car assembly plants are located. The port of Shimizu, in 1899, designated as an open port for foreign trade, now offers 24 hours stevedoring service system for the container unloading and loading from /to vessels. Nagaya, the most important of all the ports since it handles almost all kind of cargoes and have distinct functions to provide for loading and unloading cargoes is situated in Honshu, near to Osaka.

⁹ Special Issues: Container Terminal Systems, Bollard Nippon, Volume X, WAVE, March, 1998, p. 6.

Figure 4.6 Locations of Japan's International Container Liner Ports.



SOURCE: Special Issues: Container Terminal Systems, Bollard Nippon, Volume X, WAVE, March, 1998, p. 6.

Figure 4.6 shows the locations of Japan's International Container Liner Ports. The Osaka metropolitan area is one of the two mainstays of Japan's industrial and economic engine, along with the Tokyo Metropolitan area. The port has been developed from 1903 as use of foreign trade has now grown up into a full-fledged container terminal of Japan. The port of Kobe opened to foreigner in 1868, is one of the oldest foreign trade ports. This port provides 24 hours service, has flexible tariff system and incentives for new comers.

Figure 4.7 Export Volume of Tonnage of Five Ports of Japan, 2002.

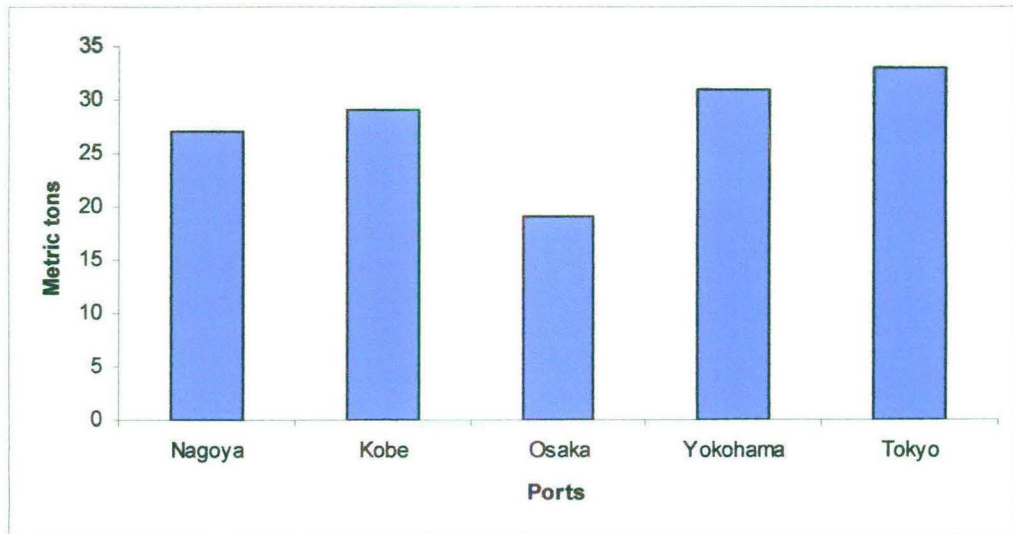
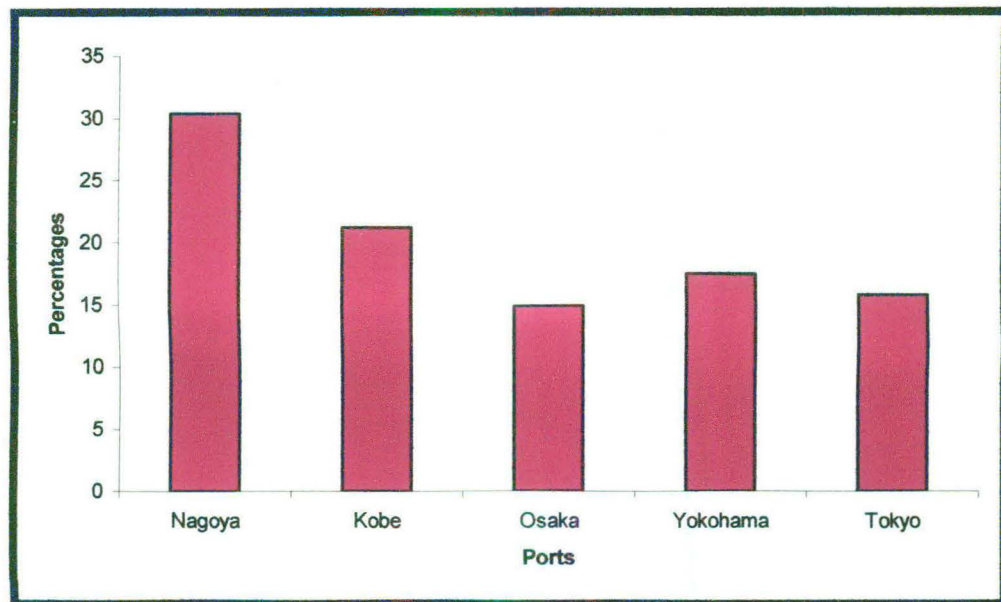


Figure 4.8 Export Value of Tonnage of Five Ports of Japan, 2002



SOURCE: Japan's Statistical Year Book, Ministry of Transport, 2003.

Figure 4.7 and Figure 4.8, both shows the export volume and export value of tonnage of five most important ports of Japan for the year 2002. It is seen that Nagoya port stand first in export value of tonnage followed by ports of Kobe, Yokohama and Tokyo, where as Tokyo port leads the list followed by

ports of Yokohama, Kobe and Nagoya. In all respect these five ports are the most important in handling cargoes.

Fig 4.9 Shows Japanese ports with facilities constructed by private sector participation.



SOURCE: Special Issues: Container Terminal Systems, Bollard Nippon, Volume X, WAVE, March, 1998, p. 8.

Public works at ports and harbors supported by the private sector now play an important role as the focal point of regional development. Since it is

found that various private enterprises with latest technologies are ready to upgrade Japanese ports. According to Japanese policy, ports are not supposed to be profitable in micro economic terms, but to provide a strategic function for the regional and national economy as a whole. But there are indicators which point to a shift in letting the private sector having more say and more commercial responsibilities.

The past two decades have seen an enormous growth in port concentration and development in Japan. This has been done in anticipation of newly discovered sources of raw materials such as oil and gas in East China Sea. In Japan significant investments have been made in expanding transshipment capabilities of ports which itself is very expensive since ports are heavy consumers of space. Japan is at the crossroad of modifying waterways to establish more direct routes to access more sources raw materials and markets. There the regional competition of Southeast Asia demands to offer more reduced rates in Japanese ports, since there has been a rapid growth of unitization of general cargo trades. The developing countries of Asia have some of the largest most sophisticated and efficient operation is the world which handle the trade on the major European and Trans-Pacific routes

With the growth of international transportation and globalization of production, international transport system have been under increasing pressure to support the growing demand of freight flows. This could not have occurred without considerable technical improvements permitting to transport larger quantities of freight and people more quickly and efficiently. International Transport requires distributional infrastructures that can support exchanges between several partners. It requires up gradation of technologies.

Japanese Marine Policy

Terrorism, sea piracy along the sea lines of communication and traffic congestion along the ports has been a great threat not only to Japan but also to other countries of the world. For the security of Japan, it need to work with other countries to ensure that the strategic chokepoints through which all maritime trade takes place should be well-protected and safe passages for transport ships. It has already developed a policy for the South China Sea and Self Defense Force (SDF) to enforce security. New regulations have been created to ensure that all ships and ports are equipped with new security systems to help minimize piracy and terrorism.

However according to the International Maritime Organization,(IMD), only about fifty-three percent of ships are currently documented as having adequate security. According to the International Maritime Bureau (IMB), ocean piracy increased fifty seven percent from 1995 to 2001 and about forty percent of these attacks happened around the Strait of Malacca. Japan actively supports the passage of the Law of the Sea Treaty (LOST). For this reason Japan is one of the 146 countries that are currently members of the Convention.¹⁰

Japan is at a turning point with its naval defense. It has a good navy, now taking steps to become a significant regional military presence. Maritime terrorism and military threats from other countries such as China and North Korea have increased considerably. Currently Japan has the largest navy of the Pacific and spends about 50 billion dollars a year on defense.

The table 4.4 shows the defense expenditure of five most important countries of the world, from 2001 to 2003. United States leads the list followed by China, Russia, Japan and France. Japan has increased its defense

¹⁰ Noer and Gregory, *Choke Points: Maritime Economic Concerns in Southeast Asia*, National Defense University Publications., Tokyo, 1996, p.112.

expenditure from 32.4 billion dollars (2001) to 40.1 billion dollars (2003). It shows a good sign of strengthening its maritime securities over the years.

Table 4.4 Defense Expenditure of Five Countries (2001-2003)

Countries	Expenditure in \$ billion		
	2001	2002	2003
United States	299.9	329.6	330.7
China	42.3	48.4	50.7
Russia	44.8	48.0	49.2
Japan	32.4	38.0	40.1
France	34.0	37.1	39.6

Source: Japan 2005, An International Comparison, Tokyo, Japan, 2004

Japan has created the Anti-Terror Special Measures Law, (ATSML) which allow us to engage in cooperation and supportive measures against terrorist. It has already outlined a ten-year plan to work with United States on stationing Self Defense Forces around the world. It needs to improve its naval security around the world and steps have taken to safe seas of Japan.¹¹

Terrorist acts in the oceans are the major concern of Japan. The number of attacks has risen fifty-seven percent in one year. There are also evidence of terrorist groups such as Al-Qaeda, using large ocean transports to ship men, weapons and other materials. It became the victims of many acts of maritime terrorism, such as the Alondra Rainbow, where a ship carrying aluminums that it had purchased was boarded and held hostage. Japan ensures the safety of its ships, originally accepting the Ship Safety Law in 1933. The law set to ensure the sea worthiness of vessels and to protect lines Japan consented to the International Convention for the safety of life at Sea to further protects merchant vessels. Japan values the lives of all sailors and these laws protect them.¹²

¹¹ Ibid¹⁰, p. 10.

¹² Noer and Gregory. *Maritime Interests and the Sea lines of Communications through the South China Sea*, National Defense University Publications, Tokyo, 1996, p.73.

To maintain peace and security at their ports, Japan will increase security measures, especially at this unpredictable time. The Japanese passed a bill in the year 2005 to allow the government to forbid North Korean ships entering Japanese ports. It will increase security at certain ports. Japan would also like other countries to protect their ports and trade routes. Terrorism and piracy has been a significant issue in trade with 445 cases reported in 2003. When a country like Japan imports half of its grain and crops, the vast majority of its oil, natural gas and much of its raw materials, the welfare and success of its ships are vital.

Unfortunately, one of the areas in the world most plagued by pirates, the Strait of Malacca, provides passage for 80% of Japan's oil and 20% of the ships that use the strait are Japanese. As a result Japan urges each country to strengthen its port's security both for their safety and for the well-being of their trading partners on which their own might even depend. Japan has 5 primary ports: Tokyo, Yokohama, Nagoya, Osaka and Kobe. As of today, Nagoya Port of Japan's number one port. It represents about 43% of Japan's trade surplus importing such goods as iron ore, crude oil and wearable items from Australia, Indonesia and China and exporting items like automobiles, rubber parts, electronic goods to Unites states and Singapore.

Japan is extremely aware of Nagoya's economic value and has taken several security measures and spent about 200 million yen per year so that it can declare it a "safe and secure port". Japan signed the LOST's Convention and has been vigilant in its implementation. Japan's Maritime Self Defence Force (JMSDF) has been established for over half a decade and works alongside the United States' navy. Japan has worked on increasing JMSDF's technologies, equipment, strategies and tactics so as to present an attack. In theory, if the confidence of Japan's naval force increases terrorist confidence will diminish.¹³

¹³ Ibid¹,p.105.

As an island nation Japan's naval security is at an acceptable level, but given its relative importance there are a number of key security areas that they need to improve. It has created new policies and initiatives that help to patrol the oceans and ensure that piracy and terrorism are stopped, as well as ensuring that transporting goods over the oceans become safer. Its economy is reliant on the goods it import via maritime trade with other countries and to make certain that the economy stay robust, it need to direct maximum attention to the safety and protection of the ocean.

Transportation system itself is a complex set of relationships between the demands, the locations they serve and the network that support movements. Japan exists on maritime trade. Its interdependences on other countries imply numerous relationships.¹⁴ Geopolitics all over the world will continue to be influenced by United States and Russia. Japan must import all its raw material and export its finished manufactured good to markets, throughout the world. The highways for this commerce are the sea-lanes of all the world's oceans. For this purpose Japan needs guaranteed and secured ocean trade routes. It must eventually contribute to the security of these sea-lanes as well as its overseas investments with better technologies to harness resources to balance its wealth and economic position in the world.

¹⁴ Ibid², p. 102.

CHAPTER: 4

**JAPANESE GEOSTRATEGY AND APPLIED
MARITIME TECHNOLOGY**

Sometimes wealth, better strategic locations and well-connected trade routes does not prove sufficient enough to harness resources until and unless acquainted with sophisticated technologies. Geopolitics of resource harnessing techniques is a big issue in North West Pacific. Countries like United States, China, Japan, Russia and Korea are always at a competitive stage to make use of both the territorial as well as the marine resources at their best advantages. A country can have a better bargaining power if it has advanced technologies to explore these resources. Since the resource harnessing techniques are different for different countries therefore the kind of economic diplomacy played by them also widely varies. And because of this, it is seen that in the long run, a country actually becomes the victims of its neighbor's bilateral and trilateral agreements.

To some extent it is seen that Japan is still in a better position among other countries of North West Pacific in resource harnessing since it is well equipped with the best ever technologies which has actually helped it in decision making processes as well. With the proper utilization of the geostrategic location, Japan exactly knows how to cultivate what type of resources with the best available technologies that will give access to its domestic and international markets, so that it can upgrade its economy at the same time. It is the change in the perceptions and practices of the Japanese that has actually acted as a boon for its economy. Like other countries, it is not lagging behind with age old outdated technologies.

