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Integrating shipping and shipbuilding policy into the national development strategies of the republic of Turkey

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INTEGRATING SHIPPING AND SHIPBUILDING POLICY INTO THE NATIONAL DEVELOPMENT STRATEGIES OF THE REPUBLIC OF TURKEY

(CONSIDERATIONS FOR ECONOMIC DEVELOPMENT AND FINANCE BY TAKING INTO ACCOUNT RELATED EC POLICIES)

by

Levent Nehir

TURKEY

A paper submitted to the Faculty of the World Maritime University in partial satisfaction of the requirements for the award of a

MASTER OF SCIENCE DEGREE in GENERAL MARITIME ADMINISTRATION

The contents of this paper reflect my personal views and are not necessarily endorsed by the University.

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INTEGRATING SHIPPING AND SHIPBUILDING POLICY INTO THE NATIONAL DEVELOPMENT STRATEGIES OF THE REPUBLIC OF TURKEY

(CONSIDERATIONS FOR ECONOMIC DEVELOPMENT AND FINANCE BY TAKING INTO ACCOUNT RELATED EC POLICIES)
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L. N
18.10.1990, Malmoe
ABSTRACT

This study is an approach to finding out about the roles of shipping and shipbuilding in the national development of a country in connection with the aspects of financing ships and financial sources.

The main arguments are the need for shipping and shipbuilding activities for economic development and an extreme importance of establishing and using the financial arrangements in these industries. For this purpose, this research reflects the scene from the implementation and undertaking of major shipping and shipbuilding countries as well as from the practices and experiences of the European Community. In addition, the international implications of the EC shipping and shipbuilding policies are explained.

Trying to do this, the inevitable relationship between shipping and shipbuilding is emphasized by examining the changes in both world shipping and the shipbuilding environment. In this respect, possible proceedings and techno-economic developments for further policy making are also considered.

The sources of finance and their problems practiced due to the happenings in shipping and shipbuilding markets are also elaborated by bringing examples from the applications in traditional maritime countries and newly industrialized countries.

Even though the economic aspects and institutional issues of shipping and shipbuilding are taking place in this paper, the main subject is ship finance and the application of financial sources. In fact, the paper also
emphasizes the financial needs for replacement of old world tonnage expected during the next decade and the amount of finance to be needed by shipping and shipbuilding industries.

In order to clarify the present situation of shipping and shipbuilding in Turkey, background and developments in these industries as well as the use of financial sources are included. The author of this paper believes that the policy taking into consideration the replacement and expansion of the national fleet should be in line with the development of shipbuilding. This is more suitable and exhaustive for the contribution to the national economy in a country.

Under the highlights of the international implications of the EC shipping and shipbuilding policies, the possible developments in Turkish shipping and shipbuilding are reviewed by taking into consideration the possible proceedings in the membership relations between Turkey and the EC.

Finally, the research concludes by recommending a rationalization program and measures as a package for further development and modernization of shipping and shipbuilding industries in Turkey. It is believed that due to the inherent nature of strong relations and connections between shipping and shipbuilding industries, the rationalization program can only be fully appreciated by taking into account the program as a whole with the measures for implementation.
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ABBREVIATIONS

AWES : Association of West European Shipbuilders
BES : Business Expansion Schemes
C&F : Freight and Insurance
CIF : Cost, Insurance and Freight
CGRT : Compensated Registered Gross Tonnage
DIS : Danish International Ship Register
DWT : Dead Weight Tonnage
EC : European Community
EDI : Electronic Data Interchange
EXIM : Export Import Bank (Japan)
FOB : Free on Board
GDP : Gross Domestic Product
GRT : Gross Register Ton
GT : Gross Ton
IMF : International Monetary Fund
IMO : International Maritime Organization
JDB : Japan Development Bank
KDB : Korean Development Bank
K/S : Kommanditt Selskap
KEXIM : Korean Export Import Bank
LIBOR : London Interbank Offered Rate
LNG : Liquefied Natural Gas
LPG : Liquefied Petroleum Gas
NIF : National Investment Fund (Rep. of Korea)
NIS : Norwegian International Ship Register
OECD : Organisation for Economic Cooperation and Development
Ro-Ro : Roll on-Roll off (Vessel)
TEU : Twenty Equivalent Unit
UN : United Nations
UNCTAD : United Nations Conference on Trade and Development
VLCC : Very Large Crude Oil Carrier

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INTRODUCTION: THE SUBJECT AND THE PURPOSE OF WRITING ON IT

For hundreds of years, shipbuilding and shipping have been major industrial activities bringing growth in trade, economic development and dynamism to a country. In addition, these industries have been long seen as a source of employment potential, prosperity, foreign currency, technology and know-how, defence opportunities and facilities. History proved that control over shipbuilding and shipping has been a necessary requirement for economic success of a country. On the other hand, shipbuilding and shipping have become driving force for the other branches of industry by using their products to build and operate ships. Many countries, taking advantage of the international nature of shipbuilding and shipping have completed their industrialization phases. It is possible to come across these examples even in the second half of 20th century.

Nevertheless, until three decades ago, many developing countries did not pay remarkable attention to the shipbuilding and shipping activities in their economic development strategies. This issue is important, because, the following basic opportunities should be possessed by a developing country on the way to industrialization.

1. A country should not totally rely on ships flying foreign flags for the carriage of its foreign trade goods. Particularly, if its foreign trade is on a continuous increase.

2. The shippers located in the domestic market should have the opportunity to use the competitive services offered by ships flying the national flag.

3. The shipbuilding industry should be developed, at least, to the level of efficient support for a healthy
4. The shipbuilding industry should be considered as a source for employment generation and contribution to the balance of payments of a developing country. It is well known that depending on the industrialization level, shipbuilding industry may well find a place to start developing itself, if per capita is in between 1000 and 2000 US $ in a country.

5. Traders and trading goods should be given the chance of advertising by sailing ships manufactured by national yards and/or flagged by the national flag throughout the world as a powerful reminder.

Having considered these points, a developing country should avoid introducing any protectionist measure which is not acceptable by international understanding, because, as has been experienced, more regulatory measures on cargo sharing and cargo restrictions as well as unfair subsidy programs encourage the less competitive environment which may be the most important and the strong barrier to the development of efficiency and productivity. These sort of measures cause cost increases in shipping and shipbuilding activities. On the other hand, the progress of a developing country may be hampered, if massive application of protectionist measures is in force.

The Republic of Turkey has long been in traditional shipbuilding activities going back to national history in 1300 years in the Anatolian Peninsula. Also activities of operating ships have been existent for centuries, because of being surrounded by sea on three sides and being located on the cross point of three continents. However, there is a fact that these industries have not been comprehensively performed as a main industrial activity which would take off the economy into further development.
since the initial years of the Republic of Turkey. The problems practiced, inter alia, have possibly been mostly in finance and financial arrangements. In addition, the lack of research and development on maritime economics has prevented these industrial activities from further progress.

Under the heading of the above mentioned points, the objectives of this study are to trace the role of shipping and shipbuilding industries in the economic development of a developing country and to find out the financial aspects which encounter the difficulties in these industries. Also, the current position of the world merchant fleet and shipbuilding industry will be elaborated in terms of age and type of ships to be replaced. The outstanding capacity of the shipbuilding industry during the 1990s is also in question in this paper. In addition, EC shipping and shipbuilding considerations will be covered from the financial aspects point of view. Hence, the future market conditions for ship finance as well as its requirements for competitiveness, efficiency and productivity will be worked out in the paper in order to estimate whether there is any possibility of increasing the share of developing countries in the world shipbuilding industry.

Then, after having discussed the situation and progress in the shipbuilding industry and world merchant fleet, the need for a rationalization program which is applicable in the Republic of Turkey will be introduced. The framework of this program will be drawn up by considering its contribution to economic development.

The content of this thesis depends on the economic considerations and financial aspects of both the shipping and the shipbuilding industries. While the first part of
thesis has been devoted to world shipping and shipbuilding, the second part has covered Turkish shipping and shipbuilding as well as EC considerations for its member states.

Chapter One looks at economic growth and position of demand for shipping services in the world. Chapter Two and Chapter Three are concerned with world shipping and shipbuilding industries in terms of recent proceedings and likely developments by taking into consideration their roles in economic development. Chapter Four is devoted entirely to sources of finance and their applications by taking into consideration the applications of leading shipbuilding nations. In this chapter, the activities of both government and commercial institutions are explained in respect to measures of financial assistance, credit schemes, securities and requirements of financial transactions. In part two, the Turkish shipping and shipbuilding as well as related EC policies are brought into discussion in terms of economic development and finance. The inconsistencies and needs of the Turkish national fleet and shipbuilding are examined in Chapter Five and Chapter Six, respectively. In these chapters, the existing capacity of shipbuilding and requirements for a merchant fleet until the mid 1990s are also laid down. In addition, the availability of the financial resources for newbuildings and replacement of old tonnage is to be brought into the picture. Chapter seven concentrates on the financial aspects of shipping and shipbuilding policies of the EC by examining the measures for financial assistance and their compatibility problems with the common market principles. The possible relationship between the Turkish and EC shipbuilding industries is outlined in Chapter Eight. In this chapter, taking into account the likely developments in the membership of Turkey in the EC,
the possible interactions are predicted. There is no doubt that further relocation of the shipbuilding industry is an opportunity for cooperation between Turkey and EC member states. Hence, it may be possible to take advantage of having the potential for Turkish shipbuilding and existing know-how, as well as technology available in EC member states.

As to the conclusion, after having discussed the roles of shipping and shipbuilding in economic development and sources of finance as well as financial aspects, the framework of a recommended rationalization program and measures of assistance will be defined. This program, by considering the undeniable strong connections between national merchant tonnage and shipbuilding, will cover the requirements for improvement and development of existing shipbuilding facilities in Turkey.
PART ONE

ECONOMIC DEVELOPMENT IN TERMS OF SHIPPING AND SHIPBUILDING

CHAPTER ONE

MAIN INDUSTRIES DEMANDING SHIPPING SERVICES

1.1. - WORLD ECONOMY AND GROWTH

Economic performance in the 1980s has differentiated broadly among countries and continents. The industrialized countries have done well in their growth although the development rates were lower than those of the 1950s and the 1960s. As a high rate in the world, economic growth in Asia has been faster than in earlier decades because of developments in the newly industrialized nations of this continent.

The economies of countries vary greatly in their structural framework, domestic development strategies and policies. To a great extent, it depends on the effects which come from external shocks and economic policies implemented by the countries themselves.

The prospects which the developing countries will face in the coming decade will depend essentially on their own industrial productivity and commercial activities. The environment which is created by the activities of developed countries is also important for future developments in developing countries. Within this framework, one of the most important issues is keeping the international trading system open in which the protectionist measures and barriers are minimized as much as possible. The actions of international financial
communities providing external resources for the developing countries are crucial matters with respect to growth and industrial adjustment¹.

Being faced by circumstances which have changed in the world economy, for instance the new international division of labor in the shipbuilding industry and shifting of trade patterns in world trade, countries do not have any alternative other than to adjust their economies to the new requirements now. It is quite obvious that the countries, particularly being out of the open market economies which can easily harmonize themselves with the changes, have recognized the need for reforms in order to increase economic efficiency and flexibility during the 1980s.

Out of economical restructuring activities in the countries, there are remarkable efforts for regional integration in the world. After attempts by the European Community (EC) to become the common market at the target date 31.12.1992, in other regions, regional cooperative networks and common market initiatives which have already been established are being revived or strengthened. In the Pacific, Asia, Latin America and North America, the countries located in the same regions have agreed to set up regional common markets or free trade associations among themselves². It can be seen that the world economy will be diversified by restructuring into economic blocks trading between each other. Within this scope, many developing countries individually will face common customs


tariffs and barriers which will be applied by economic blocks.

The optimistic figures for the world GDP until 1992 is given in the table 1\textsuperscript{3}.

1.2. - THE ROLE OF SEABORNE TRADE IN ECONOMIC DEVELOPMENT

The share and the role of the developing countries can not be easily seen within the whole world economy, unless the volume of world export and import goods transported by sea is considered. In 1984, developing countries generated 46.5% of the volume of world export goods and performed 25.4% of the volume of world import goods. Namely, export and import volume of developing countries is 2.4 times more than the carrying capacity of their merchant fleets.

The seaborne trade increased 27% between 1970 and 1984 or at a compound rate of barely 1.51% per year during a 15 year term\textsuperscript{4}. The value of world exports, if prices which existed in 1975 are taken as a basis, rose from 13% of world GDP in 1960 to 20% in 1975 and to 23% in 1979. After declining to 19% in 1982, it reached 21% in 1984. As shown by these figures, the tonnage of goods in international seaborne trade boomed between the 1960-1975 period and reached from 1.030 million tons to 3.144 million tons. After this period, it grew globally and reached 3.293 million tons in 1985 and 3.677 million tons


in 1989. The rate of rise was 17.7% of the figure.

If it may be emphasized again what was mentioned in the previous paragraph about the portion of seaborne trade to world GDP and rate of share within the entire world trade, seaborne trade and of course shipping can be taken into consideration, to some extent, as a single economic unit diversifying important sub-divisions, that is to say liner and bulk shipping industries.

The shipping was seen as the catalyst of economic development of a country centuries ago. Time proved that it is a principal stepping stone for economic development. As it is the subject matter in modern economics, in order to achieve high levels of efficiency in a business which is working in a country, the links should have been set up outside the country by trade, otherwise the degree of specialization would be limited within a small market in the country. The trade links between overseas countries would only be supplied by seaborne trade through the shipping industry as a source of cheaper transport mode. In fact, it can be said that economic development has gone hand in hand through sea transportation throughout the centuries in which the trade was started as a kind of commercial element.

Since the 1960s, within many developments in the shipping industry and seaborne trade, the introduction of unitization and bulk shipping have brought a new scene in order to create global markets for both the manufacturers of finished goods and raw material producers.

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1.3.- THE DEVELOPMENT OF SEABORNE TRADE

Maritime transport is an essential way to trade goods and of great importance for the world economy. The international seaborne trade has increased faster than world trade in the last three decades.

The rapid expansion of world trade and its seaborne part, after the second world war, came to an end with the economic crisis which was started by the oil shock in 1973. Nevertheless the seaborne trade recovered slowly after the sharp decline in 1975 and reached to a figure around 3900 million tons in 1989.

The composition of trade has shifted to the manufactured goods and processed raw materials which have higher added value in comparison with pure raw materials. For example, oil trade conditions have faced substantial changes in volume, nature of commodity (Product instead of crude oil) and destination. Among these, perhaps the major development is the change of nature of commodities transported. The raw material producers have started to participate in processing and manufacturing raw materials in order to gain and export at least semi-processed materials. This proceeding has affected the distance the commodities are carried by sea transport. Also, this tendency related to the trade of more finished goods has influenced liner and neo-bulk shipping. In the bulk trade, there has been another observation that mineral ore and coal shipments have been affected in volume by increasing transport of recycled scrap material such as copper, aluminum and steel.

Fearnleys' "Review 1989", p.4, Oslo, 1990
Containerization which can be so called techno-economic major chance in maritime transport as well as all other transport modes started up in the 1960s as an expectation for solving the problems raised by traditional general cargo transport. Starting in the year 1960, the boom in world trade made the traditional break bulk carriers unable to cope with escalating volume of seaborne cargo. The unitization, more detailed palletization and containerization, were inserted into the trade patterns to overcome the difficulties such as delay, destruction of cargo and inefficient operations. On the other hand, the bulk shipping reduced the cost by carrying huge amounts of raw material by one shipment such as mineral ores, oil and grain. This helped the industries in respect of using the advantages of economies of scale. To a certain extent, these operations made it possible to supply the need of raw materials from thousands of miles away from a country and even with a cheaper price than which may be available within the sources of the country itself. In addition to all the above mentioned changes, the trade itself faced some new concept of commercial process. Bartering, although it has been preferred in trade between east and west for years, has started to become an important trade element among developing countries.

As a result of these developments, the concept of international trade has gone into reshaping which brings obligations to be competitive in the market such as efficient shipping operations in terms of ships, ports, shipbuilding, labor force, manning and so on. To some extent, because of particularly having comparatively better advantages as to cheaper labor force and services, the newly industrialized countries have benefitted from shifting international trade patterns.
1.4. - SHIP DEMAND-ORIENTED INDUSTRIES AND MAJOR BULK COMMODITIES

Dry bulk trade has close interlinks to world economic growth. The five major bulk commodities account for some 60% of total dry bulk trade. There are iron ore, coal, grain, alumina/bauxite and phosphate rock. Only the first two make up 40% of all bulk transport. The trade of iron ore and coal is also dependant on the steel industry. On the other hand, the coal itself is a main fuel for power plants generating energy.