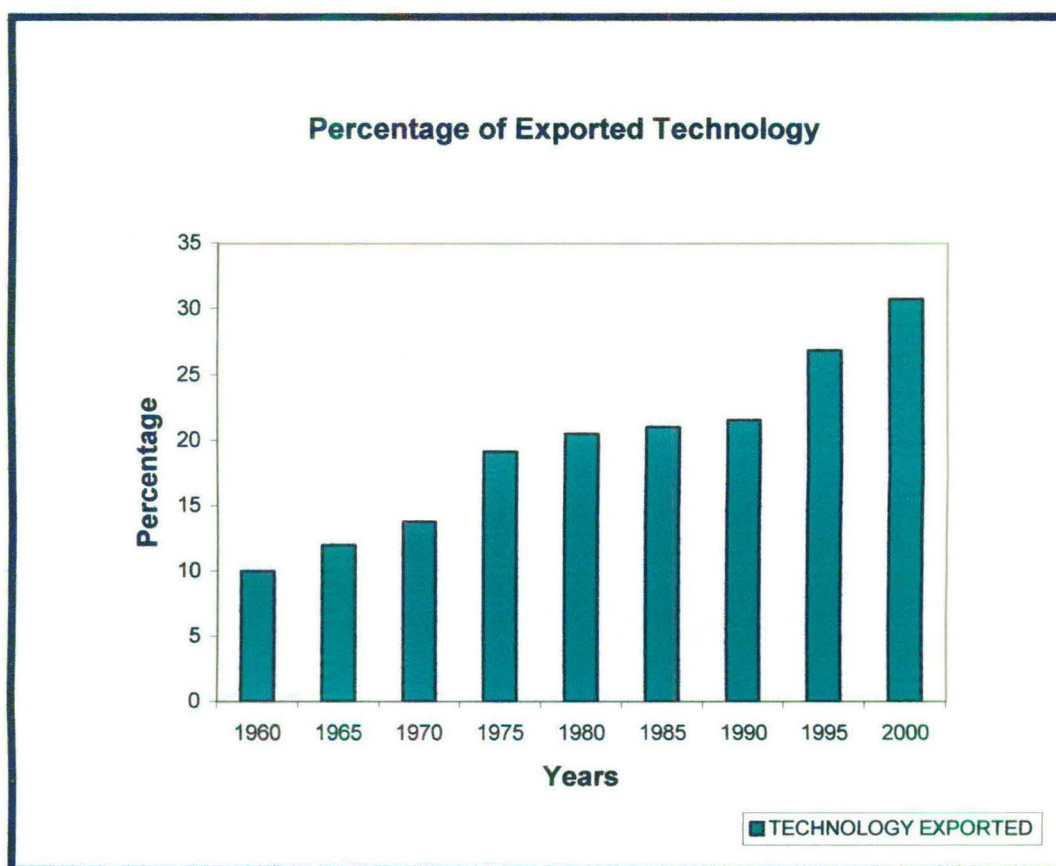
Science and technology have served foundation for Japan's social and economic advancement.¹ Over the years, it has developed technologies in different fields, like in the manufacturing of electronic equipments-cameras, televisions, radios, robots, manufacturing vehicles like private cars, engines, railway coaches, air transports, communications and in marine resource exploitations. In 1950s, Japan was using the United States technology to build its steel industry.² Today Japanese steel producing technology is considered to be the most sophisticated one. Thus, Japan has a worldwide reputation in providing the best ever technologies in various fields and both the developed

¹ Masao, Takahasi. *Modern Japanese Economy*, Kokusai Bunko Shinkokai, Tokyo, 1967, p. 18.

² Shreshtha, B.P. *Post-war Economic Development of Japan*, Himalaya Publishing House, New Delhi, 1979, p.13.

and the developing countries are the major importers of its technologies. Japan is fast changing its image as technology-importer to technology-exporter. The most important factor for this may be because of the fact that with the shortages of resources, both the territorial as well as the marine, over the years and the compulsions made by the other nations of the world has forced Japan to adopt more stringent steps to cultivate its nearby resources. There are already signs of structural changes in the Japanese industry with an eye beyond the present century. The focus is on so-called “creative and skill intensive” technology for producing high value added products.³

Figure 4.1 Share of Exported Technology out of Total Exports.
Japan, 1960 –2000.



• *Facts and Figures of Japan, 2004*, Foreign Press Center, Tokyo, 2004.

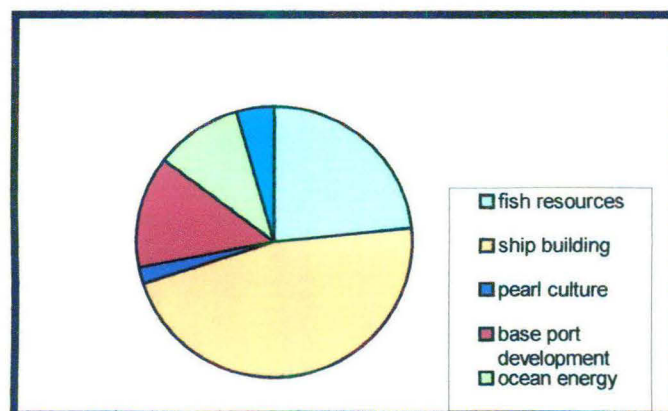
³ Cohen, J. *Japan's Economy in War and Reconstruction*, University of Minnesota Press, Minnesota, 1949, p.96.

Figure 4.1 shows the share of exported technology of Japan, out of its total exports from 1960 to 2000. During 1960 the share was just 10.02%, but started to increase since 1980s, and reaching up to 30.72% in 2000. Post World War II phase shows a low value in the share of the exported technology of the country. This may be because of the fact that just after the trauma of this war Japan has started to revive its economy with proper infrastructure facilities to get access to sea resources and its markets. Over the years, it started to cultivate more and more resources and gradually come up with best ever technologies and thus the demand for its technologies in the world market has risen.

Maritime Technology

Marine resource harnessing technologies are the core of all the technologies that Japan has developed for its survival. Ship building, preparation of different small vessels for specific purposes, enhancing the production of aquacultures, seaweeds, practice of pearling and artificial growth of coral reefs, construction of artificial islands, bridges, introducing the disaster management techniques in different ports, reclamation of lands, recycling the waste products to preserve the ocean environment are among the major techniques adopted by Japan. For this Japan has developed various maritime research centers in the coastal areas and on the newly constructed artificial islands those scattered over the seas of Japan, to find ways and means to explore more seabed resources.

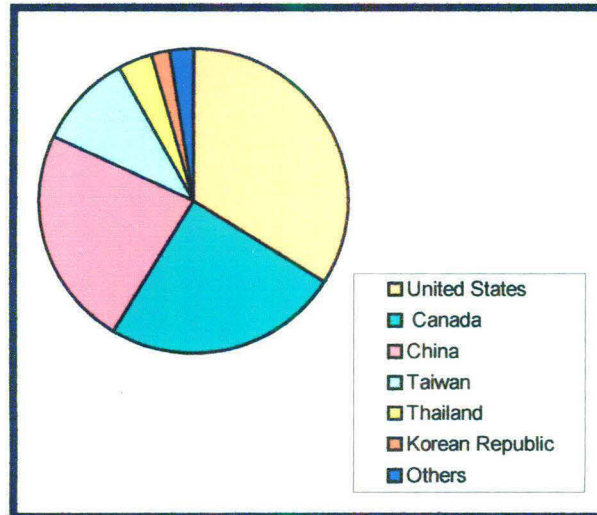
Figure 4.2 The Item-Wise Exported Maritime Technology of Japan, 2003.



SOURCE: Statistical Bureau, Ministry of Education, Culture, Science and Technology, Japan, 2004.

The figure 4.2 shows the item-wise exported maritime technology exported of Japan in 2003. Exports of shipbuilding technology was the highest, followed by technologies of fish resources, base port development, ocean energy and pearl culture. About these technologies elaborations are given at the back of this chapter.

Figure 4. 3. The Major Importers of Maritime Technology, Japan, 2003.



SOURCE: Statistical Bureau, Ministry of Education, Culture, Science and Technology, Japan, 2004.

Figure 4.3 on the other hand shows United States, followed by Canada, China and Taiwan are the major importer of Japanese maritime technology. It reveals that Japan’s maritime technology has a great hold in the world market.

Transportation Technology

As already mentioned in chapter three, the importances of strategic trade routes, equally at the same time there are importance of maritime transport technologies. Japan is well equipped with various sophisticated maritime transport technologies. With shipbuilding technology as its core, is the primary means of strengthening the competitiveness of the Japanese maritime industry in the international market, as the

industry is required to urgently change the pattern of its technological pursuit from “catching up” to “frontier creation.”⁴

Maritime transport has seen several major technical innovations aiming at improving the performance of ships or their access to port facilities, notably in the 20th century especially considering the size, capacity and speed of the ship. To cope with speed requirements, the propulsions and engine technology has improved from sailing to steam, to diesel, to gas turbines.⁵

The most recent technological transformations affecting water transport in Japan have concentrated on modifying water canals such as dredging port channels to higher depths and on increasing the size, the automation and the specialization of vessels for example container ships, tankers, bulk carriers. These transformations partially explain the development of maritime traffic that has been adapting to increasing energy demand mainly fossil fuels, the movement of raw materials and the location of major grain markets.

Japan includes general cargo ships, tankers, grain carriers, liquefied natural gas carriers, container ships. Different automation technologies are also on the way including unloading ships, Computer Assisted Navigation and Global Positioning Systems (GPS). Japan has come up with the latest resource harnessing techniques. Projects like The Green Ship, Super Eco- Ships (SES) and Techno Super Liner (TSL) are already in operation. The Green Ship project intruded to develop an environmentally friendly oceangoing vessels feature advanced ballast water treatment and green house effect gas processing technologies for preventing wastage of seabed resources during the time of their extraction.

Japan developed mainly along coastlines, so shallow water areas including bays and inland seas are densely utilized, and accordingly the expected increase in the demand for social overhead capital would necessitate the exploitation of farther offshore site.

⁴ Shinohara, M. *Industrial Growth, Trade, and Dynamic Patterns in the Japanese Economy*, University of Tokyo Press, Tokyo, 1982, p.110.

⁵ Ichiro, Nakayama. *The Industrialization of Japan*, University Press of Hawaii, Honolulu, 1965, p.38.

However, these waters are too deep or the surface layer of the seabed underneath is too soft for conventional civil engineering work. To overcome these severe constraints techniques like huge floating structure, Mega Floats has been under way since 1995. Mega Floats could be an airport or a seaport developed far off from the mainland of Japan, particularly in the natural gas and hydrocarbon exploiting sites of South China Sea. For several ages, the site was a disputed one with so many countries involved in harnessing oil, natural gas and hydrocarbons from this region.

Considering of so many islands, Japan has traditionally relied heavily on passenger transport by sea. Accordingly, the country needs reliable and consistent operation through improved seaworthiness and greater convenience through higher speed of passenger ships. To meet these needs, many shipbuilding companies are actively trying to develop high-speed small craft, many of which have successively entered commercial service in recent years.

The Techno Super Liner (TSL) is an example par excellence of high speed vessel developed with state support, capable of carrying large volumes of cargo twice as fast as, or even faster than, a conventional cargo ship. It aims for quicker transportation of the perishable marine resources. This is a great help to the fishing industries since fishes could be transported and marketed quickly.

Reflecting the growing concern about global environment issues in recent years, it is becoming increasingly important to reduce air pollutant emitted from ships, such as nitrogen dioxide. On the other hand to attract and secure adequate manpower for the coasting fleet, the need to improve the working and living environment on board, is keenly felt. With a view to meeting these needs, marine gas turbines has been under way since 1997. The invention of Super Eco Ships in 2001 to alleviate environment loads, curtailment of logistic costs and improvement of crew living and working environment on board, this ship has saved much of the Japanese fuel costs. As already discussed about Japanese Whaling in chapter two, here focus is given on the recent technological up gradation of Japanese Whaling systems. There are few countries in the world involved in Whaling. In

North-West Pacific however it is exclusively practiced by Japan and Russia. Other countries like Iceland, Greenland, Norway do practice Whaling. Many international conflicts have arisen regarding preservation of Whale species. Japan has kept on developing new whale hunting technologies.

Japan has developed special vessels called Whaling boats designed to hunt various species of Whale principally minke varieties. Whales themselves are a part of a community resource base and, provide a major part of the local food base for it. In general each of the Whales are available for a limited period of time each year. In higher latitude primarily the arrival minke whales in the ice-free inshore waters determine fisheries of Greenland, Iceland and Norway. These countries experiences whaling seasons for a relatively short periods of time. Greenlander and Icelandic whalers tend to take whales opportunistically during the course of fishing or shrimping operations. Japan has a special advantage over this. With the development of Super Technological Whaling boats, it can access to minke whale varieties in different areas including the ice frozen zone over several months.

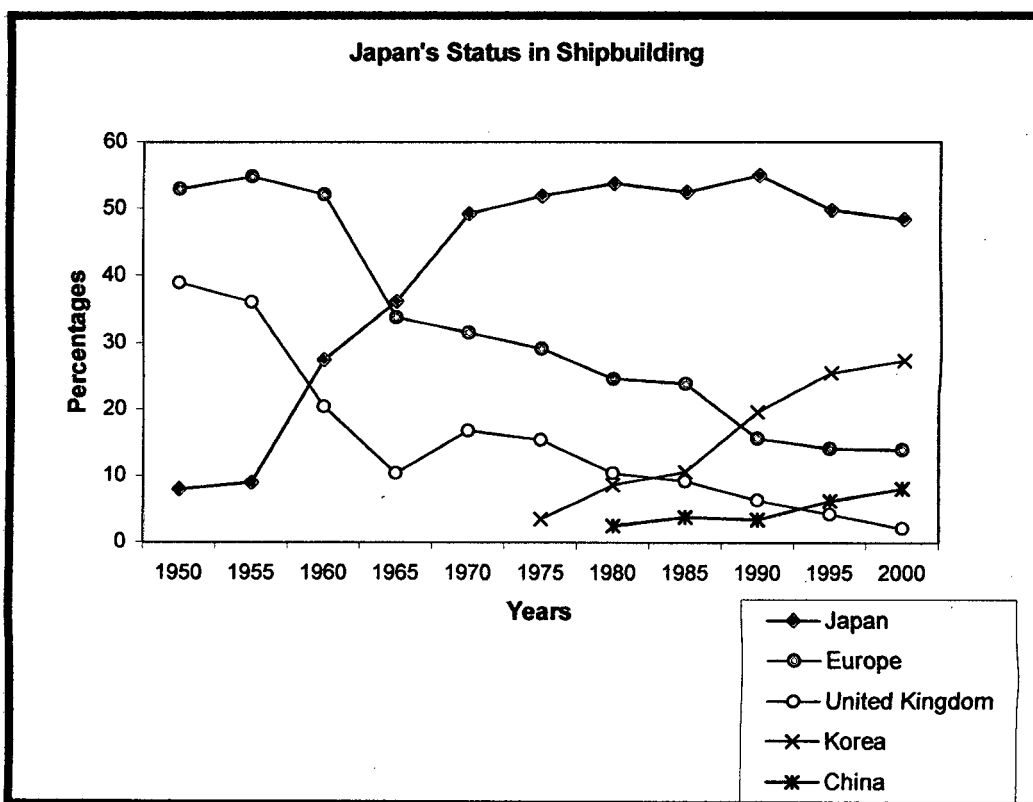
Shipbuilding Technology

In recent years, the sea borne volumes of raw materials, energy sources and other cargo items worldwide have tremendously grown, resulting in further increased importance of ships as means of mass transportation. Against this background, the demand is rising for a new breed of ships embodying the advancements in information technology and other technologies to keep abreast of ongoing changes including the diversification of marine transport needs, the growing importance of conserving the global environment and transformations in overland and maritime transportation systems. The need is also rising for the development of even more advanced shipbuilding and ship machinery technologies.

In recent years, shipping lines in the world have been undertaking major expansion of their fleets and this has boosted the demand in the world. Japanese maritime equipment industries are coming up with new technologies to enhance the reliability and performance of marine equipments.

A brief background is therefore needed to understand the growth of Japanese ship building industry. Since the Meiji era, the establishment of the merchant fleets was one of the nation's priorities. Before World War II, Japan comes to dominate maritime shipping in the Pacific Ocean. With the redrawing of the political map after World War II, Japan's shipbuilding faced a great set back. However, from 1960,s onward, due to rapid industrialization, Japanese ship building started to expand. Further, the impressive growth in trade between Asia-Japan and Japan-United States has replaced the old picture of shipping on the Pacific Ocean, with a new one, representing Japan as a leader among the shipbuilding nation of the world.

Figure 4.4 Japan's Status in Ship Building.
Japan, 1950-2000



SOURCE: *Facts and Figures of Japan, 2004*, Foreign Press Center, Tokyo, 2004.

The figure 4.4 shows Japan's status in ship building among three other countries and one continent, for the year 1950 to 2000. It seems that after world war II Japan's ship building technology was at its initial stage, whereas the production of ship in Europe was the highest, followed by United Kingdom. Other two countries Korea and China arrived in the picture as the shipbuilding nation from 1975 onwards, representing just 3.78% and 2.48% of ship production respectively. Japan gradually developed high sophisticated technology in ship building and reached at the top most position from 1975 onwards. At the same time a declining trend in shipbuilding for Europe and United Kingdom occurred as revealed from the graph, and by 2000, the percentage share of them came down below 20. It should be noted that over the years the production of shipbuilding has increased considerably for Korea and China reaching to 27.40 and 8.10% respectively in 2000.

Table 4.1 The Numbers and Type of Ships Manufactured by Japan, 1950-2000.

Ship-types	Number of ships					
	1950	1960	1970	1980	1990	2000
Bulk dry	487	857	1,058	2,589	4,877	5,046
Crude oil tanker	140	398	584	748	987	1,810
Container	541	978	1,258	1,698	2,988	3,055
Refrigerated cargo	154	522	651	962	1,057	1,272
Gas tanker	25	65	74	98	102	169
Passenger ships	351	587	987	1,021	1,478	2,833
Others	587	1,222	1,365	1,458	1,478	1,045
Total	2,285	4,570	5,977	8,574	12,503	15,230

Source: An International Comparison, Japan 2005, Tokyo Japan, 2004

Figure 4.1 shows the number and type of ships manufactured by Japan from 1950 to 2000. It is quite evident that just after the recovery from World War II Japan has just started out with ship building activities, therefore the number of ships manufactured during that phase was comparatively much less than that of 1970s. The period 1970 seems to be a turning point in the Japanese ship building industries since large scale production of all

different types of ships are produced at that period. And Japan's production of ships continued to increase as revealed from the above table. With the introduction of latest technologies in late 80s, it has actually placed this country in the top most position in shipbuilding among other nations of the world.

However, Japanese ship building industry is facing some trouble recently and the production of ships started to decline from 1995 onwards. Japan dependence on foreign goods is growing briskly, with self-sufficiency in food dropping at alarming levels. Countries like China, Taiwan, South Korea has already developed direct shipping routes between other coastal nations of the world. During the two-year periods, 1995-96, no fewer than 58 new shipping lanes were inaugurate, by the above-mentioned countries. as reported by the Ministry of Transport, Japan 2000. Japan is losing maritime shipping to other Asian countries not only in Pacific Ocean but also in the seas around Japan. It is still capable of maintaining the top most position in the world in shipbuilding.

In order to appropriately cope with the intensifying international competition in ship building and to maintain Japan's position as a leading country in the shipbuilding and shipping industries of the world, it is necessary to clearly define the desirable orientation of the shipbuilding industry as a whole and to address various challenges in a strategic perspective.

In response to the public concern about safety and the environment which has been rising in recent years, requirements for safer and more reliable ships are becoming ever more stringent. At the same time, in order to make the Japanese industry more competitive, it is emphatically urged to enhance the efficiency of marine transport by increasing the speed and reducing the cost of fleet operation and ensuring even greater punctuality. Under these circumstances to enhance the safety of fleet operation and the efficiency of marine physical distribution dramatically Advanced Ship Safety Management System has been undertaken since 2001.

Japan has also focused on improving the technologies of navigation routes. Global Positioning System (GPS) techniques and satellite imageries are used to study the weather conditions as a result maritime transportation has experienced remarkable improvements in its safety and reliability. Maritime routes are still hindered by dominant winds, currents and general weather pattern.

Disaster Prevention Technology.

Japan is known for its earthquakes. Several earthquakes has been taken place so far, the country is trying to gear up with latest technologies to prevent this sort of disaster, so that it may not hamper its economy any farther. The mot frequent earthquake occurs in the Izu Peninsula and the surrounding areas. Therefore these areas are designated as the Intensive Observation Area for quake prediction where the underground water level and the diastrophism are monitored all the time. However, it is thought to be impossible to precisely predict when an earthquake comes with currently available scientific technology, and the priority is placed on counter-quake measure to minimize damage. As one of the counter- measures, ports such as Atami, Shimoda and Omaezaki were designated as the Disaster Prevention Base Ports or the Disaster Prevention Ports, and the earth quake-resistant wharves of these ports are now being improved as on-land base of the emergency transport network in order to secure transport network in case road links are served. A disaster prevention ship called Kibo which is expected to work effectively in the evacuation of residents, transport of rescue squad and emergency supplies like food and materials in case of emergency, is serving as a car ferry linking the port of Shimizu and the port of Shimoda . It is also used for disaster prevention drills and on-board experience tours. Kibo is an air cushion type experimental Techno Super Liner developed to transport large volume of cargo more than twice as fast as ordinary vessels.

A recent type of discovery is the floating- type disaster recovery base usually used during rescue operations is a kind of platform use for lodging people and cargoes during disaster and can be moved to a place of need within the harbor.

Marine Mammal Harnessing Technology

Japan is the world's largest consumer of marine products. One can see from Japan's food culture that seafood is closely connected with Japanese eating habits. Prospects for the fishing industry are not altogether bright now, 1977's United Nation's Laws of The Sea was implemented limiting the volume of catch. Seafood imports have increased sharply, transforming Japan from the largest exporter of marine products to the world's biggest importer. The Japanese fishing industry faces a major turning point. As already dealt in chapter two and three.

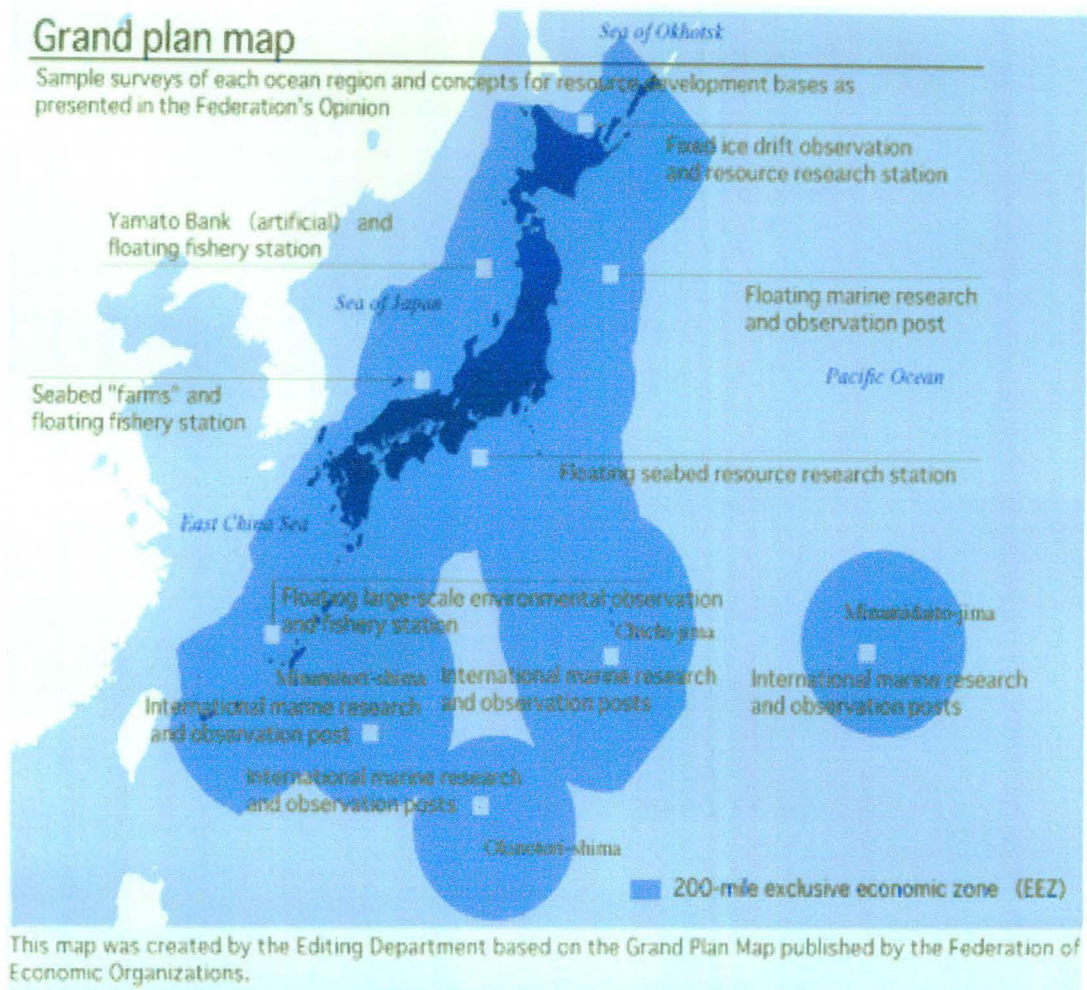
To secure a stable supply of marine products while conserving resources, Japan is now endeavoring to shift to a resource management type approach. It means that instead of simply catching fish efforts are being made to raise and cultivate what is consumed. Such efforts toward environment preservation and resource cultivation are now actively made through better technologies, for example biotechnology, fish farming and aquaculture.

Researches are also being carried out in other areas such as surveys of ocean resources and research on nursery production for fish farming. With the enactment of the United Nations' Convention of Law of the Sea, (UNCLOS) development of technologies for the sustainable use of marine resources has become indispensable.

Japan has developed technologies to prepare new fishing grounds. Huge structures of artificial islands have been created on several fishing sites near to the line of 200 nautical miles as demarcated by United Nation. More over, renewable energy sources such as solar and wave powers are used to enrich sources of nutrients. By raising clean, cold water from the ocean depths to the surface new fish breeding sites are also formed. This development contributed significantly to the solution of Japan's food supply problem, as well as the problem of feeding the earth's swelling population.

Fishing requires technological and managerial support. In recent years, research is being focused on new areas, such as raising the added value of marine

Figure 4.5 The Sites of Maritime Research Stations of Japan



Source: www.jfa.maff.go.jp/jfapan/english

products, improving fish farming techniques and preserving fishing grounds. Since the subject of fishery is a vast ocean and deals with a great variety of fishery resources. Majority of those engaged in fishery are small-scale fishery workers, the test and research activities indispensable for the development of fisheries such as investigation and grasp of ocean and resources and technology development, are carried out mainly depending on the activities of public test and research organizations. The Resources Development Department is a department in charge of policies supply fishery products stably by grasping fishery resources, coastal fisheries and fishing villages uniformly, together with

natural scientific investigation and research in the field of fisheries. Figure 4.4 shows the sites of maritime research stations of Japan. The institutions like Aichi Fisheries Research Institute, established in 1978, have an increasing vital role in the years ahead. In response to the advancement and specialization of research, the institute has restructured its organization and improved its research facilities, establishing the Marine Resources Research center in 1988 and the Mikawa Ichinomiya Station in 1994. And at present a new complex, is made is seen as a hub for these facilities.