Grain as an agricultural product is subject to climatic conditions.

The world economic growth experienced during the 1980s is expected again in the 1990s. The corresponding development in dry bulk trade indicates that the world bulk trade will increase 2% annually. Due to this, the dry bulk tonnage will rise to the 2.3-2.4% of total tonnage during the 1990s.

1.4.1. - IRON ORE AND STEEL INDUSTRY

Today, steel, as a material, keeps an important place for many industrial areas but there is no doubt about that it is fundamentally used in the shipbuilding industry and one of the basic cargo sources for the shipping industry.

During the 1980s the steel industry has been invaded by certain restructuring patterns. While advanced steel manufacturing countries, such as Japan, USA, the Federal Republic of Germany and France reduced their production,
the semi-developed steel producing countries like the Republic of Korea and Brazil expanded their capacity. It can also be considered that the steel production capacity of some of the centrally planned economy countries was increased. In recent years, almost all regions has been successful in the steel making industry. The crude steel output reached 737.5 million tons in 1987. It was 3% less, namely 715.8 million tons in 1986. Although there was the sharp decline in October 1987 in the stock market, the overall world economic growth and recovery made it possible for world steel makers to sustain their production in 1987 and also 1988. As is seen, from 1986 to 1987 world steel production increased 29.7 million ton in favor of developed countries and centrally planned economies.

World crude steel consumption has been on the rise since 1982. In 1987, this consumption figure was around 738.9 million tons. The growth rate of the 1980s can be considered 0.5% per year. The developed market economy countries have experienced downward trends in steel consumption. But, in the centrally planned economies steel consumption was on the rise. Particularly, the highest consumption value was in P.R of China, 36.7 million tons. The newly industrialized countries of south east Asia have had the 10.3 million tons increase in consumption in the same period. It can be explained that why in the developed market economies the consumption went down by saying, inter alia, industrial structure has been shifting towards a less-steel intensive pattern instead of heavy industry like steel consuming shipbuilding. On the other hand, the service intensive industries have increased their share in

total gross national product. There should not have been a mistake in this respect by accepting the existence of mandatory trends for deviation in raw materials transport for the steel making industry from the developed market economy countries to newly industrialized countries and also to developing countries which are trying to expand their steel production. This is an evident and the strong reason, inter alia, for a need for having national fleets to carry, to a certain extent, their own cargo destined to newly industrialized and developing countries. For example, The Republic of Turkey ranked 22nd in world steel production with the increase from 2.4 million tons in 1981 to 7 million tons in 1987. Turkey actually has 8.6 million ton production capacity a year. Of this, 1.8 million tons is used for flat products, 210,000 tons for special steel, the remainder is long products. However, necessary steel products are imported from abroad. The Turkish shipbuilding industry is not in a position to consume huge amounts of steel in comparison with the other shipbuilding nations, because it is not the industry among others exporting substantial amounts of manufactured goods. Therefore, the Turkish steel makers are not interested in producing steel especially for use in shipbuilding.

The transportation of iron ore as a raw material is dependant on the situation of the steel industry. For the time being, steel production in Japan, The Republic of Korea, Taiwan and, to some extent, USA and Western Europe influences iron ore transportation by sea. The countries having their own iron ore resources do not have any affect on the shipments even if their steel production is increasing. Nevertheless, the transport requirements can not change substantially year by year as in the grain trade. From this stand point, the fleet engaged in this
trade is in quite a stable environment in respect of freight rates, employment and replacement of ageing tonnage.

1.4.2.- THE CRUDE OIL AND OIL INDUSTRY

The oil industry, in terms of production and consumption is very important to shipping and consequently the shipbuilding industry in respect of supply and demand of tankers. Starting from the year 1986, world oil production was increased 0.52% from 2.932 M tons in 1986 to 2.925 M tons in 1987. Oil consumption was 2.899 M tons in 1986 and 2.941 M tons in 1987. The oil demand increased 1.4% in OECD countries and 1.1% all over the world outside the centrally planned economy countries from 1986 to 1987. The production of centrally planned economy countries increased by 1.7% over 1986.

In 1988, the world production of crude oil (including liquefied natural gas) increased by 3.6% in the 1987. In addition to this, world oil demand outside the centrally planned economy countries increased 3% from 1987 to 1988. Shipment of crude oil from the Middle East to OECD was forced upward from 970 million tons in 1987 to 1050 millions tons in 1988. As a response to this high amount of shipment, 1988 was the best year for freight rates and also for tanker owners. Due to the performance of crude oil trade in 1988, the tanker tonnage balance improved in terms of supply and demand. The lay-up tonnage decreased to the lowest figure (3.7 M DWT) since 1974. At


the end of 1988 the lay-up tonnage practically disappeared. The trading tanker tonnage was 235 million DWT, if it is compared with 225 million DWT in 1987. Also demand for product carriers increased 2% in 1988 compared with 1987. It was 315 million tons 1988\textsuperscript{11}.

The world crude oil and LNG production was 3.1 billion tons in 1989. This figure represented an increase of 1.7% or 50 million tons over 1988 output. In 1989, the growing consumption in OECD countries was 0.5% over the 1988 figure. Outside the OECD, oil demand market rose \%4.5. The largest increase took place in South East Asia where consumption grew by 12% over 1988. The increase in demand for tankers in respect of crude oil and oil products prevailed in 1989. The rise of demand for transport was 11.1% for crude oil and 3.1% for oil products over 1988\textsuperscript{12}.

1.4.3.- AGRICULTURAL PRODUCTS

This category of bulk transport is mostly represented by grain in its majority. Grain production is normally subject to change year by year. If the climatic conditions are experienced unexpectedly and unfavorable for certain countries, they import substantial amount of grain.

During 1989 grain was one of the most active commodities that is its production was 1,867 M tons accounting for the figure which was 6% higher over the


1988 rate. The freight rates were also strong during the same period. Throughout the year, Japan, USSR, China (PDR) and Egypt were buyers of substantial amounts of grain.

In fact, the forecasting of agricultural commodity trade is rather difficult, because of its dependency on the weather conditions changing year by year and country by country. This inherent nature changes the route of grain transport annually from one country to another. Irrespective of this nature, available statistical data is indicating that the grain trade is increasing.

In agricultural bulk trade, there are other products which can be classified as agri-bulks. However, their trade does not substantially take place in maritime transport as in the case of the grain trade.

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CHAPTER TWO

THE ROLE OF SHIPPING INDUSTRY IN THE ECONOMY

2.1.- SHIPPING AND ITS CONTRIBUTION TO THE WHOLE ECONOMY

International trade is intensively dependent on shipping. Today, the volume of 90% of world trade and about 94% of developing countries trade are transported by sea because of its low transportation costs\(^1\). For this reason, effective use of shipping is an important element in the economic progress of developing countries as to their foreign trade and coastwise shipping if it is available in the country.

According to the data given by the International Monetary Fund (IMF), developing countries had US$13.6 billion net foreign exchange outflow in 1975 related to ocean shipping services. After that date, year by year this outflow increased. The UNCTAD study in 1982 showed that the figure of foreign exchange outflow went up to US$ 33 billion. This affected seriously the balance of payments configuration of developing countries. On the other hand, it contributed to the creation of the debt problems of many developing countries\(^2\).

Being aware of this problem, many developing countries have started to build up their own national merchant marine fleet. As developing countries, this

\(^1\) Frankel, Ernst G. "Shipping and its Role in Economic Development", Marine Policy, p.22, January 1989

might be a result of being more dependent on international trade. They have strong connections with developed countries as to their need to sell raw materials, agricultural products and relatively low technology manufactured goods as well as import industrial goods like machinery, equipment, high technology manufactured goods and so on. This situation has appeared during the post war period and particularly in the last decades. The rapid economic development in certain parts of the world has relied extremely on international trade. As was noted before, the fundamental element of international trade today is maritime transport and of course ships themselves in different types and sizes. Besides contributing directly to the economy of a developing country, as was realized and sought by developing countries, shipping is providing employment and other opportunities such as strategic achievements.

2.2. - SHIPPING OPTIONS AVAILABLE FOR DEVELOPING COUNTRIES

During the last decades, developing countries were trying to expand their national fleets and participate in international maritime transport services and the shipping industry. As is known, to take part actively in maritime activities requires capital for investments, skilled manpower and sophisticated infrastructure from the technological, commercial, administrative and legislative points of view. Depending on the kind of infrastructure available and/or already developed, there are options for the developing countries to develop their shipping activities.

First of all, a developing country can ignore the organisation of maritime transport arrangements. In this case, the developing country does not have a national fleet. Therefore, it exports C&F (Cost and Insurance) and/or CIF (Cost, Insurance and Freight) and imports FOB (Free on Board) terms. Hence, all shipping arrangements are done by trade partners. The country is not able to control the freight rates. Even, its position may be very weak in the negotiation of freight rates.

As a second alternative, a developing country can establish national shipping companies either private or state owned. These companies can arrange the transportation of goods individually with foreign owned shipping companies. There may be some control and/or negotiation opportunities on freight rates to be done by individual companies.

Thirdly, in order to get more strong positions in negotiations for freight rates, if the administrative and legislative infrastructure is sufficiently available, the shipper companies can be associated under the umbrella of shipper associations. In this case, the bargaining position and power of the shipper organisations increase in the negotiations for freight rates and other shipping arrangements. This situation can give a chance to control the cargo movements if the country is a supplier of raw materials as bulk commodities.

The fourth option is to establish government owned and/or privately owned shipping lines in the country itself. These companies can charter the ships on the basis of voyage, time and/or bare boat charter in order to participate in the transportation of cargoes owned by the country itself. In this case, leasing is another option.
providing the opportunity of possession of the ships as property of the country at the end of the contract period. Hence, the control of freight rates can be taken over and even the liner conferences can be participated in by the shipping companies themselves.

One more step forward, as a fifth option, is to own domestic ships by national shipping companies in order to serve in the transportation of foreign trade goods of the country. In this case, the shipping companies established in the country can operate their own ships, as an operator inside or outside the conferences. The tramp shipping may also be participated in if so desired by the shipping companies.

The last option, which is sixth, is establishment and expansion of the national fleet in order to participate in all shipping activities such as tramp shipping, liner conferences, cross trade and so on. This is the most developed one in terms of participation in shipping activities for a country. In this case, to control and negotiate the freight rates and other shipping arrangements are possible under the market conditions.

As a parallel development to these options, normally starting from the third option, establishment of shipbuilding and shiprepairing activities in the country can be considered as a support to the national fleet, because, having chartered, leased or owned ships in operation requires repair and maintenance. Considering the establishment of shipyards for newbuilding and repair can be reasonable for the national fleet has already reached a certain sophistication and possession of the variety of ships. Having the national shipbuilding industry may assist the replacement of old ships and expansion of the
fleet itself. In addition, this industry may be a source of earning foreign exchange in terms of contribution to the country's balance of payments. Nevertheless, importing ships is another option for the purposes of replacing old ships existing in the fleet and/or fleet expansion.

2.3.- CHANGES IN SHIPPING

The last two decades have brought into the agenda of shipping not only institutional but also technological changes. Varying conditions from day to day in the world economy, political implications of the shipping industry, technological progress resulting from scientific research and their applications on the one hand, apparent interactions in international trade between developing countries and developed countries on the other hand were the main reasons for changing the shipping environment. The new requirements for national developments which were needed by developing countries for rapid development contributed to changes which influenced all sectors of maritime activities.

There was economic development to encourage technological proceedings. Shifting of trade patterns, the size and the physical form of commodities, multimodal thorough transport systems and competition between companies from different countries were the main factors in economic development which invited major technological advancements in shipping. However, in order to cope with the problems raised by the the growing needs of transport, the unitization was widely introduced in world trade.

All above mentioned changes which the developing countries have faced during the last decades required keen competition.

2.3.1.- TECHNO-ECONOMIC CHANGES

The remarkable effects of technological changes have been firstly apparent in the size and speed of ships. In the last two decades, the designers have paid more attention to faster ships to gain more efficiency in terms of fuel consumption, operation time and cargo carrying capacity. The target was faster ships with larger size and economic in fuel consumption per ton carried.

Under the fluctuating market conditions and changing shipping environment in terms of seaborne types of commodity, it was seen that there was a need of a ship type which was able to carry particular cargo in one direction and another type of cargo for the return voyage. To cope with the difficulties related to inflexibility to carry different types of commodities, Oil/Bulk/ore carriers was designed and constructed. So, the owners of these type of vessels have been able to move into the oil market from ore transport or vice versa, in case of crisis in one of the markets. This was a help to reduce the surplus tonnage. It was the case of applying the same idea to bulk carriers with respect to container transport. Most of the bulk carriers were equipped to carry containers on their decks.

Increasing seaborne cargo trade and variety of manufactured goods have caused widely introduction of unitization into liner shipping. Consequently, pure cellular container shipping was started. The time from the first generation container ships which have had a carrying
capacity of 1300-1600 TEU to fourth generation container ships with the carrying capacity of over 4000 TEU has taken about 30 years. This technological progress has required efficient land-based facilities which should have more advanced cargo handling equipment. There was also a need for highly trained labour force which was qualified to handle the operation of computer-aided logistic systems for land-based facilities. To get rid of difficulties raised by increasing cargo traffic through technologically advanced ports, the multimodal transport system which was inserted into the whole operation of transport also covered road and rail modes. The Electronic Data Interchange (EDI) system has appeared for more effective documentation procedures.

Despite the fact of the existing slump in different sectors of maritime transport during the past two decades, the competition in the market has enforced the companies to set up new arrangements in the forms of consortia, joint ventures and joint services particularly in liner operations. Some of the companies preferred to merge with each other. Especially in liner shipping, these sort of arrangements have found wide applications in order to avoid inefficient and unprofitable operations. This tendency made the ships larger in capacity year by year. Consequently hub-ports which are so called "Load Centres" in certain regions have been established. Feeder services have been started up to spread cargoes around from the load centres. There is no doubt that highly competitive environment and necessity of large capital resources for new port construction as well as the need for high level qualified man power in maritime transport and port operations were the reasons for the successful surviving of load centres.
In essence, the larger the ship the lower is the cost of transport per ton. On the other hand, rising manning costs was the reason for automation by which the ships have been equipped. Thus, less manned fully automatized ships appeared in the shipping market. Particular ship types have showed up under the special market conditions such as pure car carrier, timber carrier, Ro-Ro vessels and refrigerated cargo ships, because of competition requiring efficiency in terms of loading, discharging and sailing times and more convenient accommodation for particular cargoes.

2.3.2.- INSTITUTIONAL AND STRUCTURAL CHANGES IN SHIPPING

Having the nature of being the international industry, world shipping has undergone major institutional and structural changes within the last two decades.

In recent years, the developing countries have started to pay more attention to investing in the shipping industry within their national development strategies than they did ever before. However, the new developments and changes should be definitely pursued after investing in such a capital intensive industry to keep the position in a certain place which can grant competitiveness.

One of the most important influences on shipping was the development of intermodal infrastructure. Inland haulage systems such as double-stuck trains, trucking networks and information technology applications accelerated not only land based transport itself but whole transport chains through ocean transport. The structural developments relating to the distribution systems which were started to be built up in the last decade were the new face of intermodalism which the shipping industry
would run into. The new logistic systems dealing with the distribution of cargoes through road and rail transport from and to the seaports have required inland terminals. This trend has brought the problem of reduction of ports in number and increase the inland distribution centres in number. This was also the consequence of the establishing of load centres for regions in which several countries were located.

Essentially, the traditional structure of the shipping industry consists of two parts; liner shipping and bulk (Tramp) shipping. From the beginning of the developing countries' introduction into the shipping industry, protectionist measures such as cargo reservation and favourable applications for national fleets have taken place in their shipping policies. Therefore, the existing liner shipping system which is heavily dependant on the UN Code of Conduct for Liner Conferences and its implications have undergone heavy attack by the developing countries. In theory, the Liner Code instructs establishing and running efficient liner services. For this purpose, it sets up principles for government involvement which plays an active role between shippers and carriers. It should have the potential to develop the national merchant fleet in the developing countries by establishing the share of cargo among the exporter countries where the cargo is originated from, importer countries where the cargo is destined for and third parties. This was not realized.

The 1980s have passed under the heavy discussions on the UN Liner Code itself between developing countries and developed countries. The attempts which were targeted to

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revise the provisions of the Code were unsuccessful during the decade. For instance, one of the issues negotiated in many forums of the shipping industry was bulk shipping. In spite of the fact that the raw materials which are traditionally shipped by developing countries can be considered as a fundamental function in order to develop national fleets, raw material transport is out of the liner conference system from which the developing countries do not get benefit sufficiently.