Aichi is also making an active effort to conserve and expand marine resources. Mass production of the young of such fish as abalones, black porgy, blue crab, sea cucumber, sweet fish and tiger prawn seawater need to be fresh. Aichi Fisheries Research Institute carries out recent researches on fish farming technologies. The selected species for the research are eels, goldfish, pet fish and trout. Mikawa Ichinomiya station has developed several marine products out of this fish farming through biotechnology.

Growth of short neck clam shellfish, spiny lobster, and horse- shoe crab are done in massive scale while using biotechnology to meet the domestic demand and to curtail the immediate imports. Coral reefs along the coastal regions of Okinawa islands in southern part of Japan play an important role as a living breakwater by protecting the coast from the high waves of typhoons and tropical storms, which further helps in sea resource harnessing. Various on site investigations have been conducted in the port areas belong to Okinawa development agency for about 10 years for artificial growth of coral reefs. Coral reefs are grown on submerged artificial constructions such as on concrete blocks.

Cultivating seaweed to complement afforestation and other green efforts on land can also be used as biomass for clean energy generation. Therefore on a massive scale biotechnologies are used for the enhancement of seaweed bed growth. An ion- releasing algae propagation glass plate composed of phosphorus,

nitrogen, iron and other materials are placed under water and seaweed beds are cultivated.

The imposition of restricted fishery zones by an increasing number of maritime countries and the extension of territorial waters to 200 miles, the ocean fishing of Japan has experienced growing difficulties. This has increased the importance of fish farming. Fish farming refers to an operation in which fish seeds are produced in large quantity, released in a protected sea environment for growth and harvested when grown to a commercial size. It requires the technologies for the initial raising of fish and their release into the natural environment.

Japan has long been engaged in the farming of fresh water fish and oysters. In recent years, the farming of yellow tail, red sea bream, and prawns has proliferated. In addition in order to coastal fishing catches a large number of fish and shellfish farming centers have been establishing along Japan's shore. At these centers, selected species of fish and shellfish are artificially bred and rose to a certain size and then released to the sea to grow to sizes fit for harvesting.

Oyster farming as a means to provide pearl producing oysters is practiced to a large extent in Japan and Australia. Especially in Japan and Australia, water characteristics are regarded as highly important for the proper growth of oysters and their ability to produce pearls. There appears to be a certain temperature and mixture of water that is favorable to oyster growth and the concomitant production of quality pearls.

A man named Kokichi Mikimoto invented the art of culturing pearls in Japan in 1893. He discovered that by introducing a tiny bead of mother-of-pearl into an oyster, that oyster would begin to cover the irritant with nacre. To this day, the Japanese are considered the foremost experts in seeding oysters and the Mikimoto family continues to be one of the largest pearl producing empires. A total of about 40 thousand oysters is annually produced in Japan, according to the statistical report published under Ministry of Agriculture, Forestry and Fisheries of Japan, 1999.

Table 4.2 Oyster Shell Production of Japan, Prefecture Wise, 2000.

Prefectures	Quantity in tones	Values in percentages
Hiroshima	24,990	67.5
Miyagi	4,535	12.30
Okayama	1,495	4.0
Iwate	1,214	3.3
Mie	949	2.6
Ishikawa	547	1.5
Others	3,270	8.8
Total	37,000	100

SOURCE: Ministry of Agriculture, Forestry and Fisheries, Japan, 2002.

Table 4.2 shows the oyster shell production of Japan for the year, 2000. Hiroshima prefecture tops in the production accounting for 67.5%, Miyagi prefecture follows with a 12.3% share, of which about 45% is produced in the Ishinomaki area, leading other areas by a large margin. It is nationally famous oyster producing area. Blessed in rich sea tide and mild climate, Ishinomaki produces plump oyster. However, the by-products of the thriving oyster farming are a large amount of shell. The need for utilization of the shells has been addressed from the viewpoint of environmental preservation and ecology.

As a result of many people's efforts and constant researches and experiment, it was found out that finely pulverized oyster shells mixed with sand was suitable as a base improvement material for breakwater construction. They were actually used in the development of the port of Ishinomaki. This oyster shell-recycling project drew attention from various fields and is highly valued as a new technology available for port development.

The countries involved in world's pearl trading are Japan, Australia, Indonesia, Myanmar, China, India, Philippines and Tahiti. Around 25 years ago, Japan produces 90% of the pearls in the world. The global market has changed considerably in recent years. With the recent large increases in the production of

South Sea white, Tahitian black and Chinese freshwater pearls, Japan's share in pearls production in the world market has reduced slightly. Japan however, controls roughly 80% of the world pearl market, with Australia and China coming in second and third, respectively. The South seawaters around Australia, Indonesia and Myanmar are renowned for their large, white pearls, while Japan pearls are highly valued for their lustrous character. Freshwater pearls constitute the bulk of China's pearl efforts.

Figure 4.3 shows the major exporter of pearls in the world. 1998-2001.

Countries	Values in dollar millions.		
	1998	1999	2000
Japan	381.1	483.8	438.2
Australia	150.6	244.6	246.7
Hong Kong	150.7	141.5	161.7
Polynesia	134.5	152.5	155.2
Indonesia	60.7	101.7	116.3
China	79.2	99.7	98.5
Others	84.26	96.32	115.3
Total	1,041.06	1,320.12	1,331.9

Source: Ministry of Agriculture and Forestry of Japan, 2002.

Figure 4.3 shows the major exporter of pearls of the world from 1998 to 2001. Japan as usual the leading nation of pearls, followed by Australia, Hong Kong, Polynesia, Indonesia, China and others. The export values of pearls for Japan and China show a declining trend since 1998 to 2000. However for other countries like Australia Hong Kong, Polynesia, and Indonesia the export values show an upward trend. This reveals the fact that with the development of pearling technologies in other countries of North West Pacific the Japanese export of pearls has declined.

The practice of pearl fishing has traditional been and continues to be a dangerous occupation. From 1900 to world war second; a temporary halt was put in the pearl industry

of Japan. Many Japanese drivers were killed or crippled. However many recent technologies are invented to make it a danger free occupation but still risks are associated with it. Pearling is more akin to alchemy than science. There is no foolproof method to ensure that an oyster will produce a quality pearl. So some year may provide a bounty of pearls, while other years are extremely slim.

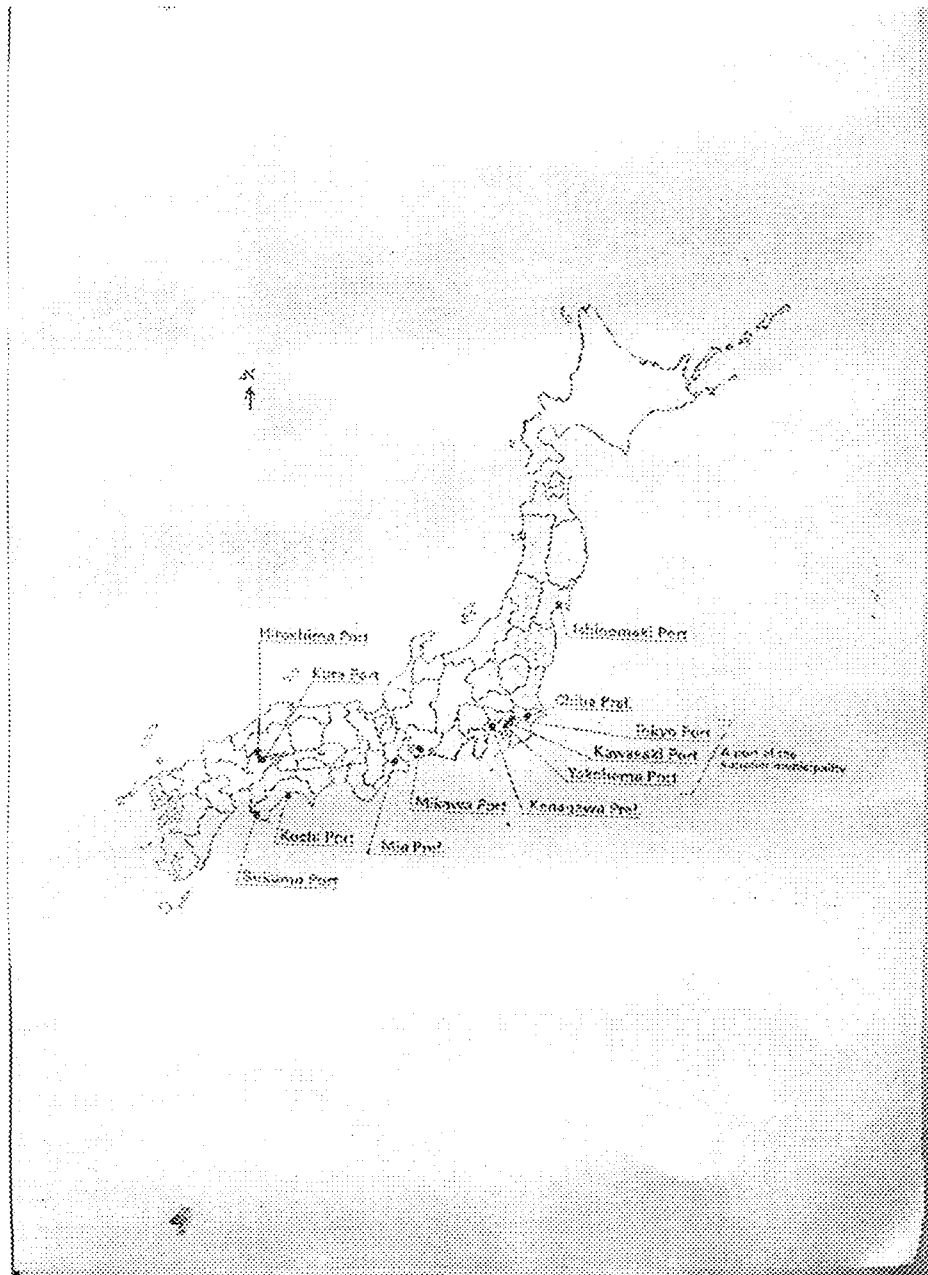
There are several key environmental factors that significantly impact the quality and vitality of the pearl industry. One of the fore most concerns is the loss of wild oysters and their nesting beds. Although pearl- producing oysters are cosseted to almost a ridiculous extent, these stocks are usually replaced by naturally growing oysters found in the oyster beds of select regions of the world. Cultured pearl producers therefore resort to extracting oysters from their natural breeding grounds and whisk them away to their laboratories where they are utilized as pearl producers.

Concomitantly, the aquaculture industry for these pearl producing oysters is extremely limited and not enough to sustain the massive amounts of shells utilized by the pearl enterprises. Japan again, is the industry leader in this aquaculture sector. With the massive usage of the seawaters in some areas it become inconducive for the survival of oysters, with other sea mammals. Therefore Japan has come up with an artificial breeding ground of natural pearl oysters in its nearby coastal areas. More radical solutions are therefore required to cope up with the present problems of pearling, since it constitutes a major source of earning.

Technologies to solve the waste disposal problems

Modernization of Japan began about 130 years ago along with urbanization. Waste disposal at sea began at the same time. Back then; waste boats through the canals out to the tidal flat area where they were simply dump carried some of the wastes. Meanwhile, most of the large cities in Japan have ports. In the course of economic development, those ports have been expanded providing waste disposal sites at sea.

Figure 4. 6 Japanese Waste Disposal Sites.



SOURCE: *Waste Recycling and the Roles of Ports*, Bollard Nippon Volume 11, WAVE, October 1999, p.8.

Figure 4.6 shows the waste disposal sites of Japan. Almost all the major ports are involved for this purpose. It is a good sign that government municipalities and several non

governmental organization has taken certain initiatives to handle the waste disposal problems in the recent years.

Table 4. 4 The type of waste generated in Japan, 2000.

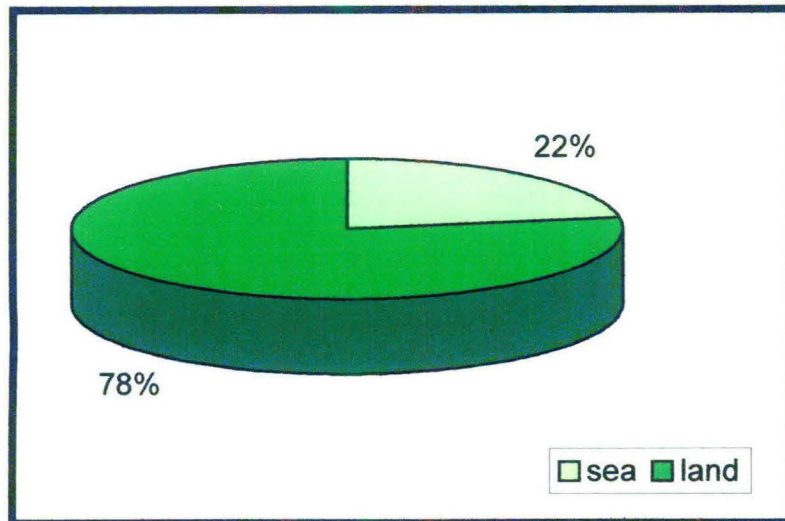
Type of wastes	Amounts in 10,000 cubic meters
General waste	3,466
Industrial waste	290
Tap water percolation sludge	96
Sewage sludge	725
Soil from construction sites	2,900
Dredged sand	4,560
Total	12,037

SOURCE: Japanese Ports and Harbors Bureau, Ministry of Transport, Japan, 2002.