The consequences of implementing the UN Code of Conduct for Liner Services so far, the cargo allocation schemes for which were outside cargo uncovered by conferences, were inserted into the shipping business. These schemes have widely taken place in bilateral agreements. In other words, government control has increasingly got involved in various counter trade arrangements and agreements. This situation has mostly showed up in the shipping policies of developing countries.

Depending on protective issues, understanding of free trade and fair competition have been interpreted differently and confusingly. The role and behaviour of governments related to cargo reservation and protective measures have affected the shipping policies which are particularly for liner trade. These measures were not only the interests of developing countries but also developed countries. It can be easily seen that there are still numerous types of protective measures implemented by some of developed countries that are not in favour of free trade and fair competition.
2.4.- LIKELY PROCEEDINGS TOWARDS THE YEAR 2000 IN THE SHIPPING INDUSTRY

It is known that forecasting is always difficult. Particularly if it concerns the long term future. However, forecasting plays the crucial role especially in shipping investments which require vital decisions. Taking into account this standpoint, even if it is not so easy and appreciable to forecast the probable proceedings in the long run, forecasting for the short run should be well considered, because, unless the investment is well organized in shipping, especially for development of merchant fleets, it can face difficulties maintain the participation in maritime transport.

As has been proven throughout history, shipping was the principal tool for economic development for many examples of economic progress in the world. Taking into consideration this reality, the developing countries have started to pay more attention to developing their national fleets in the last two decades. As being the case of some developing countries which were starting extensively to utilize shipping as a device for rapid economic expansion to get developed country status, the shipping industry will continue to be the main element for national development towards the year 2000. The requirements for this will be forecasting, considering and implementing the changes in shipping itself and related sectors.

The shipping industry is easily affected by world economic recession, debt crisis and stagnation in the development of the developing countries*. To a certain

extent, nationalism in shipping can provide support to progress in the global economy. But, after reaching a certain point, it creates problems in terms of efficiency and profitability within the whole economy. Instead of exporting raw materials, finished or semi-finished goods, export is the main objective for most of the developing countries. This makes it obligatory to consider the different forms of goods and different markets, so the traditional shipping considerations, such as cargo reservation and protective measures will be replaced with wider national economic perspectives to achieve more efficiency and profitability.

2.4.1.- LIKELY PROCEEDINGS IN THE INSTITUTIONAL AND STRUCTURAL FRAMEWORK

Under the conditions of increasing competition and the efforts spent by the developing countries on becoming industrialized, shipping will be more international than ever.

Various types of get together at the company level in the form of consortia, joint ventures and joint services will accelerate the trend of the internationalizing shipping industry. In addition to these activities, computer aided applications in multimodal transport are another facet of this trend. Electronic Data Interchange system application which is considered as a real revolution in multimodal transport will help the shipping industry become more international.

As is known, the UNCTAD Code of Conduct was the most important international agreement affecting shipping during the last decade. The Code itself has influenced the shipping policies of various countries. However, serious
questions have been raised for the future of the code. Currently, the interpretation of the code varies from country to country. Because of the introduction of bilateral and unilateral legislative actions by the agreeing countries which have deviated from the terms of the Code and reinterpretation of the Code’s provisions, the future of the Code is therefore in doubt. In addition, the will of the developing countries that is related to extension of the Code to the bulk trade (mostly raw material) has been a question disagreed by the developed countries so far. Under these conditions, some certain modifications to the related provisions, especially participation in the liner conferences and the extension of the Code to the bulk trade, are expected by the developing countries considering the shipping industry as a part of their development strategies.

The shipping industry is influenced by widely international maritime regulations adopted by international organisations. Considering the developing countries have the majority of votes at the international policy making bodies, it seems that the interests of the developing countries will be satisfied more than the interests of the developed countries during the next decade even if compromises are often reached in decisions.

2.4.2.- LIKELY PROCEEDINGS IN SHIPPING TECHNOLOGY AND OPERATION

It is obvious that shipowners and shipyards will be much more interested in the design and construction of economically high performance ships which may remain profitable under the severe conditions of competition and
depressed freight markets. As was seen in the last decades, the propulsion output was improved by reducing engine fuel consumption and increasing the efficiency both in propeller design and hull hydrodynamics. To reach higher operating performance as much as possible, in respect of avoiding port delays, cargo handling operations will be given more devotion besides the importance of ship speed and propulsion power.

In order to increase the efficiency in cargo handling operations, the hull form of ships will be more suitable to load and discharge the cargo in ship and port interface. For this purpose, catamaran and semi-submerged catamaran hulls will appear as containerships, Ro-Ro vessels and car ferries. Such vessels will be allowed by finger piers at ports for direct easy cargo transfer. Any kind of hull developments will always look for cost reduction in shipping. Particularly, reducing the steel weight of the ship will be a first target. In order to reach it, shallow draft vessels which are 10% to 20% less weighted than deep draft ships will be designed and constructed especially as bulk carriers, and because, they are flexible and usable as a storage facilities, tug-barge ship systems will be widely implemented in future. Additionally, lighter, fuel efficient and less volume machinery and equipment will be utilized as propulsion and operation devices on board. Turbocharging and heat extracting economisers will continue to be the main efficiency creator elements in propulsion systems. All of these applications are devoted to increasing efficiency and productivity in shipping operations in order to reduce operating costs.

As was realized, the ship specialization which depends on certain types of cargo or cargo handling methods have disadvantages in terms of easy quick operation and as a consequence profitability. From the cargo carriage and stowage points of view, the cellular container ship is only able to accommodate certain standard unitized cargo. Although there is not any basic design difference between dry and liquid bulk carriers, their cargo handling and stowing systems are quite different. That's why the shipowning companies have started to pay more attention to combination carriers. This is an indication and expectation that different types of combination carriers such as ore/bulk/oiler ships, bulk/container ships and container/Ro-Ro vessels will appear on the shipping scene to reduce ballast voyage in favour of profitability and efficiency.

One of the most important expectations is that the ship operation will be automated in terms of engine operations and navigation. Gradually, ships will be less manned in the future. The complete use of computers and artificial intelligence will make crewing ships with less than 9-10 men towards the end of the century. Nevertheless, this figure of crew will be composed of highly qualified and trained experts who can handle the operations related to deck and engine departments. Out of the activities on board, vessel traffic systems on shore based on intensive telecommunication activity will regulate the maritime traffic. This also makes it, to a certain extent, possible to operate less-manned ships under standard safety conditions.

On the other hand, less-manned ships in faster services, automation and computerization of on board
operations require reliable and time saving maintenance and repair services. The consequence of investing huge amounts of capital in shipping always urges the ships to come in service. These pressures will restrict the repair operation to a very limited part of the whole maintenance. It means, instead of heavy repair operations on board, engines and their components, equipment, apparatus and devices, either electrical or mechanical, will be replaced in order to reduce the obsolete time out of service. In other words, more standardization will dominate the shipping industry.

Future shipping developments, to some extent, will be the reason for establishment and effective use of intermodal transport. The questions in efficiency, profitability and competition have brought the concept of main centres for loading and unloading into maritime activities. This trend will increasingly continue in the future and some ports will become more active than the others within the same region. The ships will be only such a servant between these huge cargo handling centres. Feeder services, road and railway transport will form intermodalism which will serve in a certain region between consumer and cargo handling centres.

Consequently, the proceedings in intermodalism will put the international shipping and trade into the domestic scene which determines intermodal transport conditions. Governments will feel the obligation to take into account international shipping within their national development strategies, because of the interaction problems between shipping and intermodalism. Coastal shipping will have remarkable importance where the road and rail transport can not be competitively expanded within a country to meet the requirements of efficient intermodal transport
activities.

On the other hand, intermodalism as well as multimodal transport will be greatly helped by Electronic Data Interchange (EDI) systems which will computerize all procedures from documentary credit to handling of all transportation activities. EDI systems will be extensively utilized by the developing countries which will enter into international trade and consider international shipping as a locomotive for economic development.

2.5. SUPPLY OF SHIPPING SERVICES

The world merchant fleet has been expanded over the years by placement of new orders to meet the needs of world trade which were increasing up to 1974. As a consequence, world tonnage increased substantially until 1977. After the first oil shock in 1973, the equilibrium between supply and demand for world tonnage changed in favour of supply. This resulted in a massive laid up tonnage during the late 1970s and the early 1980s. Subsequently, starting from the mid 1980s, the equilibrium between supply and demand of world merchant fleets have begun to settle again. Currently, although recovery has realized, there is still some surplus tonnage in some types of ships.

During the existence of laid-up tonnage, in general, freight rates went down, second hand vessels were low priced and demolition of ships accelerated. Some of the developing countries, e.g Turkey, have benefitted from the low priced second hand ships and expanded their merchant fleets.

Nevertheless, the current situation shows that the
ownership of world shipping tonnage is in the hands of developed market economy countries either under their own nationality or under open registry flags. In 1984, the figure of merchant fleet tonnage was that of 75% owned by the developed countries and open registry together as compared with 76% in 1983. Developing countries were able to increase their tonnage from 15% in 1983 to 15.9% in 1984. However, the share of developed countries and flags of open registries were the 64.2% of total world fleet in 1989. The share of developing countries was 27% of total world tonnage.

After 1980, highly developed developing countries so called "Newly Industrialized Countries" have gradually increased their container ship tonnage. Those which are located in South East Asia have started to participate substantially in liner trade. The developing countries from other regions of the world have been not able to take advantage of liner trade because of lack of adequate container shipping capacity. Currently, their bulk shipping capacity is also not sufficient to participate actively in bulk transport.

2.5.1.- FLAG DISTRIBUTION OF WORLD MERCHANT FLEET

If the situation in the changing of flag distribution is examined, conspicuous changes can be seen in the cases of major shipping countries during the 1980s. The traditional shipping countries which are located in Western Europe (UK, Norway, France, Italy, West Germany, Spain, Sweden, Denmark, Netherlands) have lost their national fleet tonnage from 99.5 M GT in 1981 to 48.6 M GT

in 1988 mostly in favour of flags of convenience. On the contrary, as a total, the open registry countries have increased their tonnage during the last decade from 27.7 M GT in 1981 to 44.6 M GT in 1988. The Japanese fleet has also declined by changing the flag to open registry in the same period to gain competitiveness internationally from 40.8 M GT in 1981 to 32.1 M GT in 1988. In the cases of newly industrialized countries, it can be obviously seen that their fleets have achieved additional capacity by new registrations. Especially the Republic of Korea, Taiwan, Singapore and Brazil. This was because of the massive rise in their export goods. On the other hand, centrally planned economies, as a total figure, have slightly increased their fleets during the same period. The fleets of USSR and China (PDR) together have risen from 31.2 M GT in 1981 to 38.7 M GT in 1988.

Table 2 indicates the ownership of world fleet in detail. This table considers the countries in five groupings as member countries of the Organisation for Economic Cooperation and Development (OECD), open registry countries, developing market economy countries, east European countries (including USSR) and the rest of the world. This categorization is important from the economic potential point of view rather than the geographical location stand point.

In table 2, as was emphasized before, the conspicuous point is the decline of the flags of OECD member countries which can mostly be considered as

"Nagatsuka, Seiji "Trends of the world Shipping and Shipbuilding in 1988 and Prospects for the same in 1989", Jamri, p.27, Tokyo, 1988

developed market economy countries. In other words, shipping in OECD member countries has been in a character of flagged out to open registries in the last decade. Nevertheless, there is the crucial point that the ownership of vessels remains in OECD member countries. (Shown in Table 3)\textsuperscript{11}. The Main part of the fleets of newly industrialized countries are registered in their home countries. Table 4 also shows that the significant part of tonnage owned by USA and Japan is under the flag of convenience\textsuperscript{12}. As is seen, the decline of OECD tonnage has continued from 34 M GT in 1988 to 33.4 M GT in 1989. However, as to technologically advanced ship types such as combination carriers, chemical tankers and liquefied gas carriers, in 1989, OECD flags have increased their share in the world fleet for the first time since 1970. To some extent, it was because of the introduction of new registries in world shipping the so called Norwegian International ship register (NIS) and Danish International Ship Register (DIS). By the end of June 1989, 569 vessels with a total of 24.5 M DWT were entered on the NIS. As is similar to this activity, by mid 1989 about 350 vessels had been registered on the DIS that was representing more than 4.5 M GT\textsuperscript{13}. The same type of other international registries such as the German International Register and so called offshore registries in the Isle of Man, Gibraltar, Bermuda and other dependencies were established for the possibility to employing foreign nationalities with their home country wages to reduce the operational


\textsuperscript{13} Hubner, Wolfgang "Second Registers within the EEC-Actual Situation and Perspectives", p.56, Bilbao, Nov.1989
Although the sudden growth in the tonnage of developing countries that appeared in 1987 and 1988 discontinued in 1989, their fleet has gradually increased between mid 1988 and mid 1989. In this one year term, the tonnage which was added to their fleet was 1.7 M GT. Therefore, their share in world tonnage expanded slightly to 20.1% up to mid 1989.

2.5.2.- THE WORLD FLEET BY TYPE

Other than ownership, one other important aspect in shipping is developments of types of vessels.

As to type of ships, in general, the operations of technologically advanced ships require more sophisticated operational techniques, qualified manning and massive capital investment. Table 5 shows the type of vessels in number and also ownership. It is conspicuous on the table 5 that OECD member countries are less involved with general cargo ships. On the contrary, the developing market economy countries deal more with the general cargo ships. The situation is different in the ownership of technologically sophisticated ships such as chemical carriers, liquefied gas carriers, container ships and combination carriers. These ships are mostly owned by developed market economy countries (Few OECD member countries may be exempted from this category). The Eastern European countries (including the USSR) have very less percentage of technologically advanced ships. As is known, in the recent decade, newly industrialized countries have

increased their ownership in these type of ships. Despite the fact that RO-RO ships have advantages in case of having technologically less equipped port facilities, developing countries are weak in the ownership of RO-RO vessels.

Table 6 indicates the situation in the world bulk carrier\(^{15}\). By January 1989, the world tanker fleet (including product carriers and chemical tankers) was about to 232,107 M DWT comparing with the 228,941 M DWT in 1988. The rise was 1.36%. As to estimation made by Fearnleys, the tanker tonnage will be expanded to 7.5 M DWT with a rise of 3.1% during 1990\(^{16}\).

The dry bulk carrier fleet gradually increased between 1984 and 1989. It is expected that the trend of a rise will continue during the 1990. The world tonnage of dry bulk carriers was 178,087 M DWT in 1984 and 195,478 in 1989.

Combination carriers were continuously in decline until 1989 (32.3 M DWT) from a peak level in 1979 (48.7 M DWT). Starting from the second half of 1989, sudden orders have been placed for 10 ships of 1.1 M DWT in shipyards. During 1990, this trend is expected to continue for another 1.7 M DWT capacity.

The introduction of legislative measures by some developed countries, because of the serious consequences of recent tanker disasters e.g the Exxon Valdez (1989),


will bring double bottoms and double hulls into the shipping scene for the construction of tankers and combination carriers. This approach will definitely create a new potential for renewal of existing tankers and, to some extent, combination carriers which are utilized in the oil trade.

Starting from mid 1988 and throughout 1989, world dry bulk tonnage has increased by 7 M DWT, approximately 3.5% of the tonnage in 1988. In this sector the trend of new buildings is in favour of comparatively larger vessels which are around 75,000 DWT with the existing dry bulk carriers (Majority are around 45,000 DWT).

As to liquefied natural gas and petroleum gas carriers (LNG and LPG), the outlook for the future has been promising during the 1980s. Scheduled LPG carriers delivery during 1990 is 11% of the existing fleet. For the time being the orderbook of LPG vessels for the 1990s is 20% of the actual LPG fleet. For the LNG vessels, the trend for new tonnage is rising. However, few LNG vessels which were laid up, have been reactivated during the second half of 1989.

The capacity of liner fleets over 400 TEU (Twenty equivalent unit) saw an increase at the average rate of 10% per annum between 1983 and 1988. In 1989, the container fleet increased by 6.3% in capacity. There is a new capacity which is 10% of 1988 tonnage under construction to be delivered during 1990. This intensive participation of container ships into the liner trade is expected to accelerate the competition in liner trade. If it is reviewed, the ownership of container vessels, gradual shifting from West European countries to Asian dynamic economies and Japan can be realized between 1983
and 1988. West European operators were the owner of 51% of the container fleet in 1983 and 37% in 1988. On the contrary, the dynamic Asian economies and Japan owned the container fleet of 21% in 1983 and 29% in 1988\textsuperscript{17}. The world fleet by age will be discussed in sub-chapter 3.5 of Chapter Three.