Table 4.4 shows that maximum amount of waste generated from dredged sand, followed by general waste, soils from constructional sites, sewage sludge and so on. The major problem is the location for their dumping sites.

Wastes are partly recycled, then processed and reduced in weight and amount. However, the general waste that finally needs to be disposed of is still 14 million tons, which requires 2.6 trillion yen, while the industrial waste to be disposed of amounts to 69 million tons. In addition, disposal of the large amount of soil from urban development sites and the sand dredged to secure waterways at ports is also a big problem, though they do not fall under the definition of wastes in Japan.

Figure 4.7 The Proportion of Waste Disposal Sites: Land versus Sea.



SOURCE: Japanese Ports and Harbors Bureau, the Ministry of Transport, Japan, 2002.

Figure 4.7 shows the proportion of waste disposal sites of Japan. It is seen that about 78% of the waste are disposed in the land, where as 22% of the rest are disposed at sea. compared to land this figure may looks small but it has a great impact on the sea resources since it is polluting the marine environment. It is really becoming tough to handle the coastal fisheries. Death of several species has resulted in the reduction of production of fish and it is a great set back to the fishing industries.

A lot of soils are already used in land reclamation purposes. If the wastes generated in are used as the new ground material, then it could very efficiently reduce the construction costs. The lightweight soil mixing method uses dredged soil and soil from construction sites that have been made into slurry by adding water above liquid limit. The treated soil is then used as back- fill at ports and harbors to create a stable, lightweight ground. The mixes that use bubbles as a weight reducing agent are called bubble mixed soil and those using foam beads are called foam beads mixed soil. During the restoration of harbor facilities of the Kobe port, which was damaged by the great Han shin Awaji earthquake, the lightweight soil mixtures were used in harbor construction.

Ocean energy resource harnessing technologies

Japan is looking for alternative sources of energy resources from the ocean to curtail its imports for crude oil and petroleum from Middle East. The strategic location of Japan, do play a significant role in providing solutions to overcome the recent energy shortages. Japan, with its given geography has vast potentials to harness ocean energy. More over it is quite successful in harnessing some of the ocean energy while using sophisticated technology. Japanese coastlines are indented, have several narrow straits between islands and around headlands with shallow water depth that provide suitable site for tides to occur. Even the entrances to bays and large harbors often have high marine current flows.

Extensive research has been undertaken in Japan for commercial exploitation of marine currents to convert into wave energy. The biggest advantages of harnessing ocean energies is that to provide key global solution to sustainable development, coastal ecosystems, water quality, beach and job creation, waste management, energy storages, climate changes, agriculture, air quality and fisheries renewal.

Water is 850 times as dense as air, ocean currents are much more powerful than the wind. Mile for mile, various forms of ocean-based energy harvesting can be significantly less environmentally and socially obtrusive than other renewable forms of energy and potentially more cost efficient.

Japan has a vast potential for hydroelectric power generation. The available drainage features on the mountainous areas provide suitable sites for power generation. In Japan researches are going on for harnessing ocean thermal energy, which is a means of converting into useful energy the temperature differences between surface water of the oceans in tropical and sub tropical areas and water at a depth of 1000 meters, which comes from the polar regions. The continuous increase in demand for this energy in Japanese industries provides a large scope for its market.

Ocean mapping technologies

The rapidity with which the space is changing, it seems that after a point of time the remaining space still left undisturbed in the oceans, would be encroached by human beings. Already so many conflicts have occurred regarding the exploration and exploitation of sea resources that the developed countries has come up with the latest technologies to explore seafloor morphology. It is well understood that ocean research is often very costly, yet proper funding agencies of the world are on the tract to provide funds. United States, Japan, and France are quite ahead from other developed nations in this purpose.

The development in the last 10 to 20 years of sophisticated technologies for ocean data collection and management holds, tremendous potential for mapping and interpreting the ocean environment in unprecedented detail. Scientist have got better opportunities to perform coastal and marine studies that are more qualitative in nature, to formulate and test basic hypothesis about the marine environment. Especially, the remote sensing technologies with full-fledged preparation of maps under geographical information system are under way since 1980s.

The Geosat satellite launched by the United States Navy in 1985 mapped geoid. The ERS-1 satellite of the European Space Agency have provided the detail view of the ocean floor on a global scale, revealing structures never seen before. While satellite gravity data reveal all discrete ocean floor structures larger than 10 kilometers horizontally and vertically, operations at sea are still required to detect and interpret structures at a higher resolution. Surveys at this regional scale are carried out with multibeam swath mapping systems that are either mounted to the hull of a research vessel or towed behind the vessel as a vehicle.

These systems are termed multibeam because their transmitting arrays send out several simultaneous, downward- looking beams of acoustic energy across the tract of the vessel, creating a 1 to 10 kilometers wide swath of coverage. Although limited to vessel speed of 10 to 12 knots, these multibeam swath mapping systems rapidly generate high resolution bathymetric maps over much larger areas of seafloor than their single beam

predecessors of the 1950s and 1960s. One hull-mounted system that is now accepted as a de facto standard within the marine mapping community is sea beam, whose 16 beam-array can map 1200 squares kilometers of sea floor per day at a counter interval of 10 to 20 meters.

Several towed vehicles have been developed to work in combination with hull-mounted systems such as sea beam. These vehicles are equipped with long-range, side-looking sonar that measures not only the travel time but the strength and direction to an ocean reflector. So in addition to high-resolution bathymetric maps, these vehicles provide the acoustic equivalent of an aerial photograph of the ocean floor. The vehicles are usually towed in order to shield their sonar from ship noise and propeller turbulence and to enable their use with more than one research vessel during a field session. Towing depth is at least below the thermo cline to minimize acoustic wave bending due to temperature changes and to give the vehicles greater stability than the pitch, roll, and yaw that the vehicle would be subjected to at the surface.

Currently the most popular towed vehicles among North American marine scientists are the HMR-1 vehicle of the Hawaii Mapping Research Group, University of Hawaii, GLORIA II of United States, geological survey and deep submergence laboratory, Woods Hole Oceanographic Institution.

Hull-mounted swath-mapping systems and towed vehicles have led to some remarkable discoveries, particularly along the mid-oceanic ridge, the largest, most striking feature on the planet at a length of 70,000 kilometers throughout all the world's ocean basins. The mid-ocean ridge comprises 95% of all the plate tectonic boundaries found on earth, and dominates the volcanic flux of the planet, creating an average of 20 cubic kilometers of new oceanic crust annually, which in turn contributes up to 66% of the heat lost from the interior of the earth. Mapping is of course a fundamental component of ocean floor investigation but must often go hand-in-hand with sample collection of rocks, biota, and sediments from smaller areas on the ocean floor. It is here that the submersible becomes a valuable and necessary element of deep-sea investigative capability.

The first true submersible, known for its maneuverability, was the Trieste, which took a record breaking depth of 10912 meters in 1960. The number of scientific submersibles grew dramatically, continuing to the present with the Americans, the Japanese and the French leading the way. During the last 25 years of high- resolution exploration of the ocean floor, there have been not only fundamental, exciting scientific discoveries made, but also much has been learned about what combination of tools is needed to fully investigate the interdisciplinary scientific questions at hand.

The last 10 to 15 years have seen the development of remotely operated vehicles for scientific and industrial applications in shallow coastal waters. It has all the characteristics of a towed vehicle with an additional capability to maneuver on a tether for high-resolution investigations and interactive tasks on the bottom. In the last decade this vehicles have been aggressively developed for scientific research applications in deep water. It can carry out mapping tasks at a range of scales that are unprecedented both on the ocean floor and up in the water column.

In addition to remotely operated vehicle, autonomous underwater vehicles which are still largely developmental, hold great potential for future mapping and data collection as they are completely untethered. Elimination of the tether frees the vehicles from the surface vessel, removes the need for large and costly handling gear, and allows for continuous operation up to 1 year. Communication with the vehicle through the water and over such a long time period is extremely difficult, as is equipping the vehicle with the necessary on- board intelligence to successfully complete all of its tasks without human supervision.

Geography has made a contribution through the introduction of geographical information system, which fulfills not only the requirement of data integration but of combining or overlaying data of the same dimensionality. This also serves as an efficient means of assessing the quality of data produced by one instrument as compared to another. Geographers have also contributed greatly to assessing and solving many problems that

apply very much to the ocean environment, including the management of very large spatial databases. The growth of information technology has led to an explosion in the amount of information that is available to researchers in many fields. There are so many organization-working worlds wide like National Spatial Data Infrastructure, Cooperative Agreements Programs, and so on.

Japan is successful in exploring quite a number of seabed resources to ensure a stable supply of food. Japanese success may be attributed among other things, to its ability to adopt quickly to the changing situation and demand pattern with superior technology and higher productivity. In brief, Japan made, in a sense, a technological break-through in a short period during the late 1950's and the early 1960s. Technological innovation has been since then a continuing process and will continue to remain so in future, for the simple reason that, given Japan's poor resource base and neck breaking competition from both the old and the newly industrializing countries, technological sophistication and superiority will remain a decisive and driving force behind the future growth of the Japanese economy.

CHAPTER: 5

EXTERNAL INFLUENCES IN JAPANESE MARINE RESOURCES EXPLOITATION

The countries of North West Pacific have always looked to the sea for resources, sustenance, and trade, and their quest for the sea's bounty has inevitably led to conflicts among them. Today, few areas in North West Pacific remain unclaimed and many claims overlap that is why the countries are proceeding through a transitional phase in their maritime relationships. As new technologies increasingly permit a variety of uses of ocean space, policies designed to achieve coordinated management of the oceans are required if conflicts is to be avoided and if human use of the marine environment is to be less wasteful.¹

Japan as a newly emergent economy is always in a tussle with its neighbors in exploiting seabed resources and maintaining peace and prosperity throughout the region as more and more conflicts are getting intensified. Taking examples from the areas of rich fisheries to a tiny islet, all of them are subjected to various conflicts not only with one country but also with several countries that surrounds it. The various maritime international issues that Japan is tackling today is merely the manifestation of deep rooted conflicts that has an age old history behind it and failed to provide any solutions as yet.²

The most important among them are disputes relating to fisheries with China, Russia, Republic of Korea, and United States, Takeshima Rock Disputes, Dokdo, Senkakus/Diaoya, and Kurile Island Disputes, maritime boundary delimitation disputes, and so on. All the disputes are resource oriented disputes, each having its own particular characteristic highlighting the interest of the member countries associated with it. More than one ways it is affecting the relationship of each of the other countries, that is why the management of the oceans are becoming complicated, since there exists haphazard quilt of global, regional, bilateral and multinational agreements differentiated by activity but without effective mechanisms for achieving coordination.

¹ Gibbs, Stephen. *Management of Marine Transportation in the North West Pacific*, Ocean Development and International law Journal, Volume. 10, June 1985, p. 18.

² Gibbs, Stephen. *Management of Marine Transportation in the North West Pacific*, Ocean Development and International law Journal, Volume. 10, June 1985, p. 28.

The 1982 United Nations Law of the Sea Convention, (UNCLOS), which entered into force after more than 20 years of negotiation, embodies most international law and state practice relating to oceans. Nowhere better illustrated than in the Law of the Sea Convention, about the demarcation of the maritime zones, including the drawing of baselines, distance from the coast and the meaning of “continental shelf”, “equidistant lines” and the like. This chapter brings into light the major international maritime issues that Japan is associated with and the international organizations that are involved in the management of North West Pacific Ocean.³

Fishery Agreements

Japan-Russia

The relationship between Japan and the Russia regarding fisheries dates back to prewar days. Japan was given fishing rights in the Russian territorial waters by the Portsmouth Treaty of 1905, concluded following the Russo-Japanese War and the subsequent Russo-Japanese fishery agreement of 1907. But disputes constantly occurred during the actual fishing. Meanwhile, various negotiations were conducted between the Japanese and Russian Governments. But Japan’s fishing rights lapsed with its defeat in World War II.

Japan, which thus lost coastal fishing rights, began salmon fishing on the high seas, and three mother ship salmon fleets were dispatched for the first time in 1952 when Japan concluded a peace treaty with the Allied nations. The high-sea salmon fishery expanded fast, and in 1955 a total of 14 fleets caught as much as 170,000 tons. To prevent over fishing of salmon, the Russia suddenly set up the so-called Bulganin Line on March 21, 1956 and announced its decision to control salmon fisheries inside the demarcation line. The Bulganin Line linked a point of 48⁰N and 170⁰25'E, with the Cape Olyutorskii and with the eastern tip of Hokkaido, encompassing a large area of the high seas. This led the Japanese Government to conclude a fisheries treaty with the Russia.

³ Takana, Shoichi. *Japanese Fisheries and Fishing Resources in the North West Pacific*, Ocean Development and International Law Journal, Volume XI, September 1996, p. 45.

After negotiations in Moscow, the treaty was signed on May 14, 1956 and came into force on December 12 of that year.

The treaty covered herring and king crab as well as salmon. On the basis of the pact, the Japan-Soviet Fishery Commission was established. After holding its first session in Tokyo in 1957, the commission met every year to negotiate fisheries regulations and catch quotas. The fisheries treaty had yet to take effect when the 1956 fishing season started but Japanese fishing boats were allowed to operate in the treaty area under provisional arrangements. Later, the Soviet Union demanded crabs be excluded from the scope of fish species covered by the treaty, on the grounds that crabs are part of continental shelf resources. As a result, fisheries regulations and catch quotas concerning crabs came to be negotiated directly between the two governments, starting with the 1969-fishing season.

The Russia established a 200-mile fishery zone in March 1977. This led to negotiations between the two countries on Japanese fishing with the Soviet zone. After three months of hard bargaining, a provisional arrangement was signed on May 27, 1977 and it took effect on June 10. Earlier, on April 27, Russia notified Japan of its decision to terminate the bilateral fisheries treaty. Consequently after a year's grace period, the pact was to end its existence spanning more than two decades. Up to around 1960, almost all fishery problems between Japan and the Soviet Union concerned Japanese fishing in the waters near the Soviet Union. In recent years, however, many Russian fishing boats have emerged in the Pacific waters off Hokkaido and Honshu, giving rise to disputes with Japanese coastal fishermen.⁴

Russian fishing vessels began to appear in the waters near Japan around 1955. At first, they engaged in saury fishing with stick-held dip nets off the southern Kuriles and the eastern coast of Hokkaido. But in 1961, the Russians also started to catch mackerel with purse seine, and in 1963, the number of

⁴ Moritaka, Hayashi. *Fisheries in the North-Pacific: Japan at a Turning Point*, Ocean Development and International Law Journal, Volume VII, June 1991, p. 69.

Russian fishing boats off Japan reached 200. Later, their fishing grounds gradually expanded southward from Cape Erimo, reaching the waters off Kinkazan in 1964 and off Oarai, Ibaragi Prefecture, in 1968. Scores of Russian saury fishing boats, including mother ships, operated in the waters between 10 to 20 nautical miles from the Japanese shores, from Hachinohe to Choshi, Chiba Prefecture. But the following year, their fishing grounds of saury were limited to the waters off Hokkaido.

Around that time, mackerel fishing with purse seine got into full swing, and in 1968 and 1969 Russian fishing flotillas, including mother ships, were seen south of Hokkaido, Hachinohe and Choshi. In 1969, they operated as far southward as the waters around the Izu Islands. From around 1970, saury fishery and purse seine mackerel fishery were supplanted by large-sized mid-water trawl fishing. Trawl fleets mainly operate in autumn and winter. They appear off Hokkaido around October and gradually move southward, catching mostly mackerel, and reach the spawning grounds off the Izu Peninsula in March.

Parallel to the stepped-up operation of Russian fishing boats near the shores of Japan, there has been a sharp rise in direct damage to Japanese fisheries, such as destruction of fishing gear. This led Japan to hold technical talks with Russia on the safety of fishing operations, including expert-level consultations. As a result, the Treaty on Fishing Operations between the Government of Japan and the Government of the Soviet Union was signed on June 7, 1975 and came into force on October 23rd of that year. The treaty contains detailed provisions related to vessel markings, lights and signals of fishing boats, markings of fishing gear, and among others, controls on navigations and fishing operations of fishing boats. It also stipulates procedures for filing damage collations.⁵

⁵ Ibid³, p. 71.

Japan-Republic of Korea

With the conclusion of the peace treaty between Japan and the Allied nations, restrictions on Japanese fishing activity (the so-called MacArthur Line) were lifted. But fearful that Japanese fishing boats might come in great force, the Republic of Korea issued the Declaration of Maritime Sovereignty regarding the waters near that country on January 18, 1952 or shortly before the lifting of the restrictions in the name of the then President Syngman Rhee, and established a law for the protection of fishery resources to keep out Japanese fishing boats.

Japan firmly took the stand that such unilateral action could not be recognized, but the Republic of Korea remained adamant, seizing one Japanese fishing boat after another. This posed a serious problem to the fishing industry in western Japan. A total of 327 Japanese fishing boats were captured and 3,911 Japanese fishermen were detained before the two nations concluded a fisheries agreement. In June 1965, Japan and the Republic of Korea entered into a treaty an agreement for the normalization of their diplomatic relations. As regards fisheries, the Treaty on Fisheries between Japan and the Republic of Korea was signed on June 22, 1965 and took effect on December 18 of that year, bringing the prolonged fisheries disputes between the two nations to an end.⁶

The main points of the fisheries treaty are as follows: (1) The exclusive right of jurisdiction could be exercised over fishing in the waters within 12 nautical miles from the coastline; (2) the waters outside this fishing zone, which are roughly delineated by the Rhee Line, are designated as a joint regulation area where limitations are placed on the number of fishing boats, etc; and (3) the Japan-Republic of Korea Fisheries Commission, consisting of three members each from the two countries, was set up to make recommendations on the investigation areas of fish resources and restrictions in the joint regulation area.

⁶ Shimizu, Hayao. *The order of the Sea and Japan*, Japan Echo, Volume IV, Number 3, 1997, p. 29.

Even after the effectuation of the fisheries treaty, the Republic of Korea authorities continued to rigidly control Japanese fishing and to capture Japanese fishing boats, making the prospect of bilateral fishery relations rather gloomy. But with the passage of time, such troubles gradually decreased, and a mutual feeling of distrust stemming basically from the peculiar historical relations between the two nations also faded gradually. Many Japanese and Korean fishing boats mingled with each other while operating in the joint regulation area as well as the East China Sea and the Yellow Sea where rich fishing grounds are located. This tended to cause troubles between them. Therefore, a private-level fisheries treaty was concluded in addition to the intergovernmental agreement, but troubles did not cease to occur, leaving a source of irritation between the two countries.

The normalization of relations between Japan and the Republic of Korea gave rise to concern about another problem, that is, increased imports of fishery products from South Korea. The value of such imports, which stood at 5,800 million yen in 1965, doubled to 10,000 million yen in the following year and reached 47,000 million yen in 1973. The import of Korean fishery products caused a problem in connection with the Japanese domestic fishery industry and the two countries continued consultations on import quotas and other matters. In 1975, the Japanese tuna fishing industry raised an outcry against the tuna imports as international tuna prices were lingering at a low level, compelling the Government to take countermeasures.⁷

Japan- South Korea

These two neighbors maintain an awkward relationship, but have been able to cooperate with regard to many key fishing issues. The Japan-south Korea fisheries agreement of 1965 was entered into as part of the process of normalizing relations between the two countries, and was designed to reduce the tension that resulted from seizures of vessels and confrontations between the two countries, leading to the arrest and even deaths of Japanese fishermen

⁷ Ibid⁵, p. 27.

operating near the south Korean coasts. In this agreement, each side recognized the others right to an exclusive fishery zone 12 nautical miles from it coasts. Beyond these 12-mile coastal zones, a joint regulation zone was established for the purpose of protecting fishery resources.

The 1965 agreement was replaced in 1998 by a new agreement, which introduced two provincial zones in disputed areas, where fishing vessels from each country can operate, and also included a commitment by both countries to reduce their overall catch. A one-shared zone is in the Sea of Japan and East Sea near the disputed islets of Todo/Takeshima and the other is in the East China Sea just north of the Japan-China provisional measure zone. The 1998 treaty established a compromise joint-use zone around the Tok-do/Takeshima islets, and carefully regulated how much fish of each species could be caught within the zone, and in the adjacent national-jurisdiction zones.⁸

The agreement had the effect of reducing South Korean fishing in Japanese waters, but South Korea did retain access to part of the productive Yamato bank, where some 1000 South Korean vessels had been catching about 2500 metric tons of squid each year. The Joint Fishing Committee established under the 1965 Agreement continues, with the duty to protect marine resource, and it makes recommendations regarding fishing in shared and overlapping areas. It remains somewhat unclear whether fishing vessels from other countries can operate in the joint- use zone, but apparently they can if they conform to the Korean and Japanese laws and regulations that apply respectively on each side of hypothetical median line drawn through this zone.

The agreement was also unpopular in china, which denounced it as an infringement on china's sovereign rights to an exclusive economic zone in the East China Sea and called for talks among the countries to resolve their

⁸ Fluharty, David. *Management of Living Resources in the North West Pacific and the Unilateral Extension of the 200-Mile Fisheries Zone*, Ocean Development and International Law Journal, Volume 3, 1985.

maritime boundary disputes. Regular subsidiary agreements are reached to permits fishing by the vessels of these two neighbors. In 1999, Japan was given the right to send up to 30 boats to catch swellfish in Korean waters and 48 dragnet-fishing boats in the waters around Cheju Island, with 80 dragnet Korean boats allowed in Japanese waters. South Korea's annual quota in Japan's exclusive economic zone was reduced from 207,000 tons to 149,800 tons and the number of its deep-net boats was reduced from 337 to 192. An accord reached in 2001 allowed 26 South Korean boats catch 9,000 tons of saury between in 2001 off the Sanriku Pacific Coast of Japan. Japan threatened to scuttle this agreement during June of 2001, however, because of South Korean fishing around the northern terrorizes islands claimed by Japan.

Japan-China

The first post-war fisheries agreement between these important powers was the 1955 Agreement on Fisheries in the Yellow Sea and East China Sea, negotiated by private fisheries groups in each country because of the absence of formal diplomatic dealings between the two countries. This Agreement established six fishing zones and several no-fishing zones, and served to reduce the confrontation and ship seizures that preceded the agreement it lasted until 1958, and then in 1963 a new agreement was adopted, based in large part on the earlier 1955 Agreement. This private Agreement was modified once again in 1965 slightly greater attention to environmental concerns, lasting until 1970.

Formal diplomatic relations were established between the countries in 1972, and governmental negotiations led to the first formal China-Japan fisheries agreements in 1975. China insisted on designating an area as a military warning zone and another area a zone of no-motorboat-trawl net fishing and also warned Japan against fishing in the waters around Taiwan. As mentioned above, the fisheries zone that Japan declared in 1977, explicitly exempted Korean and Chinese fishing vessels from its application. The Korean and Chinese fishing vessels increased in size, however and pressure on Japanese fisheries also increased foreign fishing, particularly South Korean

fishing, continued to expand just outside the 12-mile limit and caused extensive damage to Japanese fishing. South Korean fishing in the area employed fishing gear and techniques that were prohibited for Japanese fishing for the protection of fishery resources.

In 1992, China issued its law on the territorial sea and contiguous zone, and included claims around the Diaoyu Dao/Senkaku islands, which the Japanese had long claimed and controlled. Then, in 1996 both China and Japan ratified by the Law of the Sea Convention. The following year they revised their 1975 Agreement to address the issues rose by the Convention and by the recognition of the exclusive-economic zone concept by both countries. The 1997 Agreement recognizes that within the first 52 nautical miles from their respective baselines in the area between 27 degrees and 30 degrees 40 minute north latitude, the fishers from the coastal nation have exclusive rights to the fishing resources. If the fishers of the coastal nation cannot harvest all the available fish, taking into account the recommendations of the China- Japan Joint Fisheries Commission, then the fishers of the other nation will be allowed to take a quota determined annually.

Although the broad contours of this new agreement were established in 1997, the details have remained controversial, and the two countries have continued to meet on the final aspects, reaching tentative agreements periodically. In 2000 for instance, the two countries agreed that between June 1 and December 31, 2000. 1,122 Chinese vessels could operate in Japan's 52 nautical-mile coastal zones, each harvesting up to 70,000 tons of seafood.

The most significant innovation of this 1997 Agreement is the establishment of a provincial measures zone where the vessels of each nation can fish, and where each country exercises jurisdiction over its own flag vessels; pending the ultimate delimitation of their disputed maritime boundaries. This zone is in the shape of a parallelogram, beginning 52 nautical miles from the coastal baselines of each nation, and covers the area between 27

degrees and 30 degrees 40 minute north latitudes in the East China Sea. Although the principle of flag-state jurisdiction prevails, meaning that the parties cannot punish a vessel of the other party for violations, they can identify the transgression and tell the wrong –doing vessel about its violation. No formal dispute resolution procedure is included in the agreement.

The area south of 27 degrees north latitude, including the disputed area around the disputed Senkakus/Diaoyu Dao remains as unregulated international waters. Also unresolved are the interests of South Korea, which has a claim for an exclusive economic zone that overlaps part of the area covered by the China-Japan Fisheries Agreement, but it is expected that South Korea will be able to continue its fishing activities in the joint management area and the area north of 30 degrees 40 minutes' north latitude.

The Senkakus/Diaoyu Dao Islands.

These eight uninhabitable features northeast of Taiwan in the East China Sea are disputed between China and Japan, because of their symbolic and historical importance as well as their potential to generate continental shelves and exclusive economic zones. Once their sovereignty is determined, it then needs to be decided whether these tiny islets should be allowed to generate extended maritime zones or whether, on the other hand, they should be allowed to generate only a territorial sea because they are rocks under Article 121(3) of the United Nations Law of the Sea Convention, which defines rocks as those features that cannot sustain human habitation or economic life of their own. These tiny features have never been inhabited.⁹

The largest island Diaoyu Dao/Uotsuri Shima has an area of 4.3 square kilometers, with two peaks rising to about 1100feet, but with no anchorages for any but the smallest ships to use for any but the smallest ships to ships to use for landing. Historically, these outcroppings have been used only as navigational

⁹ Cheng, Tao. *The Sino-Japanese Dispute over the Tiao-yu-Fai (Senkaku) Islands and the Law of the Territorial Acquisition*, Journal of International Law, Volume 14, 1973, p. 221.

aids. Japan has dominated the tiny islets since 1895 when Japan formally incorporated them into its nationally territory. United States administered the islands after world war second until 1972, when they returned to Japan. China argues that it exercised sovereignty over the islets until 1895, when they ceded to Japan after losing a war, and that they should have been returned to China pursuant to the 1951 peace treaty formally ending World War II

Figure 5.1 Disputed Site of Senkakus/Diaoyu Islands.



SOURCE: www.seaweb.org/tkeshima/jp/englishi.html.

Figure 5.1 shows the disputed sites of Senkakus/ Diaoyu Dao Islands. China's 1992 territorial-sea legislation asserts control over the islets and claims territorial seas around them. China contends that the islets do not have the capacity to create continental shelves or exclusive economic zones, because they are rocks under Article 121(3) of the law of the sea convention, but Japan

takes the position that they are islands that are entitled to generate such zones, and it apparently claimed an exclusive economic zone around the islets in its 1996 declaration.