CHAPTER THREE

THE ROLE OF THE SHIPBUILDING INDUSTRY IN THE ECONOMY

3.1.- THE ROLE OF THE SHIPBUILDING INDUSTRY

The shipbuilding industry is a heavy industry requiring substantial amounts of capital investment and the skilled labour force as well as the high level technological capability to design and construct ships. From the commercial point of view, the shipbuilding industry is an international activity which is heavily influenced and directed by world growth and trade. In other words, if there is something, a comparatively huge amount to carry from one place to another by sea, there is a need for ships. Hence, this need is met by the shipbuilding industry.

To some extent, the balance between supply and demand for ships in world trade determines the output of the shipbuilding industry under market conditions. Beyond market conditions, it is reality that there are governmental influences and intervention. For hundreds of years, the shipbuilding has been a major industrial activity which offered, inter alia, employment potential, support to national fleets, prosperity to nations, foreign currency when its products were exported, a way for technology and know how transfer and dynamism to its dependent industries as a driving force within an economy. Perhaps its most important ability was to take place widely within development strategies in order to reach a certain level of industrialization. Many countries have relied on shipbuilding as a main industry to structure their economies. A century ago, shipbuilding was dominated by the United Kingdom as a leading force. In 1947, Japan
had entered into the shipbuilding market as part of the Japanese Government's development program. Consequently, Japan emerged in the 1960s by taking over leadership in the world shipbuilding industry. The Republic of Korea as a challenging power in the shipbuilding industry way through industrialization was witnessed in 1970. In Europe, there were countries which have always had technologically advanced shipbuilding activities such as France and Germany throughout the times of their industrialization. Currently, many countries consider the shipbuilding industry as a part of national development plans to supply contribution to building up their economies such as China (PDR), Taiwan and Singapore.

The shipbuilding industry with its international character is one of severe competition arena in which the playing actors are mostly developed countries and newly industrialized countries. Especially, during the 1970s and the early 1980s, the merchant shipbuilding industry has become an economical and political battlefield. This is because of its nature which is unique to shift easily from one country to the other which has already achieved some certain level on the way to becoming industrialized. In this international competition, countries are mostly in favour of keeping the shipbuilding industry to survive. There are numerous reasons for the governments to support their own shipbuilding activities.

Certainly, one of the most important functions of

1 Stopford, R.M. "A New life for the Shipbuilding in the 1990s?", The 4th International Shipbuilding and Ocean Engineering Conference, p.49, Helsinki, 7-10th Sept.1986

the shipbuilding industry is the fundamental support to national fleets by supplying new buildings. As is considered by many countries, it is a place to employ the labour force intensively. As far as being a contribution to the economy, it is an opportunity to provide work for nationals. Even today, there are towns located around shipyards which provide jobs to residents. Of course from the economic standpoint, there are other reasons such as strategic importance, and prosperity for society which are not specifically emphasized in this paper.

The current subject matter which are hardly negotiated at international forums and planerics, is government subsidies and measures of assistance in shipbuilding worldwide. Globally, Western Europe substantially reduced the amount of subsidies which were given directly to the shipyards for newbuildings. Consequently, the output of western countries in the shipbuilding industry disastrously declined. They have been obliged to reduce their shipbuilding capacity by free market conditions which are being implemented by these countries. Only restructuring aids are considerably available in member countries to the European Community. In this manner, the European Community has put the legislation in force to bring the ceiling for government subsidies. For the time being, this ceiling is not beyond 28% of the price of newbuildings. Japan and the Republic of Korea are under the pressure of OECD member countries to reduce shipbuilding capacity and their subsidy programs. The situation for this matter in Eastern Bloc countries is not fair and open for the time being. The developing countries which have shipbuilding facilities

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are mostly considering supplying ships for domestic demand by domestic shipyards, but not the international market, because, as it is known, they have the shortage of technology, capital and skilled man power to build ships which technologically comply with international maritime rules and regulations.

3.2.- CHANGES IN THE SHIPBUILDING ENVIRONMENT

In the world, there are about 72,000 ships which are perishable in the environment of irresistible combination of salt water and the classification survey. On the other hand, there is the seaborne cargo of approximately 3,000 million tons which are obliged to be carried by this perishable fleet that consists of about 600 million DWT. However, from the technical and commercial points of view, the environment in which shipbuilding survives is subject to change according to market conditions, technology, world economic growth and so on.

As has been known, the world shipbuilding industry has witnessed extensive developments within the last decade. These developments have covered changes in regional shipbuilding capacity and changing market conditions.

In some countries, substantial capacity reductions have been realized, but in others the capacity has been significantly expanded. Being heavily dependant on freight rates influenced by depression in the oil and bulk market, the orderbook for newbuildings of bulk carriers and tankers at the beginning of last decade was affected. As a

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*Stopford, R.M. "A New Life for Shipbuilding in the 1990s?", The 4th International Shipbuilding & Ocean Engineering Conference, p.46, Helsinki, 7-10th Sept.1986*
result the world shipbuilding industry had no little chance to build dry and liquid bulk vessels which are traditionally main supporters of the shipbuilding industry. As being parallel with the recovering freight rates in dry and liquid bulk markets, the placing of orders have started. The future optimistic trend in the freight market was in favour of the placing contracts for newbuildings in late 1980s. Despite the complex situation of fluctuating market conditions in the cases of dry and liquid vessels, certain types of ships such as container ships and gas carriers have continued to provoke the high level of newbuilding interests.

There may be an answer to that why governments are very much interested in the shipbuilding industry. It lies, inter alia, on the nature of industry itself. From the economic development viewpoint, this nature can be explained by governments' decisions which put the shipbuilding policy into the national development strategies on the way through industrialization. In short, the shipbuilding industry is one of the heavy industries that national development can totally rely on it. On the other hand, ancillary industries are very much attracted by the shipbuilding industry. Owing to the fact that the shipbuilding industry is labour intensive assembly works, numerous products which are manufactured by electric-electronic industry, machinery and equipment industry, chemical industry and steel industry are utilized to build ships. Therefore, the shipbuilding industry can be considered as a force which promotes all related industries within an economy.

Ocean Shipping Consultants "World Shipbuilding and Newbuilding Prices to 2000", p.9, Surrey, 1989
The changes in the shipbuilding environment under the government influences throughout the last two decades have been in capacity, productivity, newbuilding prices and shifting of the international division of labour. After emergence of Japan in the early 1960s as a leading power which produces 50% of world shipbuilding output at present, the shipbuilding market first shocked by the 1973 oil crisis and as a consequence stagnation in world economic growth. Until the first oil crisis in 1973, advanced technology was inserted into the production which included the construction of series-built vessels in the shipbuilding industry. Hence, productivity increased in shipyards. The world output reached 21 million GRT in 1970. Despite the heavy shock from the oil crisis, the output rose substantially to 34 million GRT in 1975 because of early placements of newbuildings before 1973. During this period, economies of scale helped the shipowners to enlarge the ships in size especially in bulk trades. Additionally, the growing availability of government financial support encouraged the commercial finance institutions to lend and the shipowners to order. Moreover, because of cheap government loans, many yards expanded their existing capacity by building new facilities. Apart from this expansion of activities, new shipyards were erected with optimism for the long run in the shipbuilding market.

In the late 1970s, the results derived from extensive investment in the shipbuilding industry appeared as overcapacity in certain shipping markets such as the tanker market. In spite of the existing recession and surplus tonnage, government originated support continued

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to be more competitive in the market. As a result of these proceedings, the shipbuilding industry continued to shift to the far eastern dynamic Asian countries. Loosing countries were those from Western Europe by reducing the shipbuilding capacity by 20% from 22.9 M CGRT in 1977 to 16.4 M CGRT in 1980. Due to a decline in world trade in 1981, shipbuilding was confronted with pressure driving the newbuilding prices to their lowest recorded level. Namely, since 1980, there have been changes in three major shipbuilding regions. They were Japan, Western Europe and newly industrialized far eastern countries. After fluctuations in the capacity of its shipbuilding industry, recently, Japan has decided to keep its capacity constant without any increase around 5 M CGRT/year. Western Europe has been under the serious restructuring program which reduced the labour force from 192,000 in 1980 to 144,000 in 1984. In fact, as a result, the Republic of Korea has been gradually taking over the share of Western Europe. This share was almost 50,000 shipbuilding jobs which were being shifted to far eastern countries. Table 7 is showing shipbuilding employment in major regions (countries)

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CGRT: Compensated Gross Register Ton which is intended to reflect the work effort involved in producing one cubic meter of enclosed ship's space and, thus, constitutes an approximation.


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during the 1980s.

3.3.- TECHNO-ECONOMIC DEVELOPMENTS IN SHIPBUILDING AND SHIPS

The ships, under severe competitive conditions, have to be more efficient in all respects of maritime transport for several decades. As examples, for this reason, the container ships were invented to provide efficiency in transportation of growing seaborne trade. The Ro-Ro vessels were built more or less for the same reason requiring efficiency in transportation of wheeled vehicles and machinery in order to get more efficiency in loading and discharging operations. On the other hand, maritime transport is a mode among others which is trying to adjust itself to the requirements of other transport modes. There is no doubt that the influence of land transport techniques on the development of cargo vessels will be unavoidable in order to be more efficient in the future.

Namely, the competition and complementary relationship between transport modes will bring new inventions and applications into shipbuilding and operation technology in terms of efficiency, productivity and reliability.

Speed and fuel consumption are always in the conflict in respect of operating costs. The research is well underway through the ship propulsion plants which will offer less fuel consumption but more speed in order to overcome wave resistance on the sea surface. The eventual solution for this question will probably be

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11 Source: Lloyd’s Shipping Economist “Shipowners Take a Stake”, p.10, May 1990
adoption and construction of submarine freighter to be propelled by super conducting electric motors or sterling engine.

Ships are tending to be more computerized and automatized in order to increase efficiency and productivity. Therefore, capital investments are likely to be more costly than before.

Besides using steel as a construction element in the shipbuilding industry, the composite materials are likely to be widely used in the future.

Regarding tankers, double hull design and compartmentalization will be given more attention for safety and pollution prevention techniques. They will be possibly requiring more costly investment bringing the new capital burden into the shipping industry. Due to the general tendency in developed countries in relation to closing unprofitable factories, oil refining industries will be closing and shifting to the oil producing regions. This will influence the building of new product carriers transporting petroleum products. Even multi-purpose tankers which will be able to refine crude oil during the voyage will be profitable if certain technical problems can be solved.¹²

For the time being, special requirements are emphasized on research and development, in particular, on composite materials and new surfacing techniques. This is mainly because of the increasing opportunity of transportation of different substances in subsequent

voyages.

The bulk carriers, at present, are in huge sizes up to 300,000 DWT. However, the trend for these ships is to concentrate on 200,000 DWT. With regard to economies of scale, the tendency for large bulk carriers will continue in the coming years if the coal fuelled energy producing plants are not replaced with the other energy sources and the steel production are not replaced with the composite material production.

The development of combined carriers was quite successful throughout the last decades. These types of ships with satisfactory flexibility were profitable in commercial operations. They tended to become larger in order to be able to work in the crude oil market in the crisis periods. On the contrary, the costly construction and operations of these ships prevented them being widely adopted ships. Nevertheless, they will be more important for the nations being candidate to become newly industrialized country. In particular, "conbulkers" will be very suitable for these countries in order to import raw materials and export manufactured goods.

The operation of general cargo ships will be decreasing as much as possible in a short time due to how many different types of packaged goods will be containerized and carried through containerization. As a conflict, currently there is a problem with the standardization of containers. This diversification between regions is creating problems in relation to the infrastructure whether in port operations as to handling and storage or intermodal transport activities. Nevertheless, the container ships are still carrying advantages in terms of transport capacity and suitability.
for the carriage of all type of cargoes. Before the year 2000, fully cellular container ships with the carrying capacity of 5000 TEU container to be operated in intercontinental voyages are expected in operation. In order to increase ship speed, the catamaran hulls are likely to be introduced into operation with a huge amount of TEU capacity.

Because of overspreading of door-to-door transport activities, and being a good answer to the efficiency question, Ro-Ro vessels will be extensively needed for the year 2000. There is no doubt that the new structural design requirements will be developed in relation to the stability problems of these types of ships.

Cruise shipping is giving hope for the construction of future sophisticated passenger ships which support the shipbuilding industry in crisis times.

The shipbuilding industry will be adjusting itself to the developments in ship types, construction materials, equipment, machineries and the technology for requirements of international rules and regulations.

3.4. - CURRENT DEVELOPMENTS AND LIKELY PROCEEDINGS IN MAJOR SHIPBUILDING REGIONS

It seems that the developments in the shipbuilding industry towards the year 2000 will be determined by the attitudes of governments more than the economic mechanism which operates in the market. In other words, the economic factors will be created by government policies in shipbuilding. These policies will widely consider capacity planning, productivity of labour costs, new technology developments and available financial resources. Of course,
the great importance has to be given on how these factors can be harmonized in the policies.

As to the groupings, which may be considered as Western Europe, Japan and dynamic Asian economies (the Republic of Korea, Taiwan, Singapore), they have confronted rather different scenes regarding shipbuilding. West European shipbuilding has started to rely on domestic markets. In international competition, specialized shipbuilding has found a place in the shipyards of Western European countries. These shipyards have devoted themselves to the equipment and machinery manufacturing for ships as well as for other industries. The specialized shipbuilding is involved with the construction of a very wide range of ship types which are built for special purposes. These situations were inevitably expected, because of the obligatory capacity reductions in Western Europe resulting from the keen competition from dynamic Asian countries. On the other hand, specialized shipbuilding requires more advanced technology and more flexibility in order to solve the problems arising from the design and production complexity of specialized ships that West European shipyards can easily afford. Also, in the late 1980s, the comparison of labour wages between Far Eastern countries and Western European ones indicates that the result was in favour of dynamic Asian economies as is shown in the table 813.

The reduction in capacity was by 54% of employment and by 52% in merchant shipbuilding in Western Europe

13 Source: Lloyd's Shipping Economist "Shipowners Take a Stake", p.10, May 1990
between 1975 and 1985, as is shown in table 9\textsuperscript{14}. A further reduction in capacity by an average of 30% in the shipbuilding industry and corresponding to further 30-40% reduction in the labour force is expected in shipyards of West European countries. Nevertheless, specialized ship construction especially of passenger ships, Ro-Ro vessels and ferries will be a tool in order to survive in the market for the Western European shipbuilding industry. In 1987, the figure of the Association of West European Shipbuilders (AWES) showed that of the total AWES production 21% was passenger ships and ferries, 16% was fishing vessels and 19% was the variety of non commercial vessels. This clearly indicates the degree of specialized shipbuilding of West European yards\textsuperscript{15}.

After becoming the major shipbuilding nation in the mid 1960s, Japan is keeping its place at the top in the last three decades. However, currently the shipbuilding industry in Japan is under massive pressure from OECD countries to reduce existing capacity. During the 1980s, the capacity adjustment in the Japanese Shipbuilding industry has been continued. It was 16 M GT in 1975 and 6 M GT in 1989\textsuperscript{14}. This reduction program was intended to stop granting permission for the establishment of new yards. The conditions which the Japanese Shipbuilding industry confronted during the late 1980s were more or less the same as the problems faced by the West-European shipbuilding industry in the late 1970s and the early

\textsuperscript{14} Source: Rother, D. and Volk, B "World Shipbuilding Outlook until 1995", ISL, Bremen, 1985


\textsuperscript{16} Nagatsuka, Seiji "Outlook for Demand-Supply of World Shipbuilding in the 1990s", Jamri, p.35, Tokyo, 1989
1980s. These severe conditions in Japan were mainly set up by competition from other Asian dynamic economies and, to some extent, third world countries. Additionally, strengthening the value of Yen against other currencies, especially US$, hampered the competitiveness of the Japanese shipbuilding industry. If the high value of the Yen is maintained, this will result in further capacity reductions in the industry. Within the future prospects of the Japanese shipbuilding industry, the crucial point which has to be borne in mind is that there is a strong preference for the Japanese shipyards in order to maintain the Japanese built merchant fleet for the need for the substantial amount of Japanese maritime transport. In other words, Japanese shipowners often prefer to purchase from Japanese shipyards even if the newbuilding price is higher than the price of outside competitors. Nevertheless, dependence on the increasing value of the Yen is forcing the Japanese shipowners to buy the products of ancillary industries from manufacturers outside Japan. Another observation which can be made on the Japanese shipbuilding industry is that the ventures for high value specialized ships, e.g. construction of cruise vessels have been started. From all these indications, it is evident that Japan will relinquish the leadership in world shipbuilding industry in near future.