The language in the Article 121(3) does not appear to support a claim of an exclusive economic zones around these disputed islets, because they have never been inhabited, and the United Kingdom has recently renounced any claim to an exclusive economic zones around these disputed islets, because they have never been inhabited, and the United Kingdom has recently renounced any claim to an exclusive economic zones or continental shelf around its barren granite feature named Rockfall which juts out of the ocean northwest of Scotland. But other countries have been expansive in claiming extended maritime space around features that are clearly rocks, and the legitimacy of such claims remains in dispute.

Tok –Do/ Takeshima Rock Disputes

These two tiny uninhabitable rocky islets situated midway between the main land areas of Japan and Korea have a combined land of 0.23 square kilometers or 58 acres. They have limited water sources, and have been uninhabited historically. They have served as a fishing station for harvesting abalone and seaweed and hunting seals, and they are near rich fishing grounds. Korean's claim to sovereignty over the islets appears to be stronger than that Japan, based on the historical evidence of the exercise of sovereignty and the principle of contiguity, but most importantly because of Korea's actual physical control of the islets during the past half century. All judicial and arbitral decisions regarding sovereignty disputes over islands since world war second have focused on which country has exercised actual governmental control over the features during the previous century, rather than on earlier historical records. Korea was not in a position to exercise control during the first part of the twentieth century, because it had been annexed by Japan, but soon as it regained its independence, it asserted to control over Tok-Do and has continued to exercise sovereignty over the islets since then. In July 2001, the South Korean National Maritime Police Agency announced it would

commission a 5000-ton-class vessel carrying a crew of 97- entitled the Sambong, the name of Tok-Do during the chosen dynasty- to patrol the waters around Tok-Do beginning in February 2002.

Because these islets are physically large rocks, which have not been inhabited in a continuous fashion until the recent military-type occupation, under the rule laid down in Article 121 (3) of the Law of the Sea Convention, they probably should not be entitled to generate an exclusive economic zone or a continental shelf, and their maritime zone should thus be limited to a 12-nautical-mile territorial sea enclave. Except for their own territorial-sea enclave, therefore, they probably should not affect the delimitation of the exclusive economic zone and continental shelf between South Korea and Japan.

Joint Development Zones related to nonliving resources

It is somewhat remarkable that the nations of North West Pacific have dealt with their serious sovereignty conflicts by joining together in a number of bilateral arrangements that have created joint development resource zone. Japan and the Republic of Korea limited part of their continental shelf boundary in an agreement signed January 30, 1974, which went into effect June 22, 1978, but they were not able to complete the task because of their dispute over overlapping claims and their conflicting views whether the natural-propagation or median-line principle should define continental-shelf boundaries. In light of this controversy, the two countries established a joint development zone in the disputed territory, but no resources extraction has yet occurred in this zone. Their agreement will stay in force until 2028, after which date either country can give a three-year notice to terminate it.

Although this arrangement applies primarily to mineral and other nonliving resources of the seabed and subsoil, Article 5 (1) of the Joint Development Agreement says that each operating agreement should accommodate the fishing interests of the concerned countries. The other shared zones are the fishery zones between Japan and china. These zones are also

innovative and important, and offer a logical pragmatic solution to the continuing disputes over sovereignty of islets.

The Disputed Northern Territories North of Japan.

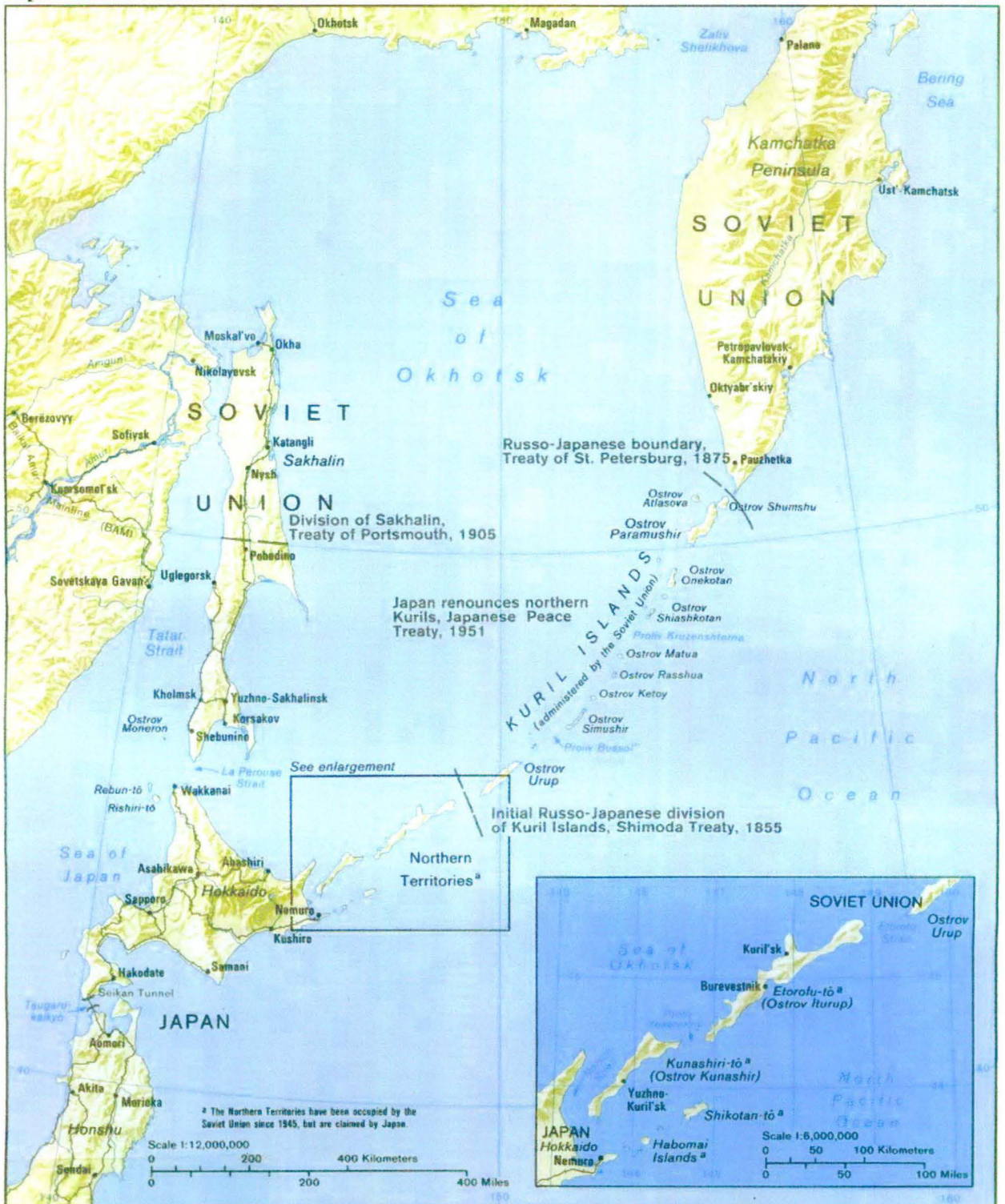
One of the most contentious and festering of northeast Asia's disputes concerns the small islands north of Hokkaido controlled by Russia but claimed by Japan as an essential part of its core national territory. These islands usually called the Northern Territories include the Habomai group, Shikotan, Kunashir and Iturup and they contain a combined land area of 5000 square kilometers. The Soviet Union took these islands from Japan after world war second, and expelled the 17000 Japanese residents. Russia now claims title based on the language in the 1951 San Francisco peace treaty, in which Japan renounced all right and title to the Kurile Islands.

But Japan argues that these islands are not covered by this phrase, because they were not among the islands Japan had acquired in 1875 in exchange for Sakhalin, and that historically they have always been part of Japan. In July 2001, Japan announced that the status of all the islands in the northern territories must be addressed and resolved together, rejecting the double-framework approach that had previously been advocated by former prime minister Yoshiro Mori, which had separated the problem into separate groups-Shikotan and the Habomai Islands and the Etorofu and Kunashiri Islands.

The fishing resources around these islands are productive and intensively utilized, and include pacific herring and Japanese sardines. In the summer of 2001, Japan denounced South Korean fishing in this area, asserting that the fishing zones are within the exclusive economic zone and under Japan's sovereignty. South Korean contended that it had been given permission

Figure 5.2 The Disputed Northern Territories, North of Japan.

Japan-USSR: Northern Territories



800920 (A06011) 9-88

SOURCE: www.seaweb.org/northernterritories/jp/english.html.

to fish there by Russia, but to retaliate against the south Korean activity, Japan banned South Korean fishing off the Pacific Coast areas of Aomori, Iwate, and Moiyagi Prefectures on the west coast of Honshu Island. The South Koreans continued to harvest saury around the Northern Territories during the fall of 2001, but negotiations during this period between Japan and Russia led to Russia's agreement to bar foreign fishing around the Northern Territories in the future, in exchange for financial assistance from Japan and Japanese agreement to control the smuggling of crabs into Japan from the Pacific waters adjacent to Russia.

Effects of 200-mile zones on Japanese fisheries

It is far from easy to estimate the possible effects on Japanese fisheries of the establishment of 200-mile exclusive fishing zones. The establishment of such zones by Canada and United States has naturally affected Japanese fishing to no small extent in terms of the absolute amount of fish caught. Nevertheless it has brought about no excessive change compared with the continued downward trend of Japanese fish catches in recent years. In stark contrast, the establishment of the Russian 200 mile zone has dealt a devastating blow to Japanese fishing in these waters. Its serious effect is evident from the fact that the quota for herring has been reduced to nil and quota for Alaska Pollock, the most important fish in terms of quality, has been slashed to a mere one-tenth. Meanwhile, North Korea, Australia, New Zealand and Papua New Guinea set up 200-mile fishing zones before long and therefore, Japan started fishery talks with these countries soon. Their zones significantly affected Japanese squid angling in the Sea of Japan and the tuna and skipjack fisheries in the Pacific. Furthermore, South Korea also established 200-mile zone. Thus the road ahead of Japan's fishing industry appears rocky.

The successive establishment of 200-mile economic zones by the world's major countries, including the United States, the nations of Europe, and the Russia came as quite a shock to Japan. Japan's recent fishery negotiation with the Russia, necessitated by the latter's establishment of a 200-mile maritime zone. To be more specific, the shock is accounted for mostly by the fact that it has now become impossible for them to

continue their past practice of conducting extensive fishing operation in the oceans of the world and relying on fish and shellfish for half of their protein intake. Distant waters fishing have been providing about 4 million tons of Japan's total annual catch of slightly more than 10 million tons. However the establishment of 200-mile economic zones around the world is expected to cause a drop of 80% at most, but probably around 50% to 60% in Japan's distant- water fish haul.

About 20 years ago, keen interest arose in developing new systems for ocean management. One of the main thrusts of this movement was the international agreement on 200miles fisheries limits as agreed to at the third United Nations conference on the law of the sea. Under this agreement, coastal nations were allowed to claim management jurisdiction over resources in water up to 200 nautical miles from their shores. The result was that Japan's deep-sea fishing industry slowly but steadily lost traditional fishing grounds and was forced to retreat. This development was an unprecedented disaster for Japan's deep-sea fishing industry, which until that time had grown by leaps and bounds. The 200-mile zone allows coastal nations to claim fisheries resources within these coastal waters.

As such it addresses the question of the distribution of the earth's resources among nations, not the principles that guide the use of marine resources. The United Nations convention on the law of the sea has a number of provisions that purportedly relate to these latter principles, but few believe that marine resources are today being utilized according to these provisions.

Conflicts Related to Maritime Boundary Delimitations.

Baselines.

The straight-baseline claims of northeast Asian countries have been controversial and significant because the waters landward of these lines are inland waters, which are totally controlled by the coastal country, the next 12 nautical miles are territorial seas, which are sovereign territory, through which vessels can exercise the right of innocent passage and any median or equidistance line that might be drawn to divide maritime zones would start

from the baselines. China's use of a high-tide elevation about 70 nautical miles off shanghai called Dongdao as a base point for its baselines is of dubious legitimacy and has been challenged by its neighbors. China has used some low-tide elevation, as base point for it is baselines. These baselines are proper under article 7(4) of the law of the sea convention only if the low elevations have lighthouses or other permanent fixtures on them. Under article 7(1) of the convention, the use of straight baselines in general is legitimate only in coastlines that are deeply indented or have fringing islands along them, under Article7 (3) the baselines must not depart appreciably from the general direction of the coast. China's south of the Yangtze estuary is deeply indented, but the coastline north of the Yangtze appears to be more regular and the use of baselines there is questionable.

North Korea's use of baselines on its east coast also appears to exceed the permissible limits established by the law of the convention, and they are not recognized as legitimate by the United States. One long line is used to connect the southern and northern border of North Korea along a coast that is not particularly deeply indented and does not have any fringing islands.

When South Korea established straight baselines on part of the Korean peninsula in 1965 and later in 1977 hen it enacted the territorial sea at of Korea in 1977, it consulted extensively with Japan. South Korea has a somewhat irregular west coast and fringing islands along soma areas, so that its baselines claims are generally thought to be consistent with the law of the sea convention.

Japan's baseline claims in some locations are less well accepted. These baselines connected remote tiny islands far from the main islands, and some re more than 50 miles long. The longest Japanese baseline is 62.26 nautical miles in the area west of Kyushu. Japan's first effort at baseline delimitation occurred in 1977 in its law on the territorial sea, which went into effect on July 1, 1977. This law drew baselines closing the three entrances to the Seto Inland Sea,

which had been established as Japan's internal water under international customary law. Japan has claimed a territorial sea of only three- nautical miles around the Tsushima Island in order to preserve navigation freedom in the adjacent straits.