For some reasons, it may be considered by a country that to develop the shipbuilding industry is essential within national development strategies. It was the case in the Republic of Korea in the early 1970s that the Korean Government targeted the shipbuilding industry for export development while the industry was producing only fishing
vessels and coastal ships in the late 1960s. Namely, the Republic of Korea considered the shipbuilding industry as a fundamental sector for its own industrial development. Starting in the early 1970s, construction of several very large and modern shipyards was initiated. Large building docks were constructed with adequate craneage systems. Computer aided design and computer aided manufacturing (CAD/CAM) technology and numerical control systems were transferred. Instead of starting technologically less developed and relatively easy-built ships like bulk carriers, Korean shipyards have accepted contracts of all kinds of highly sophisticated ships like LPG, Containerships, Ro-Ro vessels and chemical carriers. Besides transferring high technology and production methods, the Korean shipyards have established their own research facilities in order to gain independence from Japanese and West European engineering production. Depending on these efforts, very big newbuilding capacity increase has shown up in the Republic of Korea. Recently, there are some 100 yards in Korea, of which four main shipyards with an actual 89% capacity out of a total 4.5 M GRT corresponding to 1.7 m CGRT dominate Korean shipbuilding. In the early 1990s, the capacity is expected to become around 2 M CGRT. The increasing capacity caused significant rises in Korean Shipbuilding output between 1977 and 1987. The output was 2% of the

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17 Shipbuilders Council of America "Petition for Relief under Section 301 of the Trade act of 1974, as Amended", p.91, Washington, 8 Jun.1989


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world output in 1977 and 17.1% in 1988. This market share rise was at the expenses of West European and Japanese shipbuilding output. Nevertheless, the difficulty has started with building vessels at a profit since 1988. This case has been helped by the Korean currency Won which was in continuous appreciation. In 1987, the strength of the Korean economy resulted in an increase of 11% in the value of the won against the US$. Also the labour costs have been gradually on the rise because of increasing wages. As a result of these developments, Korean shipbuilding is expected not to continue in the long term to compete for business purely on price. This is an indication that the subsidy program in the Republic of Korea that is discussed later on will be continuing to be in force in the near future. Taking into consideration the growing economy of the Republic of Korea, it can be said that actual massive transport needs will continue. For this reason, as a parallel to economic development, the Korean fleet has grown from 3.9 M DWT in 1977 and 11.4 M DWT in 1987, of which 35% representing 55 ships were built by domestic shipyards. This is a crucial point as to how domestic the shipbuilding industry is supporting the national fleet. In a more profitable market which is expected from the beginning of the 1990s, the possibility for further expansion of the Korean shipbuilding capacity is inevitable in spite of the pressure for capacity reduction made by other shipbuilding nations.

It was seen that productivity is a major determinant in order to survive in the market. There are numerous


factors influencing productivity, such as ship type, labour wages, incentives, technology, series-built ship production etc. The most important ones are the roles of the labour force and technology. These two elements can be accepted as a criteria for international comparison of productivity which is related to a measurement of competitiveness and efficiency in shipbuilding activities. The main components of productivity is labour input per CGRT produced. Japan which is being followed by West European countries is on the top place in terms of productivity. Although the Republic of Korea has comparatively lower productivity, but having the advantage of low labour cost is keeping the country at the second place in the world shipbuilding industry. However, recently increasing the labour cost will urge the Republic of Korea to pay more attention to productivity towards the year 2000. The table 10 is indicating the productivity as a country basis. Besides the influence of other factors, subsidy policy, general economic conditions, trend of material prices, quality of workmanship and currency exchange rates, productivity and costs determine the competitiveness in the international market. The cost of a ship consists of two components which are costs for materials, services and subcontract work and operating costs. Personnel costs, development costs, depreciations, energy costs, training costs, and other overheads form the operating costs which are approximately 45% of newbuilding costs. The labour costs which are adequate for comparison internationally have 70% share within the operating costs. According to this estimation, it can be considered that the labour costs account for roughly 1/3 of a newbuilding cost. Because of having comparatively huge amounts of

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shares within newbuilding costs, labour costs attract more attention from all concerns including governments. Several measures including measures for the increase in productivity have been put into application in order to reduce the labour cost. These efforts will continue in the short run as well as in the long run as a matter of research. The table 11 indicates the international comparison of shipbuilding costs per CGRT of which 1/3 is labour cost\(^{23}\). If one may pay attention to the table 11 indications, the situation can be realized that Japan and far east dynamic economies have a considerable advantages in comparison with the West European countries.

In the centrally planned economies, the economic meaning of the activities of shipbuilding differs from those that exist in market economy countries. State owned shipyards produce ships mostly for state owned companies in domestic markets and for the other centrally planned countries. Many orders of all types of ships have come to the shipbuilding industries in the Eastern Bloc countries from the Soviet Union. After economical and political changes during late 1989 and the first half of 1990, the situation for shipbuilding industries is not clear to judge the future developments, but it is obvious that they require improvements for foreign exchange regulations in order to ease the difficulties of import and export transactions. Nevertheless, Yugoslavia ranked third place in the world after Japan and the Republic of Korea in terms of yearly GRT output in 1987. Its production was 1.53% of world total in 1977 and 2.86% in 1987.

The Soviet Union after starting to change


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economically as well as politically during the late 1980s, forward planning is expected to ease further development of productivity and efficiency in its shipbuilding industry. However, there is not sufficient data available to forecast and draw the framework for shipbuilding in USSR, but it is assumed that USSR has substantial shipbuilding capacity, mostly engaged in naval construction.

As a centrally planned economy, China (PDR) has increased its export of the shipbuilding industry products during 1980s. According to the world competent shipbuilding authorities, China waiting behind the Republic of Korea in order to enter intensively into the international shipbuilding market. It was not in the first top 10 world shipbuilding manufacturers, but it appeared with the 2.3% share of world total output in 1987. However, if the comparison is carried out between China and the Republic of Korea, as the countries of the same region, it can be seen that the former produces about 1/8 of the output of latter accounting for 17.06% of world total. The Chinese shipbuilding industry may require further improvements in terms of technology and productivity.

The world top twenty shipbuilding nations are shown in table 12 as a comparison of the situations in 1977 and

24 Day, J.Graham "Capacity, Credit and Cooperation", Seatrade Hong Kong Conference, Hong Kong, 1984


The comparison of the top-ten orderbooks recorded in 1966, 1978 and 1989 is also given in table 13. It is easily meant by considering these two tables that the shipbuilding industry is always looking for a place (country) where its requirements meet the level of industrialization stage.

As to determination of newbuilding prices the world shipbuilding industry, to some extent, diversifies into regional groupings. The prices of less sophisticated easy built ships are determined mostly by Japan and far east newly industrialized countries. On the contrary, specialized shipbuilding requiring intensive knowledge and experience on the application of advanced production techniques is fixed by West European countries. This trend will prevail in the 1990s as a subjective matter to several factors influencing the market conditions such as demand of ship-oriented industries and government subsidy policies as well as productivity, efficiency and labour costs. In Western Europe, the newbuilding prices are about 30% higher than Korean prices during the 1980s. Nevertheless, the labour cost has already started to increase in Korean shipyards in the late 1980s. Despite the prevailing situation, the Republic of Korea is actually expanding its shipbuilding market share which is

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expected to increase 20% up to 1992 and 22% up to 1997\textsuperscript{30}.

As far as currency is concerned, for the time being, the strong value of the Japanese Yen is causing higher shipbuilding prices in Japan. The Republic of Korea and centrally planned economies which are interested in earning foreign currencies are providing lower prices. The appreciation of Korean currency in recent years has started already fuelling the newbuilding prices upward in the Korean shipyards. This trend will continue during the 1990s.

3.5.- MARKET EXPECTATIONS AND REPLACEMENT OF OLD TONNAGE

Starting from 1986, the newbuilding prices have begun to increase after the depression of more than a decade. This is because of existing aged world tonnage requiring replacement. Two questions could be asked in this context:

"How much tonnage will be renewed by constructing new ships?"

"How much investment will be needed?"

The subject is very important in terms of the tonnage owned by developing countries, because, they run relatively old ships. It is obvious that, the new constructions of the 1990s will be more expensive resulting from several factors. First of all, the ships should be more efficient in order to compete in the market. On the other hand, because of implementation of international maritime rules and regulations regarding

safety and marine environment protection requirements, the shipowners must invest more money. These proceedings will bring new burdens to the economies of developing countries.

In order to forecast the future tonnage to be operated in maritime transport, it is common practice to use the usual method composed of two steps on which the scenarios can be developed. The first step is to analyze the existing tonnage to be replaced because of ageing. The second is to calculate the necessary expansion of tonnage if there is the growth in the world economy and, as a consequence, the rising trade volume. In addition to these two steps, the money to be invested for the replacement and/or expansion needs of the world tonnage is of paramount importance for considerations of replacement and/or expansion. In this way, the money to be invested can be calculated by multiplying required tonnage and average price per GRT (DWT). The analysis made by Seatrade Business Review in March 1989 indicated that as a total 355 M DWT of which 312 M DWT replacement of old tonnage and 43 M DWT expansion tonnage to be needed will be constructed until the year 2000 at the total price of 215.7 B $ (Table 14)*. The calculation for the same goal that was conducted by Drewry Shipping Consultants pointed out that, until 1997, 325 M DWT tonnage will be replaced with the total price of 197 B $, as it is shown in figure A**. Roughly, it can be said that 340 M DWT will be replaced at the total price of 200 B $ up to the year 2000.


On the other hand, as a manufacturer, existing shipbuilding capacity can be considered more or less close to the real capacity needed until mid 1990s. But, the shipbuilding capacity and skilled manpower can not be switched on and off at will within short period. As an example, 25% capacity reduction in shipbuilding took 10 years during the 1980s.

The world shipbuilding capacity was 14.6 M DWT in 1988. Up to 1995, the world shipbuilding capacity is expected by the Japan Maritime Research Institute to increase to a figure between 11% and 38%®. From these figures, 11% is expected only in the case of increasing productivity while the work force stays the same. If both work force and productivity increase, 38% rise is expected in shipbuilding capacity under the best optimistic market conditions. According to this assumption, it can be expected that the world shipbuilding capacity will be 20.01 M DWT. On the other hand, under normal optimistic conditions, world shipbuilding capacity will be 16.22 M DWT in 1995. As an average, world shipbuilding capacity can be considered at 18 M DWT in 1995. Whereas the current capacity is 14.5 M DWT. Hence, the annual demand of the shipping industry can be calculated by dividing total demand 340 M DWT by 12, the years between 1989-2000. The result is 28 M DWT for yearly demand. Now, the presumption can be made for the future prices of newbuildings. Namely, the newbuilding prices are going to be increasing if the annual shipbuilding demand which is 28 M DWT will be

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® Nagatsuka, Seiji "Outlook for Demand-Supply of World Shipbuilding in the 1990s, Jamri, p.35, Tokyo, 1989

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realized that it is nearly 1.8 times bigger than the yearly production capacity of the industry at present.

The first constraint in this case, as it is explained above, is the situation in the shipbuilding industry itself. Presently, the capability of 14.5 M DWT/year possessed by the world shipbuilding seems unable to serve the interests of shipowners during 1990s. The newbuilding prices are expected to increase. The financial arrangements and government involvement will be important matters in the next decade. From this stand point, if the capital to be invested is calculated for annual investment according to the prices of 1989, starting from 1989 to 2000, each year 16.6 B $ (200 B $ divided by 12 years) should be afforded by shipowning companies.

If this assumption takes place, particularly assumptions on the capacity, it is needless to say that the market will run into monopolistic structure created by far east countries. For this reason, the newbuilding prices may soar that the indications are already being seen for VLCCs as an example since 1986\textsuperscript{55}. It can be thought that the far eastern shipbuilders will benefit from these shipbuilding developments.

As was said before, the above mentioned tonnage replacement and fleet expansion depend mostly on ageing of ships and world economic growth, but, of course, there are unomittable components in the market that greatly influence the shipbuilding demand. These are freight rates and shipowner's confidence. It was experienced that, whilst the freight rates were high, many newbuildings were

\textsuperscript{55} LLoyd's Shipping Economics "Getting the Timing Right", p.6, Apr.1990

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ordered. By contrast, when the freight rates were low, ships tended to go to demolition. Also, the judgments for future freight rates are very important. If there is confidence in the market that saying future earnings resulting from freight rates will be very high and be able to afford heavy newbuilding finance conditions, the shipowners place their orders. These issues together with the world economic growth are very much open for speculation and creation of scenarios.

On the other hand, in order to respond to the situation of increasing freight rates, if the repair and maintenance costs are affordable, the usable age of ships can be extended, but, in this case, placing orders for newbuildings will rise in order to meet the requirements of growing trade.

Besides the optimistic scenarios, also pessimistic ones can be developed. For instance, stability without growth can be considered in world economy for future years. Furthermore, the slump in the world economy, if it exists, can be assumed to affect the shipbuilding industry seriously. Nevertheless, there is a scene in front of the market which indicates that during the next decade the world tonnage will confront a major replacement program. This is indisputable. In this context, finance will be arranged in one way or the other, but, the question is how the developing countries which are mostly under heavy foreign debt and holding comparatively old tonnage will afford the finance for replacement of their ships. The answers to these questions are to be discussed in Chapter Four related to financing shipbuilding and shipping.
CHAPTER FOUR

SOURCES OF SHIPBUILDING FINANCE,
ITS APPLICATIONS AND PROBLEMS

4.1.- OVERVIEW OF SHIP FINANCING AND PROBLEMS PRACTICED

If financing ships is considered as a debt-based transaction, its' background goes back to the early 1960s. Before these days, the newbuilding investments were dependent on the life-time strategies of individual shipowners so-called equity-based financing. This system relying on equity generated by retained earnings was going along with slowly growing maritime trade and cargo. Starting from the 1960s, growing maritime transport needs put the world merchant fleet under pressure for immediate expansion. In order to take advantage of comparatively low cost maritime transport and to overcome the shortages of shipping supply, the debt-based financing system was introduced into the financial strategies. The economies of scale requiring improved efficiency and specialization compelled the shipping industry to put in service larger ships in size. Hence, the newbuilding prices increased because of high production costs. Consequently, necessary financial requirements and arrangements become of paramount importance.

On the government side, some countries put the shipbuilding industry into national development strategies and started to apply subsidy and assistance schemes. The excess demand for ships pressured the shipbuilding capacity upward in order to satisfy fast growing shipping requirements. There were opinions that the trend for increasing ship prices would continue well into the future. The optimistic future prospects pushed some
governments to promote shipyard investments and to introduce credit schemes in the early 1960s. The strategies to build up national fleets also assisted the promotion of government-backed credit schemes at low interest rates and long repayment periods. Germany, Japan, Spain and Nordic countries were the first to set up several credit schemes containing export credits. The first international understanding for the export credit schemes was reached by OECD member countries in 1968.

Growing demand for financing ship transactions and future optimistic prospects of shipbuilding resulted in the new entrants in the finance market in which the main suppliers of ship finance were commercial banks, ship mortgage banks and public owned and/or supported financial institutions. Under this infrastructure, ship finance as a specialized activity became the profitable business during the 1960s. In this period, the interest rates were low in the commercial market. Therefore, government-based aids and credits were not in the decisive position. Within the framework of debt-based financing, asset-based financing and project financing which are discussed later on were developed and significantly implemented.

Starting from the second half of the 1960s, the world seaborne trade coincided with a severe and unpredicted slump as the world economy ran into a recession phase. Due to the growth in capacities, the strong depression was felt in the shipping and shipbuilding industries. The banks started to become more cautious in financing newbuildings, but, government support both for domestic and export credit schemes

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continued. Particularly, export credit schemes were the arena for the struggle in order to become more competitive and attractive for foreign buyers. This severe export credit war settled down when OECD Understanding on export credit for ships which was agreed in 1968 entered into force in May 1969. The stipulations were 8 years repayment period, the 20% cash element and the 6% interest rate. (These conditions were modified as agreed later.) Nevertheless, this understanding would often be interpreted differently by governments.

In the late 1960s, in association with the recovering world trade and feeling the power of generous government export credits, the commercial banks started competition sharply to finance newbuildings again. The credit limit rose to 80% of contract value. Starting from the 1970s, besides several existing government measures of assistance, tax based financing was developed, new incentive measures in the forms of tax credits, tax allowances and accelerated depreciation techniques were introduced. Leasing, as one of the tax-based financing methods, became widespread in the 1970s.

The first oil crisis of 1973 brought the depression in the shipping industry, mostly in tanker operations. Consequently, substantially declining freight rates, particularly in the tanker market, accelerated the bankruptcies of shipowners. Because of unpaid loans given to construction of tankers, financial institutions and governments confronted rescheduling the debts. This brought a recession into the ship financing market during the second half of the 1970s. This recession could not be recovered until the late 1970s in which the dry bulk and tanker market became active again.
The cyclical nature of shipping was seen once again at the beginning of the 1980s. Depending on the slumped world economy due to the second oil crisis in the late 1970s, the dry bulk freight rates decelerated and collapsed in 1981. Consequently, bulk carrier contract prices which had been peaked in 1980 went sharply down in 1982 and the same tendency continued until 1985. During this period financial burdens pressured the owners seriously. As a consequence of declining residual values of ships, investment risks in shipping and shipbuilding were transferred from borrowers to lenders once again. During this term, there were efforts made by industrialized countries to reduce the dependency of industries on oil in favour of other energy resources. These efforts negatively influenced oil transport by sea. As a result of protracted defaults due to bankruptcies, generally banks remained reluctant to provide new credit. On the government side, export credit schemes were available provided that the bank guarantees or the first priority mortgages on the newbuildings were ensured. Also for these guarantees banks were more apathetic during the 1980s.

As far as the shipbuilding industry was concerned, in the 1980s, the depression in the shipping industry influenced drastically the shipbuilders who increased their capacities during the 1970s. The rock bottom level of newbuilding prices on the one hand and gradually growing shortage of newbuilding orders on the other hand compelled the West European countries to apply restructuring and readjustment programs during the 1980s. In far east countries, particularly the Republic of Korea, the shipyards faced losses and debt burden because of the failure of repayments derived from government-backed credits supplied generously during the 1970s and 1980s.
Subsidization under the title of aid or assistance to the shipbuilding industry has been existing since the shipbuilding and national fleet were recognized as vitally important for economic development as well as strategic purposes. Subsidies can show up in any form as a direct or indirect concept. They exist in all shipbuilding nations notwithstanding whether the market conditions are prosperous or not. Depending on shipping demand, during growth periods the subsidies exist, because of the efforts for keeping the technology up to date and increasing efficiency and competitiveness. In this case, they have the offensive nature. In the case of the slump in demand, subsidies play the crucial role in the shipbuilding industry which suffers decreasing orders. In this recessionary session, subsidies have the defensive function to protect the industry from severe foreign competition and to keep the minimum shipbuilding capacity as a reserve to be utilized in cases related to defence.

As to the inherent character of the subsidization of shipbuilding, aid policy can not be separated from national shipping and shipbuilding policies. The subsidy policy is extremely important for a country relating to how much consideration is given to the shipbuilding industry and national fleet as the actors playing a role in the national economy. Existing examples show that the subsidy policy of a country for shipbuilding can be so designed that the national fleet and shipping activities are expanded. On the contrary, the elements of shipping

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policy can be so implemented that the national shipbuilding industry can benefit even in the recession period. In fact, the development of shipping and shipbuilding industries is closely interlinked. Both industries can promote each other in respect of the economic and social needs of a country. The port activities and their developments are also closely related to those industries. Ancillary industries play an important role in shipping and shipbuilding. Particularly, the products of steel, machinery-equipment, electronic and chemical industries are widely utilized in both shipping and shipbuilding.

Therefore, it is obvious that the allocation of a subsidy element is rather complex. The important point is that the forms and the volumes of the subsidy element to shipbuilding and shipping should correspond to the targets and objectives defined in the national development strategies of a developing country. If there is a policy to export newbuildings, amount, allocation and utilization of subsidies should be oriented to the international market conditions."

Government assistance to shipbuilders and shipowners can emerge in one way or the other with the following norms:

1. Direct subsidies
2. Cheap credits
3. Interest subsidies
4. Accelerated depreciation
5. Tax incentives (Deferrals, write-offs, tax-free reserves)

6. Government takeover or nationalization
7. Government write-off of losses and assistance in restructuring shipbuilding companies
8. Scrap and building plans
9. Moratoria on shipowner's debt repayments

Obviously, there are other measures which can be classified in the family of assistance and subsidization. These can be found in the following forms.
1. Subsidies for research and development programs in shipbuilding and related industries
2. Cargo preference schemes for national fleet
3. Cabotage and related matters
4. Subsidies for services and ancillary industries
5. Subsidies for materials, equipment and fuel which are used in shipbuilding and related industries

As an essential element of assistance, shipbuilding credit came into application in order to make the world merchant fleet meet the transportation requirements of exceptional growth of world trade starting from the 1950s. Japan was the first country to develop a system in order to supply credit of which shipowners could benefit. Other governments followed and implemented government-backed credit systems for an increase of fleet and shipbuilding capacity. Hence, credit schemes became effective stimulators in the market besides several other factors such as exchange rates, productivity, quality and delivery time.

Currently, a large proportion of the finance for new construction is provided by government-backed shipyard

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Riddle, Ian "Shipbuilding Credit", University of Wales Press, p.5, Bangor, 1983
credit schemes. Because, new sophisticated ship investment is highly capital intensive which is beyond easily affordable limits. In traditional shipbuilding countries, the public-supported shipbuilding credit system is one of the fundamental measures for the industry to survive, but, many developing countries, generally, consider the subsidy element as a tool for industrial development. Nevertheless, the subsidy element is not being utilized significantly in developing countries, although some of them possess their own shipbuilding facilities.

Government assistance in financing newbuilding transactions takes place as a part of the credit package, but, this part is likely to be the crucial amount of the whole package. The conditions of government assistance in ship finance differ whether for domestic use or export.

Due to its complex nature, the utilization of government assistance is an important issue for the shipping companies which are interested in investing in newbuildings. In other words, a shipping operator intending to place a new order should consider the best possible credit package. For this reason, he should cooperate with shipbuilders which have specific departments devoted to arrangements of financial packages. These arrangements can be in the form of buyer credits, supplier credits, or lessor credit. In the case of buyer credit, the shipowner plays a major role in borrowing from the financial institution. Conversely, if the case is supplier credit, the shipbuilder borrows to invest in newbuilding. Lessor credit is also lent to a shipbuilder who has a client so called lessee. Also the combinations of foregoings are often used to finance the newbuilding. Under these arrangements, during construction the buyer is subject to paying installments covering the builder's
countries. In fact, the purpose of the consensus is to prevent setting unfair export credit schemes in the shipbuilding industry.

Apart from shipbuilding export credit schemes, another important and widely implemented norm of government assistance is tax intensive schemes. These can be in the form of write-offs, tax-free reserves and tax deferrals. In addition, accelerated depreciation provides the shipowner with a kind of protection by reducing taxable income. It allows to drop a greater proportion of the value of an asset (Vessel) in the early years of operation. On the whole, overall profitability can be increased by implementing accelerated depreciation which in fact reduces the depreciation period. The tax deferral schemes offer benefit in early years by improving the shipowner's immediate cash flow. In brief, tax intensive schemes positively affect the net profitability of a shipping company.

To receive a government-backed long term loan is subject to a guarantee to be given by the borrower. Such a guarantee is often the subject matter of mortgage on the asset itself.

Foreign currency is always a paramount issue in the shipbuilding industry. There are countries, such as East European countries, which consider shipbuilding as a very important source for earning foreign currency. Also, foreign currency is subject matter to the newbuilding contracts. Loans may be available as currency which are often different to that required by a newbuilding.

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contract. This situation affects the financial conditions of the buyer. The buyer's repayable installments spread over a number of years. This issue is a crucial point which is unforgettable because of its loyalty to extremely fluctuating exchange rates. The exchange rate fluctuations are in close relation to inflation. This may be especially important for a country which intends to enter into the international shipbuilding market. Having domestically high inflation rate decreases the value of a national currency against foreign currencies. Consequently, depreciation of the domestic currency value is, to some extent, in favour of the exporter country. Conversely, the recent cases of appreciation of national currency values occurring in Japan and the Republic of Korea have been causing problems for foreign buyers.

4.3.- APPLICATIONS OF GOVERNMENT ASSISTANCE IN MAJOR SHIPBUILDING COUNTRIES

It has been seen that since the mid 1970s, the numerous variety of government assistance and aids programs were established by nations and intensively implemented in order to protect their respective shipbuilding industries. Having heavy subsidies from government was even helpless and insufficient for competition in some countries. For example, Sweden has withdrawn from the market although it has provided substantial subsidy programs to national shipbuilding industry over the years. The United Kingdom has first nationalized shipbuilding and later adapted a program to privatize it. Namely, the government subsidy can not be only a tool in order to survive. Certainly, there are other factors such as labour cost, productivity, technology and skilled manpower, but, current market conditions and international competence have been
Japan Ship Exporters Association because of being cheaper, the coverage can be up to 80% of the contract value.

2.- Export Proceeds Insurance

This applies mostly to medium and long term export credits. Losses caused by an impossibility of receiving export earnings due to exchange restrictions or prohibitions established in the buyer's country, war, revolution or insurrections occurring in the buyer's country, bankruptcy of the buyer, protracted default or any other case out of the control of the exporter and buyer are covered by Export Proceeds Insurance.

Export credit insurance is mostly required for the credits provided by Exim Bank for foreign buyers ordering in Japanese yards.

As to Japanese shipowners, generous domestic loan programs are organized by the Japanese government whether through the Japan Development Bank (JDB) or private commercial banks. These loans are mostly devoted to technologically advanced ships such as LNG carriers and container ships. Allocation of domestic loans is subject to the approval of the Japanese Ministry of Transport. The JDB loans for container ships and LNG carriers consist of 60% of the total contract price. Their repayment term is 10 years excluding 3 years of moratorium. The interest rates for loans lent by JDB is 5% over the contract price. As a supplementary transaction, the commercial banks can cover 20%-40% of the total contract price at the conditions of market interest rates and repayment term over 8 years. The projects for newbuildings of other ship types are financed by JDB on the basis of 50% of total contract price. The remaining 25% of the price can be
credited by private banks®. In 1967, Japan provided approximately 562.5 M US $ for ship production loans. Of this amount, JDB financed 518.5 M US $ for sophisticated newbuildings. The remaining 64 M US $ was given for export credits through Exim Bank®. These figures are important in respect of indicating the amount of loans provided to domestic clients in Japan.

Japan also provides aid for reorganization and modernization of shipbuilding facilities. For this purpose, the Japanese Government introduced the five year shipyard rationalization program. It was related to shipyard capacity reduction and redundant docks purchased by the government as a total fund of 222.2 M US $. It was also covering government guarantees for debt payments related to operational adjustments of shipyards as total funds of 370.4 M US $ in 198710.

The ship research and development subsidy plan is also in force in Japan. This annual research fund is mostly devoted to developing more sophisticated and efficient ship types and equipment through the Ship Research Institute attached to the Japanese Ministry of Transport. In addition to this program, tax benefits are applied in Japan. The shipbuilders are exempted from customs taxes in the case of import of material used as a construction element in Japanese shipbuilding. These tax


Exemptions are extended to the importation of ships not less than 100 GRT. In brief, ships not less than 100 GRT, ships specially designed for towing and pushing operations, dredgers, floating cranes and other types of ships having the main functions other than navigation are excluded from the customs duties. The ships less than 100 GRT are subject to tax which is 2.4%.1

Special depreciation under certain circumstances is permitted to shipbuilders and shipping companies in Japan. Starting from 1978, the Japanese Government designed a plan to demolish economically obsolete inefficient oceangoing vessels by providing government assistance at approximately 9-11 $/GRT. The financial aid for demolition was increased to 16-18 $/GRT in 1983. For vessels operated in cabotage, the scrapping program is in force. The cost, up to 70%-80% of newbuilding which is for the ship already been scrapped, is recoverable by government, provided that ownership is held jointly by government’s maritime credit organisation and shipowner himself. During a joint ownership period, the shipowner is subject to paying a fee for operating the ship.

4.3.2. - GOVERNMENT ASSISTANCE IN GERMANY

Although the presence of heavy depression in last decade in Western Europe shipbuilding and the need for implementing massive restructuring programs, Germany succeeded in keeping its place within the top 10 world shipbuilding countries. Nevertheless, during the period between 1975 and 1985 the output of German shipbuilding decreased by 55%. In addition, the workforce was also

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1 OECD "Measures of Assistance to Shipbuilding", p. 28, Paris, 1987
reduced by 53\%\textsuperscript{12}.

In Germany, direct subsidies to the shipbuilding industry are offered by Federal and State governments. However, Germany being a member of the European Community (EC), is bound by the Sixth Directive on shipbuilding which is the extension of the Fifth Directive entered into force in April 1981. The Sixth Directive authorizes the community member countries to offer credit facilities, investment aid, rescue aid, restructuring aid, cost escalation insurance and aid to shipowners. The EC Commission put the ceiling on government aids by the Sixth Directive as 28\% of the contract price of a newbuilding. Two-thirds of subsidies offered by the German Authorities to shipyards are paid by the Federal Government. The rest of them are funded by governments of states in which shipyards are located\textsuperscript{13}. Apart from shipyard subsidies, construction subsidies have been available since 1965. They have been applied gradually on an increasing basis. Germany's ship construction subsidy Fund is available for the period of 1988-1991 as 700 M DM. This type of subsidy paid directly to shipowners until 1986 is available now for shipyards under the title of "Building Grants". The amount of 20\% of total contract price can be subsidized by this aid for the construction of sophisticated ships.

In the case of purchasing newbuildings by developing


\textsuperscript{13} Shipbuilders Council of America Inc. "Petition for Relief under Section 301 of the Trade Act of 1974, as Amended", p.36, Washington, 8 Jun.1989
countries, Germany as a member of the OECD offers credit under the conditions of OECD Understanding. For the period 1987-1989, the total fund allocated by Germany for this program was 502.8 M DM (282.9 M US $). In addition, in the same period, the German export credit fund was 256.6 M US $.

Export credit insurance is also available on the basis of 90% of total credit amount against political and economic risks. Materials imported for use in constructing ships whether to be exported or to be built for the domestic market are exempted from customs duties. Aid for research and development projects related to the shipbuilding industry is permitted according to the program in force in Germany. Restructuring aid is granted to shipbuilders by coastal federal states within their respective boundaries only, but, this grant can not be utilized to develop new shipbuilding capacity or to expand existing shipyards.

In addition to the foregoing subsidy and aid programs to the shipbuilding industry up to mid 1987, German shipowners, in some cases even foreign shipowners, were entitled to receive government assistance and aid from government sources. Owners of the ships registered in Germany, flagged with the German Flag and engaged in international maritime transport were eligible for the building grants under the conditions of up to 12.5% of the price for newbuilding and up to 20% of the price for ship conversion. Under this program, approximately as a total 998 M DM (379 M US $) was given to shipowners. This program has been replaced by the coastal state
guarantees. In the case of having credits not secured by ship mortgages, coastal states in Germany provide credit guarantees. These guarantees under the criteria approved by the EC are available for non-national shipowners.

Besides existing normal depreciation, special depreciation is allowed under certain conditions. After owning a ship for 6 years, when the German shipowner sells his ship, he can deposit his earnings and profits in a special tax-free fund. An interest rate of 6% is paid for such a fund which may be utilized by the shipowner investing in new construction or ship conversion.

4.3.3.- GOVERNMENT ASSISTANCE IN THE REPUBLIC OF KOREA

After the declaration by the Republic of Korea that the shipbuilding industry is of paramount importance for the Korean national development in the early 1970s, the Government has systematically formulated and inserted into implementation numerous innovative supportive measures. Having a relatively more cheaper labour force and materials produced by the domestic industry, this has facilitated development of the shipbuilding industry in the country. Consequently, the Republic of Korea has risen to the level of a newly industrialized country. Regarding shipbuilding output, the Republic of Korea was in eleventh place in 1977, but the country came into second place in 1988 just behind Japan. As of December 1988, the total number of 115 ships accounting for 10.8 M DWT were in the

__Shipbuilders Council of America Inc. "Petition for Relief under Section 301 of the Trade Act of 1974, as Amended", p.59, Washington, 1989__
Korean order book\textsuperscript{15}. According to the orderbook list indicating the top ten shipbuilding nations, the Republic of Korea is keeping first place with 10,781,914 DWT of the total of 115 ships as in January 1989\textsuperscript{16}.

The tremendous growth of the Korean shipbuilding industry has been government directed and funded during the last two decades. Starting the application of the Korean third five-year development plan, billions of Won were channelled to the shipbuilding industry mostly through the Korean Development Bank as development aid\textsuperscript{17}. Consequently, the Korean Government has been in overall financial control of the shipbuilding industry. Up to mid 1988, the total debt of the four major Korean shipbuilding companies was 4.5 B US $ to the government or government owned sources\textsuperscript{18}. In addition, the average price of newbuildings in the Republic of Korea has increased since the early 1980s. The average price per GRT was 366 US $ by 1985 for foreign buyers. It increased to 863 US $ per GRT by 1988. However, it was below the value valid in the late 1970s as 1055 US $. per GRT. On the other hand, the appreciation of the Korean Won against the US $ has caused severe financial difficulties which shipbuilders recently confronted.