Historic waters

China has always claimed the large Bohai Bay just below Korea as a historic bay. The republic of Korea understands the claim, but has never acknowledged its legitimacy. Japan has raised reservations about the claim. The Soviet Union claimed the waters in Peter the Great Bay as internal waters in 1957. A number of countries, including Japan, the United States, the United Kingdom, France, Canada, Sweden, Germany, and the Netherlands, have opposed this claim. In 1984, the Soviet Union drew a straight baseline across Peter the Great Bay, but did not specially refer to it as historic waters, which might suggest that Peter the Great Bay was not considered a historic bay under the 1984 decision.

Japan claims that its inland sea of Seto Naikal has the status of internal waters. This waterway might arguably be considered to be an international strait capable and appropriate for passage between one exclusive economic zone and another. But because the route between the Shokoku and Kyushu islands is probably protected from international strait status.

Exclusive economic zones

North Korea was the first country in the region to declare an exclusive economic zone on June 21, 1977, apparently utilizing a median line to draw the boundary between North and South Korea, and it also declared a 50-mile military boundary zone August 1, 1977, which has a dubious status under international law. That same year, Japan followed the lead of other countries, and declares an extended fishing zone around its islands, but explicitly exempted Korean and Chinese fishing vessels from the application of this new

fishing zone. Japan, provided this exemption because Japanese in the coastal waters of its neighbors was much more extensive than South Korean or Chinese fishing in Japanese coastal waters and hence Japan feared South Korea and China would likely retaliate by extending their jurisdiction to the same distance from their coasts. Japan and South Korea declared exclusive economic zones in 1996, at the time they ratified the 1982 United Nations Law of the Sea Convention. China declared its exclusive economic zone on June 26, 1998. The Soviet Union first declared a fishery zone on December 10, 1976, which took effect on March 1, 1977, and replaced it with an exclusive economic zone in 1984 including waters round the disputed northern territories.

Whaling in Japan.

Beyond the shallow water of the continental shelves are a group of fisheries that depend upon migratory pelagic stocks, which spend varying proportion of their life cycles in oceanic waters. The main groups are the tuna, salmon, and whales and they have all been particularly vulnerable to over exploitation on the high seas beyond the limits of national jurisdictions. The most well publicized examples are those of whales. Depletion has in some cases become so severe that even aboriginal fisheries and related cultures are threatened.

Whaling is the hunting and killing of whales. Historically, poor conservation management by many nations led to far more whales being killed than could be sustained and to near extinction of several species. Firing a harpoon near the head of the animal kills whales. An explosive charge inside the harpoon then explodes beneath the whale's skin, killing it. The only two ocean whaling nations now are Russia and Japan. In March 2004, Whale Watch, an umbrella group of 140 conservation and animal welfare groups from 55 countries supported the Anti- Whaling Campaigns. According to them 60% of the whale of the world are killed by Japanese. Of all the fisheries, whaling is the only one subject to global management in the form of the International Whaling Commission. Even this has not yet been able to provide fully effective management because of conflicting interests.

International Cooperation Whaling Regulation started in 1931 and a number of bi and multilateral agreements now exist in this area, the International Convention for the Regulation of Whaling (ICRW) of 1946 being the most important. The International Whaling Commission was founded by the ICRW for the purpose of giving management advice to the member nation on the basis of the scientific committee. According to Japanese, whales are the largest animals in the world, a single whale kill provide more meat than with any other animal. Whaling and its associated activities continue to provide employment and economic stimulant for fisheries, logistic and other related industries in Japan. Japanese whalers say that whaling is an essential condition for the successful operation of commercial fisheries and thus plentiful availability of food from the sea that consumers have become accustomed to. A minke whale eats 10 kilogram of fish meat per day, which puts a heavy predation pressure on commercial species directly or indirectly.

Thus whalers say that an annual cull of whales is needed in order that fish should be available for humans. Anti-Whaling campaigners say that the pro-whaling argument is inconsistent. If the catches of whales are small enough not to impact over all whale numbers, it is also too small to affect fish numbers. Thus to make more fish avail, they say more whales will have to be killed to put population at risk. The whalers argue that the purpose of culling is to keep population in check not to put population at risk.

Within the International Whaling Commission, the confrontation over the commercial whaling issue has raged for more than 10 years and still remains unresolved. There occur conflict between the whaling and non-whaling nation. The present position of the anti-whaling nations is contradictory, it objects to Japan's research whaling. According to them not a single whale should be killed, regardless of the purpose. Eating whale flesh is seen as inexcusable.

International relations within a marine region are protected by looking into the criteria such as the number of countries involved, the ways in which their interests are defined, the ways in which capabilities are distributed, the ways in which benefits and costs are seem to be divided up on the various issues of significance, existing organizational arrangements and their relative effectiveness, definition of alternative strategies for dealing with policy problems, and the impact on behavior of extra

regional concerns. The tremendous increase in demand for fish and other products from the living resources of the sea, coupled with the increasing technical ability to explore them, has created variety of problems for management of such resources. These problems include over fishing, lack of an adequate allocation scheme, uncontrolled incidental catches, gear conflicts, inadequate enforcement, unsystematic statistical reporting and uncoordinated scientific research.

The inability of fisheries managers to control over fishing must be cited as one of the primary reasons why demands were made for unilateral coastal state extension of fisheries zones in the North West Pacific. It is therefore self evident that once the nations of the world began to take an interest in fisheries, it would become impossible to move about the world oceans at will. This very point is the condition of survival for the maritime nation like Japan and it is unthinkable that the international order of the sea would undergo a change in this regard, at least for the time being.

CONCLUSION

Japan's identity from the geostrategic point of view is that it is a maritime nation located in North East Asia and surrounded on all sides by the sea. It is the first non-western country to modernize through its own efforts. It is now in a position to use its own experience of modernization to contribute to the rest of the world. In a broader sense it may be summarized that, Japan has passed through two different world situations, one before World War II and another after World War II and this made Japanese to change their geostrategic perceptions of marine resource exploitation from time to time.

Japan is not only a maritime nation but rather an insular nation as well. In geographical and cultural terms, it is an isolated one and hence stands as a particular case without parallel elsewhere. Chapter one describes, the historical evolution of Japan since Tokugawa period to the present century and Japanese geostrategic perceptions of marine resource exploitation. Chapter two describes the factors that have actually influenced Japanese geostrategic perceptions to explore marine resources.

It should be noted that each and every act of external relations provided a direct stimulus to Japanese modernization. Japanese were very sensitive in this regard. The concepts of competitiveness emerged among them. It helped because developing national strength, so as not to fall behind in this competition, was something about which the Japanese became unanimously and very seriously concerned. Japanese felt that they could rely on their own resources in this international competition with the advanced countries. Of course, the Japanese did very actively study the methods of the advanced western countries and rapaciously, but selectively in line with their own needs, adopted the systems, and technologies of the West. In this context the role of government was great since it adopted the policies of advanced civilization.

With the passage of time Japanese eventually did away with their policy of isolation and established the trading relationship with other countries of the world. From the pre war days only, Japanese trade started to prosper, followed by an increase in marine products. However, Japanese economy experienced a halt in their growth process during

the World War II and this ultimately ruined Japanese industries to ashes. From 1950s onward Japan started to rebuilt its economy, and gradually come up with all such difficulties that were there in the World War II phase. A great difference is noticed in the application of Japanese geostrategy in marine resource exploitation. Japan started to cultivate various ways and means to exploit marine resources with best ever technologies, to feed its ever-increasing population and gradually gained fame in the world market. The success of Japanese is nothing spectacular. It is the wisdom, energy and discipline of the Japanese that made such incredible success a living reality without any parallel in the post war history of nation building.

Today, Japanese economy is absolutely depended on open trade via the seas for every one of its resources. And from this perspective; Japan is undoubtedly a maritime nation. That is why for Japan the importance of sea lines of communications are so great. Chapter three describes major strategic trade routes of Japan and the sea borne trade. It portrays the picture of Japanese sea borne trade in the world market. Chapter four on the other hand describes the Japanese technological up gradation in resource exploitation.

After World War II many countries got independent. And this has increasingly led to the interference of sea resources exploitation. Even the geographically disadvantage and the land lock nations started to claim their maritime jurisdictional zones. Earlier Japan used to move the oceans at its will when other countries were less interested in fishing; since they had rudimentary maritime technologies and their needs for resources were also less. The successive establishment of 200 nautical miles Exclusive Economic Zones by the major countries of the word including the United States, European Nations, and the Soviet Union, has given a serious blow to Japanese distant water fishing which is to provide 4 million ton of Japan's total annual catch. With the reduction of Japanese total annual fish catch, it has focused more on aquaculture and coastal fisheries. The growth of population of Japan has also led to the exhaust of the existing resources like coal, wood, cotton and even fishes. This has increased the dependency of Japanese sea borne trade.

Japan now depends upon the international orders in marine resource harnessing which are subjected to change from time to time. Chapter five describes the external factors in Japanese marine resource exploitation. It is seen that Japan's future will depend on to what degree the country can master these international order. Oceanic resource conflicts are getting aggravated over the years, with many countries arriving in the picture, bargaining for power to move the world at their wills. Therefore so many international organizations have sprung up in managing ocean resources but none of them provided a suitable solution as yet. Japan has also become the member of many international organizations in conserving and preserving marine resources in North West Pacific since the country has faced several threats in marine resource exploitations.

It may be said that maintenance of world peace and friendly relation between Japan and other nations of the world has become an absolute necessity for the subsistence of Japanese economy. The first changing global political scenario, location remains to be highly relevant in the political geography of political entities. In every respect Japan is a peaceful island country unlike any other country in the world. The peace of the country has been protected by the sea that is a natural barrier and by the resourcefulness and wisdom of the people. As Japanese have always depended on the sea in the past, so they still depend on it today. Sea is the pre condition for the survival of maritime Japan.

APPENDIX

Appendix-I

Table 1.1 Japan's Seafood Production by Type of Operation Japan, 1960-2000.

Types of Operation	Values in Thousand Metric Tons								
	1960	1965	1970	1975	1980	1985	1990	1995	2000
Pelagic Fishing	1410	1733	3429	3168	2121	2001	1698	1254	1140
Offshore Fishing	2515	2788	3279	4469	4125	2569	1256	968	758
Coastal Fishing	1893	1861	1889	1935	2037	3022	3458	3695	4111
Marine Aquiculture	589	598	549	773	992	1258	2560	3321	3699
Inland fisheries	369	487	589	598	688	789	895	1254	1326

Source: Ministry of Agriculture, Forestry and Fisheries, Japan, 2001.

Appendix-II

Table 1.1 World-wide and Japanese Seaborne Trade 1950-2000

Years	World Exports	Japanese Exports	World Exports	Japanese Exports
	Million Tons		Value in Percentage	
1950	894	117	100	4.08
1960	1028	167	100	8.24
1970	2082	403	100	10.35
1980	3072	604	100	12.66
1990	3977	770	100	13.36
2000	5161	1018	100	14.72

Source: Facts and Figures of Japan, 2004, Foreign Press Center, Tokyo, 2004

Table 1.2 The Export Volume of tonnage of five ports of Japan, 2002

Ports	Export volume of Tonnage in metric tons
Nagoya	27,959,728
Kobe	29,438,488
Osaka	19,012,629
Yokohama	31,479,169
Tokyo	33,589,177

Table 1.3 Export value of Tonnage of five ports of Japan, 2002

Ports	Export value of tonnage in million dollars	Value in percentage
Nagoya	9729	30.42
Kobe	6782	21.20
Osaka	4781	14.96
Yokohama	5621	17.57
Tokyo	5071	15.85
Total	31984	100

Source: Japan Statistical Year Book, Ministry of Transport, Japan, 2003

Appendix- III

Table 1.1 Share of Exported Technology out of Total Export(Values in Percentages)

years	exported technology
1960	10.02
1965	11.98
1970	13.78
1975	19.08
1980	20.48
1985	20.96
1990	21.48
1995	26.82
2000	30.72

Source : Japanese Ports and Harbors Bureau, Ministry of Transport, Japan, 2002

Table 1.2: Item wise the export of marine technology of Japan, 2003

Item wise exported technologies	Values in billion yen	Percentage values
Fish resource	137.92	23.35
Ship building	274.81	46.54
Pearl culture	12.32	2.08
Base Port Development	78.94	13.36
Ocean energy	60.72	10.28
Other	25.72	4.35
Total	590.43	100

Table 1.3 : Country wise, the export of marine technology of Japan, 2003

Countries	Values in billion wise	Percentage values
USA	274.72	33.82
Canada	200.23	24.65
China	190.00	23.39
Taiwan	80.72	9.93
Thailand	30.71	3.78
Korean Republic	15.24	1.87
Others	20.49	2.52
Total	812.11	100

Source: Statistical Bureau, Ministry of Education, Culture, Science and Technology, Japan, 2004.

Table 1.4: Japan Status in Ship Building Japan, 1950-2000.

countries	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000
Japan	8	9.06	27.48	36.25	49.3	51.92	53.8	52.5	55	49.8	48.4
Europe	52.94	54.82	52.1	33.82	31.5	29.14	24.6	23.8	15.6	14.1	14
United Kingdom	39.06	36.12	20.42	10.48	16.8	15.46	10.4	9.25	6.34	4.28	2.1
Korea						3.48	8.72	10.6	19.6	25.5	27.4
China							2.48	3.82	3.42	6.28	8.1

Source: Facts and Figures of Japan, 2004, Foreign Press Center, Tokyo, 2004

Table 1.5: The Proportion Of Waste Disposal Land Verses Sea, Japan 2000

Sites	Amount of Waste disposed(values in %)
sea	22.4
Land	77.6

Source: Facts and Figures of Japan, 2004, Foreign Press Center, Tokyo, 2004

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