\textsuperscript{15} Shipbuilders Council of America Inc. "Petition for Relief under Section 301 of the Trade Act of 1974, as Amended", p.90, Washington, 8 Jun.1989


\textsuperscript{17} Shipbuilders Council of America Inc. "Petition for Relief under Section 301 of the Trade Act of 1974, as Amended", p.92, Washington, 8 Jun.1989

\textsuperscript{18} Shipbuilders Council of America Inc. "Petition for Relief under Section 301 of the Trade Act of 1974, as Amended", p.91, Washington, 8 Jun.1989
Likewise in Japan, the Korean Export Import Bank (KEXIM) provides export credit for buyers who wish to import newbuildings from Korea. Although not being a member of the OECD, the Republic of Korea is following the "OECD Understanding" in respect of providing export credit. Simply, Kexim provides 56% of the total contract price at a fixed 9% interest rate for a period of 8 years as credit. The buyer should supply 20% of the total contract value whether from his own sources or by borrowing from financial institutions. The balance of the financial transaction which is 24% can be achieved as a credit on commercial terms from private banks based on a 5 year repayment period at the interest rate formulated by taking into consideration the rate of LIBOR. The Kexim export credit based on US $ does not accept any risk. It requires a bank guarantee on the entire financing transaction. On the other hand, the bank guarantee depends on the first mortgage, but, 1-2 years moratorium is allowed. Between the period 1972 and 1987 Kexim provided as a total 5.8 B US $ for ship export financing†.

In the domestic market, shipowners enjoy the loans offered by state owned the Korean Development Bank (KDB). The amount of these loans can be 50% of the contract price for a term of 8.5-11 years at the subsidized interest rate. There are other loan programs available for Korean shipowners, the amount of which reaches 90% of the total newbuilding cost at the 10% interest rate over 8 year repayment period with 2.5 years moratorium. This loan program provides 92% of the total contract price for container ships. In 1988, total loans offered by the KDB

† Shipbuilders Council of America Inc. "Petition for Relief under Section 301 of the Trade Act of 1974, as Amended", p.47, Washington, 8 Jun.1989
amounted to 591.6 B Won for the shipbuilding and related (ancillary) industries. The loans for ancillary industries producing equipment for the shipbuilding industry are based on a 12.4-12.7% interest rate\(^2\).

In addition to the Kexim and the KDB operations, another important export promotion subsidy program is dominated by the National Investment Fund (NIF). NIF loans were 12.7 M US $ in 1975 and 177 M US $ in 1983. There is no sufficient data available on this scheme in recent years\(^2\).

Under the facilities of tax benefits, advanced write-offs for depreciation up to a certain proportion of the contract price is permitted before the delivery of newbuilding in the Republic of Korea. In addition to this, accelerated depreciation is allowed for research and development projects which are applied by the Korean shipbuilding Companies. Namely, either 8-10% of the total amount of project invested or 90% depreciation allowance in the initial year of investment is permitted for the shipbuilders\(^2\). Besides having tax concessions, the Korean shipbuilding companies also enjoy tax incentives for export transactions. Customs duties are not applied to the material and parts imported which are used to manufacture or repair Korean oceangoing vessels. Materials subject to


\(^{21}\) Shipbuilders Council of America Inc. "Petition for Relief under Section 301 of the Trade Act of 1974, as Amended", p.102, Washington, 8 Jun.1989

customs duty exemption are also out of the application of value-added tax. Existing limitations for importation of the ships for the Korean merchant fleet were abolished in 1988. Nevertheless, to buy an ocean going ship from foreign shipbuilders is not a common practice in the Republic of Korea.

4.4.- SHIPBUILDING CREDIT BY BANKS

As is known, shipbuilding demand is a function of numerous factors including price, foreign exchange rates, production duration, available credit, production quality and optimism created by the freight market. Nevertheless, the rising cost of newbuilding because of increasing ship size, specialization and advanced technology applied in order to produce more efficient ships has given top priority to financing problems. For this reason, the financial packages provided for shipbuilding projects are more important as well as the technical ability of ships themselves and even their prices.

Ocean transport is a high capital intensive sector that requires to maintain increasing capital investment year by year. The traditional way of selling old ships in order to replace newbuildings is almost over. Today, a very high price of new ships requires finance outside the respective sources of shipping companies.

Commercial banks play a very important role in financing the shipbuilding industry as well as the shipping industry. The duty performed by banks is to provide significant amounts of short, medium and long term funds. The bank involvement with the shipbuilding industry has passed certain periods. Until the 1970s, most newbuilding acquisitions were financed by government
backed shipyard credits at the fixed interest rates and retained earnings. Starting from early the 1970s, commercial banks have got involved in financing ships during the shipbuilding boom. Hence, many new entrants into the financial transactions were realized. During the tanker market slump after the first oil crisis, the freight rates and actual values of ships fell. Thus, the financing industry were obliged to reschedule the repayments. Banks suffered from newbuilding transactions. During the 1980s, optimism through recovering the freight market appeared again in the shipping industry. Although the market started to recover slightly, the banks were careful in examining the loan requests in terms of ability of a project which can demonstrate stability over the life of the loan. In fact, the economic factors of a project scrutinized by a bank depended on the shipowner, ship and market conditions in which the ship would be employed. The securities provided were the important issue during the 1980s.

4.4.1.- MAIN FACTORS AFFECTING LENDING TRANSACTIONS

The factors affecting shipbuilding credit can be grouped under three items. Factors related to the shipowner (Shipping company), the ship itself to be financed and market conditions in which the asset is to be employed.

The management skills and proficiency of the borrower are very important issues in respect of performance for regular repayment. The stronger financial situation showing profit records is remarkable indicator of eligibility for the loans. The lenders are also very much interested in the liquidity position of the borrowers. In the case of state owned shipping companies
looking for a loan, the lending institution has to consider the economic decisions of a country. Historically, a good reputation of a company is always considered favourably.

The newbuilding as an asset in lending transaction is of other paramount concern for banks. Advanced technology intensively used either in production or on board as equipment is a factor which determines further competitiveness in service. The interest of the bank, in this case, is to decide whether there are risks of technical or economic moribund during the future life of the ship to be financed. Besides the steel construction, power plant and machinery installations consuming oil are also main determinants of competitiveness in the market because of fluctuating bunker (oil) prices. In addition to operational conditions, the lending institutions started to pay more attention to the requirements of international safety and pollution prevention conventions adopted by IMO. Particularly tankers to be financed have to comply with the regulations inserting measures and technologies such as oil discharge monitoring equipment, an inert gas system and a crude oil washing system in terms of maritime safety and pollution prevention.

Last but not least, the third concern of financial institutions in order to advance loans for a newbuilding is the intended employment service of the ship. This employment must generate proper revenue to cover periodic loan repayments. During the 1970s, the value of newbuilding as an asset could be accepted as the guarantee secured by mortgages. After the occurrence of the big differences between construction prices and the market values of the ships due to the cyclical nature of the shipping industry, this weakened the asset value concept.
in ship finance. Currently, the cash flow concept is more popular in financing transactions. Its purpose is to determine whether the project demonstrates a positive potential of cash flow which can cover the periodical repayments during its future life in service. There are several methods to calculate the possible cash flow situation by using investment appraisal (cost benefit analysis) techniques. Cash flow concept depends mostly on the employment guaranteed by a certain norm of contracts by which the ship will be engaged for the duration of a loan. In a time of considerably better market conditions, the banks can follow a more tolerant approach to employment in terms of the possible earnings generated by assets, but, it is important for the creditor and the debtor that a charter party which is evidence of a contract signed by the reputable charterer is the best collateral for a secure ship loan.

4.4.2. FORM OF SECURITY

There are two principle reasons for putting security on loans by banks in ship financing. The banks seek to reduce the risk. The security is a tool in order to decrease the risk which is always present in such an inherently speculative shipping environment. Another reason for arranging security is in favour of a debtor. If the security is the strong collateral, it allows the financial institution to give a more generous loan to the borrower.

4.4.2.1. FIRST MORTGAGE

A first mortgage is registered on the ship during construction. Normally, it is recorded by an appropriate competent authorities in the port of registry. All parties
interested in the ship are notified of the existence of the mortgage. When it is recorded, it becomes a notice of mortgage for subsequent purchasers and other creditors. It follows the ship wherever it sails and whichever port it calls into. The mortgage can not be erased by changing the possession and the name of the ship. This form of security meets the needs of both creditor and borrower. In other words, it allows the shipping company (shipowner) to take possession of the ship under construction and to use it later in service. On the other hand, it assures the creditor (bank) of the possibility of repossession of the asset in case of borrower default. Due to the default, either the bank can operate the asset or sell it on the open market in order to satisfy its own requirements.

4.4.2.2. - SECOND MORTGAGE

In a normal lending case, the banks often practice the second mortgage on the other vessel or any asset of the shipowner. The bank is only inclined to practice second mortgage on an asset, if there is not a huge amount of first mortgage security on the asset.

4.4.2.3. - ASSIGNMENT OF REVENUE

By granting this security, all income or a part of it generated by the vessel after construction in service goes to debt repayments. It is paramount that when the bank approaches finance of a ship, it needs to be satisfied of the future employment of the ship. This employment can be in such a way that it has to offer to the shipowner sufficient revenue which leaves some surplus after covering capital and operating costs of operations.
4.4.2.4.- ASSIGNMENT OF INSURANCE

The assignment of insurance is required by the banks against likely catastrophes. It may be made by the borrower according to the six main forms of insurance policies on the ship. These are Hull and Machinery Insurance (H&M) covering the ship against damage and total loss, Protection and Indemnity Insurance (P&I) covering the risks uncovered by H&M Insurance, Increase Value Insurance covering additional protection for the risk of total loss, War Risk Insurance covering the risks of damage and loss in case of war, Freight Insurance covering the losses of the earnings caused by destruction of cargo and ship, and Mortgage Interest Insurance covering the bank interest in case of loss of ship not covered by the other insurance policies.

4.4.2.5.- GUARANTEES

The bank approaching finance sometimes requires corporate guarantees from the borrower's parent or affiliate companies. This kind of guarantee even can be given on behalf of the charterer by its parent company as a guarantee of a charter party. In the case of being borrower as an individual proprietor, personal guarantees are required by the financial institution.

4.4.2.6.- SECURITY MAINTENANCE CLAUSES

It is often that the banks confront the decreasing market value of assets already financed. Security maintenance clauses are so designed that in the case of the foregoing situation, the bank as a mortgagee can be protected. In brief, if the market value of the ship falls below the value of finance provided, the bank can demand
additional security either in the form of another mortgage on the borrowers’ assets or an increase in existing guarantees.

4.4.3.- INTEREST RATES CHARGED BY FINANCIAL INSTITUTIONS

Commercial bank business is always profit based. In order to compensate the banking service and achieve profit, the banks charge their customers with several types of costs such as interest rate, management fee, commitment fee etc. This paper focuses on only the most important issue which is an interest rate in respect to economics of financing transactions. There are two types of interest rates which are floating and fixed. Floating interest rates charged by banks for ship loans differ from country to country. In Europe, normally, the London Interbank Offered Rate (LIBOR) is considered as a base rate. On the LIBOR, commercial banks charge spread which changes normally between 1.5% and 2.5% of the total loan. Namely, the total interest rate is LIBOR plus spread. LIBOR is a rate determined by major banks located in London by taking into account interest market fluctuations every three months. Hence, the interest rate charged to the loan may fluctuate every three months and consequently the interest repayments may change with time. The spread is a supplementary rate determined by bank financing newbuilding. The spread depends on the financial situation of the borrower, the risk potential of investment intended, the type and sufficiency of the security granted, the repayment period, the amount of loan itself, the current loan supply-demand situation in the market, the funds of the bank and the reputation of the borrower company.

In fact, it is impossible to assume the real future
figures of interest rates which are likely to be dependant on government monetary policies. As an alternative to the risk of borrowing money on floating interest rates, loans at the fixed interest rates are often offered by commercial banks. Of course, the fixed interest rate application is subject to several factors determining properness of project itself to be financed, sufficient security bound to project and the indications in the shipping market. The advantage of the fixed interest rates is how it allows the shipowner to prepare his budget accordingly.

4.5.- CERTAIN PRACTICES AND NEW INSTRUMENTS IN SHIP FINANCING ARRANGEMENTS DURING THE 1980s

The experience gained during the 1970s in ship financing transactions gave an opportunity to practice new instruments in the financial market. In other words, shipping finance has undergone considerable changes since the mid 1980s. These changes resulted from the reappraisal of the funding sources and arrangements. The main reason for this development was losses repeated in shipping and shipbuilding loans. This situation was confronted by almost all creditors who financed newbuilding contracts during the 1970s and the early 1980s. Although having serious losses in finance transactions, the financial institutions and governments preferred to reassess the financial sources and arrangements instead of restricting and/or cancelling lending operations, because, it had been realized that the shipping industry was playing a vital role in world trade and the ageing part of the world tonnage would be subject to replacement during the 1990s.
4.5.1.- ASSET BASED FINANCE

For the asset based finance, the banks rely on the vessel financed as collateral security. As standard type financing conditions, 50% of contract value of newbuilding may be financed at the premium interest rate or LIBOR plus spread based rate. If the part financed is extended to 70%-80% of the contract value, additional securities are required by banks such as a second mortgage on the vessel financed and first mortgage on the other assets of the borrower.

Nevertheless, this type of approach for ship loans caused difficult matters in respect of transferring the risk of the downturn tendency in the market. Under the existing mortgage arrangements for loans, borrowers always took the opportunity of operating the ships in good market conditions. They avoided bad market conditions and transferred the risk of lending transactions to creditors in times of depression. Generally, in the case of a bankruptcy of a borrower, the lenders suffer losses from the sale of the ship mortgaged, because of depression affecting second hand vessel prices negatively. These prices rarely cover the ship’s value financed.

4.5.2.- PROJECT FINANCE

The main sources of funds for repayment in project finance are cash flows resulting from the operations of the vessel financed. The main security requirement is employment in the form of long term charters (time or bareboat) concluded with charterers with good a reputation. In this technique, there is a close link between the repayment period of the loan and the duration of charter. The amount of credit can cover 100% of value
of contract signed.

There were remarkable examples of the project finance applications between Japanese shipbuilders and charterers and Hong Kong shipowners. The shipowners from Hong-Kong placed their orders with Japanese shipyards against long-term charters concluded with Japanese charterers. In this case, the financing instrument which was advanced to newbuildings the Japan-export credit schemes.

As far as profitability is concerned, there are some problems within the project finance technique. Whilst the repayments are subject to assignments of the charter party earnings, the shipowners and charterers are not so willing to conclude long term charter party arrangements. The reason for this is the cyclical structure and character of the shipping industry itself. Even long term cash flows are granted by charter contracts, the shipowners can encounter severe losses in case of increasing costs. By contrast, for the charterers, long term charters are not attractive in respect of likely increasing freight rates from which the charterers may retain more profits. The consequence of these difficulties in fixing long-term charters is that the financing transaction can shape the mixture of asset based and project finance. Despite these problems, the project finance is an instrument which is still most desired by banks, because, it gives the opportunity of performing intermediary based activity instead of direct lending activity to the financial institution.
4.5.3. - MULTI-CURRENCY BORROWING

In practice, borrowing money based on floating interest rates brings invisibility for future figures of interest rates in the market, even though the future forecasts of interest rates strongly depend upon certain market indications. Therefore, in order to reduce the cost of interest rates to be paid in the time of maturity and also take advantage of exchange rate fluctuations, multi-currency borrowing may be utilized by borrowers. In a time of rising interest rates on US $ in comparison with the interest rates of other currencies (DM, YEN etc.), borrowing on a non-dollar basis seems to offer the opportunity of paying less interest or visa-versa. The calculations indicate that it is better to keep out of currencies with rising interest rates. In case of borrowing loans in a currency falling against the US $, the periodic repayments of principal and interest become less in terms of borrowing US $. Nevertheless, it should be borne in mind that, the exchange rates having a decisive nature for the interest rates are subject to fluctuations. Therefore, the borrowers playing in the multi-currency market can run into increasing loan costs resulting from exchange rate fluctuations.

4.5.4. - EQUITY CAPITAL FOR SHIP FINANCING

Traditionally, investing individually on shipbuilding and shipping industries is not common practice within commercial and economic activities. Shipping is considered by potential investors as an area inherently speculative and risky. However, in the 1980s, several private and government based schemes were inserted in order to attract venture capital for ship investments in some developed countries.
One of the equity capital schemes is tax-based equity. It provides the opportunity for individuals to invest in partnerships in order to finance newbuilding. The basic mechanism for tax-based equity is the creation of companies based on the arrangement of limited partnership. This type of company is not subject to corporate tax, but, the individual partners as investors are subject to income tax. Each individual partner is taxed on his share of the profit. In addition, each investor can benefit from tax allowances for the high percentage of the purchase value of partnership shares representing ship investments. In some countries, tax allowances from 50% to 70% of the investment are available. Depending on national legislation, the profits achieved from the sale of partnership shares are free of tax.

Under the above mentioned framework, in Scandinavian countries, the K/S (Kommanditt Selskab) schemes are in operation. K/S schemes allow individuals to participate as partners in shipping companies with limited liability. Hence, they can achieve tax reliefs which are the prime benefit of the system. The companies themselves are not liable to tax. However, the profits as well as losses are divided among the investors according to the shares held. This system can be successful in the countries having a tax structure with high marginal income rates. Among Scandinavian countries, particularly in Norway, there was high participation in the system from individual investors to joint-stock companies who wanted to get rid of paying high income tax. In the UK, a similar system named the

Business Expansion Schemes (BES) was set up in 1983 with the same purpose as K/S.

On the other hand, before 1980, to raise equity on the stock market was not practiced by shipowners. However, in the American Stock Exchange, a huge amount of capital was raised in 1988 in this regard.

4.5.5.- FINANCING THROUGH LEASING

Leasing ships, as one of the main financial innovations, was started in the early 1970s. The benefit from leasing transactions depends basically on tax deductions according to a national legislation of countries in which leasing arrangements are available.

In a leasing arrangement there are two parties. A lessor who is owner of the asset and lessee who is user of the asset. From the shipbuilding standpoint, the lessor possibly a bank, acting on behalf of principal, orders a newbuilding by organizing available financial incentives and providing finance for the balance. The user of the ship (Lessee) enters into the long term lease contract with the lessor for the full use of the ship. In this arrangement, even 100% finance can be provided for a long period. If it is compared with the normal bank credit arrangements, leasing has advantages, because, the financial institute normally tries to shorten the repayment period in other financial transactions. Although the lessor signs the contract for newbuilding with the shipbuilder, the lessee, if there is a supervision agreement, can act as an agent to the lessor and deals with the shipyard in terms of specifying the desired technical and operational characteristics and abilities of the vessel. For newbuilding acquisitions, the lessor takes
advantage of all available credit schemes. The remaining part of the contract price is financed by the lessor by paying from his own funds, in the case of having credit which is unable to cover all the price of the newbuilding.

The legal technicalities of leasing arrangements vary from country to country. Nevertheless, in this arrangement, the lessor holds the ownership of the ship leased to the lessee who is employing the ship in the course of his own interest. However, certain stipulations on operational control of the ship, related to maintenance and repair, exist in the leasing contract.

Normally, there are two basic types of leasing, so called "Operational Leasing" and "Finance Leasing". As an owner, the lessor is responsible for providing technical services for the ship leased in relation to maintaining technical abilities in case of operational leasing. In common practice, the lessee has the right to demand substitution of equipment in the case of failure creating technical obsolescence. These conditions are provided by the supplementary repair and maintenance contract accompanying the leasing contract. The leasing arrangement in which the lessee is responsible for the whole expense of repair and maintenance ensuring the ship is technically in operation is called finance leasing. The lessee is also responsible for insurance arrangements. However, the lessor may have the right to demand certain technical standards such as the maximum period between drydockings and full compliance with IMO regulations.

Besides offering the facilities of using tax

incentives, the leasing arrangements have useful options at the end of the leasing term. When the leasing term expires, there are some options available for the lessee in the form of renovation of the contract for a further term at an agreed rental, the purchase of the asset at an agreed or market actual price, or a sale of the asset in order to share the revenue. These provisions can be agreed in the leasing agreement. On the other hand, these arrangements are subject to the national legislation of a country in which the leasing contract is concluded. The choice of option by the lessee is important in terms of taxes incurred and also the lease payments to be paid.

The advantages of leasing agreements are subject to the applicable taxation regulations varying from country to country. For instance, under US Legislation, the lessee is able to deduct the whole amount of lease payments from his revenue. Whilst the US Leasing regulations do not allow the operator to register his ship abroad, UK legislation permits the lessor to put the ship under foreign flag provided that the lessee is a UK based operator for tax purposes.²²

In many examples of newbuilding finance cases, the leasing arrangement can be a less expensive method than a conventional loan application. In leasing arrangements, the lessor enables to leverage the tax benefits of ownership and to share this advantage with the lessee by lowering the amount of rental, because, as being asset owned by the lessor, the ship itself does not appear in the balance sheet of the lessee. Besides having certain advantages in financing ships, leasing arrangements

include some disadvantages. For example, due to the cyclical character of the shipping industry and freight market, the actual prices of the ships can float extremely. While the prices in the second hand market increase, the lessor can not take advantage by selling the ship leased. That’s why, generally the leasing contracts contain a clause in order to terminate of the leasing early, but, it produces some costs to the lessor. The national legislation on the leasing arrangements can impose measures which can discourage leasing transactions. Such measures may be in the form of obligations enforcing a lessee to become resident in the country and/or the vessel to register with the national flag. This implementation may prevent many potential lessees who may prefer to operate their ships under other flags with the purpose of avoiding high manning costs and taxation implications.

4.6.- FINANCING SHIPS IN DEVELOPING COUNTRIES

To built or to purchase a ship, as an individual asset, requires a comparatively huge amount of money. This sum of money is not easily affordable depending on the type and size of the ship. In other words, the industry itself in which the ships are operated is risk laden. The processes of borrowing and lending a huge amount of money are subject to the strong and flexible legislative infrastructure and reputation achieved in the long term. Therefore it is not possible to see intensive ship financing through government credit schemes and also banks in most of the developing countries. On the contrary, in most of the developed countries which are traditionally indebted to shipping and shipbuilding for their industrial development, financing ships takes place as a major economic activity. On the other hand, in the newly
industrialized countries of the Far East, the financial arrangements in shipping and shipbuilding have started to be concluded nearly two decades ago. Needless to say, shipping and shipbuilding have played an undeniable important role in their economic development.

In developing countries, shipowners find themselves in a difficult position by having absence of direct access to the international ship financing community for their fleet growth objectives. After many breakdowns in ship financing transactions during the 1970s and 1980s, the processes followed by financial institutions are more severe now. Moreover, the financiers are reluctant to extend credit to developing country shipowners. There are several reasons for this reluctance. First of all, the track record of a company or shipowner is an important subject. For the time being, most of the developing countries are recent entrants into shipownership. The companies likely newly established do not have long track records. Another important concept is the financial soundness of a company. Besides the financial sufficiency of a company, the economic situation of a country is also a criteria for the ability to handle financial transactions. Last but not least, the legislative infrastructure should be capable of executing international transactions. From this stand point, flag regulations and mortgage arrangements should provide sufficient protection to foreign lenders. In brief, the legal environment in which the foreign financiers and investors can live without trouble should have been established accordingly.

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If a developing country's shipowner operates the fleet complying with technically and managerially international standards and professional requirements, without relying on employment given by his home country, irrespective of whether his country is creditable or not, the shipowner may be reliable and eligible for financing. In addition, the shipowner can associate with the foreign companies and/or shipowners can merge in the form of joint ventures. Another way is to associate with a vessel operating pool which requires the compliance of member ships with the international requirements enforced by the pool. These arrangements help the developing country's shipowner to achieve and share the track records possessed by associates. Sometimes state guarantees can assist the shipowners in order to be financed by foreign lenders.

4.7.- FUTURE PROSPECTS OF SHIP FINANCING

As explained in Chapter Four, the prime source for ship financing is government-backed credit schemes. In many countries, development banks and export-import banks are given responsibility to finance ships and the shipbuilding industry. Mostly, the development banks look at domestic transactions, while the export-import banks deal with international finance. These financial institutions operate under government support, carrying the burden of financial transactions up to 80% of the contract price for OECD Understanding based transactions.

The secondary source should be a commercial bank on which the shipowner relies, if his retained earnings do not fulfill the requirements of a financial transaction. Normally, the credit given by public sources is based on OECD export credit conditions, if the parties agree. Nevertheless, the shipowner has still to find out, at
least, 20% of the contract price changing from 1-15 M US $ according to the type and size of a ship. Then, the commercial bank comes into operation to finance 20% of the contract price as a contribution of the shipowner, provided that its requirements are fulfilled.

Despite high contract prices expected during the 1990s, there is a certain consensus that world tonnage will be replaced during the next decade. Technologically advanced ships of the 1990s will be more expensive than the ships of the 1980s. For this reason, governments will get involved with the financial transactions by providing credit schemes and insurance facilities. There is no doubt that, various types of measures of assistance will be in operation in major shipbuilding countries. The European Community will possibly permit the government aids to shipbuilding industries of member states.

Many commercial banks have their own specialized shipping departments dealing with financing ships. The other type is a kind of specialist bank devoting itself totally to ship financing. Many commercial banks in European countries have overseas departments financing ships internationally. Ship mortgage banks are also popular in some countries.

It is obvious that the commercial banks will also be financing the newbuildings, but, they will possibly require project finance concepts confirming that the project itself will be providing sufficient net return to afford debt payments. This will bring only economically sound projects into the shipping scene. In addition, taking into consideration increasing shipbuilding capacity in developing countries, the international financial institutions will be paying more attention to financial
transactions relating to the newbuildings to be laid down in developing countries.

On the shipowner side, the joint ventures and/or consortia type mergers will be popular for shipping companies as well as shipbuilders in order to meet the heavy burdens of credit schemes conditions and other financial difficulties, such as high operating costs. Even shipping companies will be more interested in the ownership of shipyards as was seen during the last decade. This will bring facilitation in financial transactions and the cheap means of ship prices for the shipping companies owning the shipyards.

As mentioned previously, each year 16.6 B US $ will be required for newbuilding investment which will replace the older part of tonnage until the year 2000. This deal is a huge amount of money which will urge the financial institutions to be more careful in financing ships. Therefore, the flexibility will be lessened by looking for long term employment for the assets to be financed due to the heavy losses experienced during the 1980s.

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Section 3.5 of Chapter 3
PART TWO

THE CURRENT SITUATION AND FUTURE PROSPECTS OF TURKISH SHIPPING AND SHIPBUILDING, AND THEIR CONSIDERATIONS FOR RELATED EC POLICIES

CHAPTER FIVE

THE TURKISH ECONOMY AND SHIPPING

5.1.- THE TURKISH ECONOMY AND RECENT DEVELOPMENTS

The republic of Turkey, covering an area of 779,452 sqkm situated at the meeting point of three continents, lies in the northern half of the hemisphere at a longitude of 36°N to 42°N and a latitude of 26°E to 45°E, rectangular in shape and approximately 1600 km in length and 550 km in width. The country, owing to the suitability of its geographical location, has been the birthplace of several great civilizations throughout history. Being surrounded by sea on three sides, the country has about 6000 km of coastline which is evidence of the suitability and ability to easily maintain commercial activities with numerous countries through maritime transport as well as other transport modes.

In the early times of the Republic of Turkey, the population was around 10 million people. This figure had risen to 50 million by 1950. With the annual growth rate of 2.5%, the population is expected to reach 70 million by

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the year 2000.

As to the economic development of the country, the Republic of Turkey has been implementing an economic policy based on import substitution in most of its life since its foundation in 1923. Nevertheless, just after 1980, the Turkish Government started to introduce a new package of economic reform measures by considering an outward-looking policy based on market economy principles rather than direct government intervention. The last decade has been spent on restructuring the economy in terms of tax and monetary policies, flexible exchange rate policies, abandoning price controls, liberalizing and encouraging exports and imports.

Although the Fifth Five-year Development plan set 6.3% annual growth target as an average, the economic growth of the country has performed 5% yearly as an average during the latter half of the last decade. The value of exports climbed from 5% of GDP in 1980 to 16.5% in 1988. The export value was 4.7 M US $ in 1981 and 11.5 M US $ in 1989. The import value was 8.9 M US $ in 1981 and 14.9 M US $ in 1989. The rate of cover of imports by exports reached 77% in 1989 from 52% in 1981.

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3 Shipbroker "Assessing the Growth of the Turkish Shipbuilding Industry", Supplement, p.v, June 1985

4 Commission of the European Communities "Commission Opinion on Turkey's Request for Accession to the Community", SEC(89)2290 Final/2, p.6, Brussels, 20 Dec.1989

Transport plays a leading role within the service sector. It accounts for 10% of GDP on average. Nevertheless, road transport for domestic services and even for transit services is of paramount importance. Maritime transport has started to become the main activity for international trade since 1980 as a result of implementation of a market economy policy. Turkish Foreign Trade accounting for 28.2 M Tons in 1980 rose to 48.9 M Tons in 1986 and 69.1 M tons in 1988. The share of maritime transport in Turkish Foreign Trade was 22.8 M Tons in 1980, 48.9 M Tons in 1986 and 52.5 M tons in 1988*. As it is understood, Turkish Foreign Trade was transported 81% by sea in 1980. It was 86.6 % in 1986 and 76% in 1988. It is clear that the share of maritime transport for Turkish Foreign Trade has been more than three fourths of the whole foreign trade.

By contrast with the considerable share of sea transportation in Turkish Foreign Trade, the Turkish flagged ships carried 7.2 M tons in 1980, 17.6 M tons in 1986 and 19.7 M tons in 1988 that accounted for 31% in 1980, 41% in 1986 and 37.5% in 1988 of total Turkish maritime cargo respectively. It can be easily determined that the share of Turkish flagged ships is not sufficient in the carriage of Turkish international maritime cargo.

In order to sustain its industrial development, Turkey has to continue importing raw materials as well as sophisticated equipment, computerized machinery and information technology. As a raw material import, crude oil is the main commodity among the goods imported that it

approximately accounted for 50% of total imported goods in 1980. Although the amount of oil imported has been globally rising year by year, its share within total imports has been deceasing, because, the volume of Turkish import goods has increased tremendously during the last decade. The import of oil accounted for 29% in 1985 and 17% in 1988. The oil is followed by equipment and machinery, chemicals and steel product imports. Capital good imports rose from 20% in 1980 to 28% in 1988. Consumer goods amounted to 8% of total imported goods.

The picture of exports has been gradually changing since 1980. Agricultural products which accounted for 60% of total exports in 1980 fell to 20% in 1988. This change was in favour of exporting manufactured goods which were 36% in 1980 but 77% in 1988 among total export goods. It seems that this development, eventually, will require employing fully cellular container ships not yet possessed by the Turkish National Merchant Fleet.

Turkish export goods are mostly represented by raw and processed agricultural products, textiles, steel products, chemicals, machinery and equipment. The export of unprocessed agricultural products is keeping its place static, but, processed products are increasing gradually. Even if it was possible to encounter the products of the shipbuilding industry among Turkish export goods here and there during the last decade, ships did not significantly show up in the export list. Whereas, the Republic of Turkey has a very ancient tradition in shipbuilding

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industry coming from old times®. In fact, there is great potential for the shipbuilding industry in Turkey, particularly in the 1990s, in order to receive a share from the expected replacements of world tonnage. This potential is reflected by both labour costs and existing shipyard capacities which are discussed later on. However, for the time being, some private as well as state shipyards are very busy building ships for export. For example, the largest single order covering 24 ships with the total amount of 116 M US $ was placed in one of the private shipyards. It was certainly the largest single order ever placed in Turkey®.

5.2.- NATIONAL FLEET BY NUMBER AND TYPE.

TONNAGE AND AGE

The Turkish merchant fleet is roughly 30% owned by the public sector and 70% by the private sector. It consists of dry bulk carriers, tankers, general cargo ships, Ro-Ro vessels, chemical carriers, tug boats etc.

The total number of ships were at 836 in 1989. Out of 836 ships, 35% imported and 65% domestically built. As to number of ships, the Turkish National fleet was composed of 53.7% general cargo ships, 10.3% tankers, 5.9% bulk carriers, 2.2% chemical carriers and 28% other type of ships. Out of a total number of imported ships which were 291, 39% general cargo ships, 15.1% bulk carriers, 11.3% tankers, 34% other types including tug boats and service crafts. Out of 836 ships, 347 vessels are engaged

® Shipbroker "Assessing the Growth of the Turkish Marine Industry", Supplement, p.XXIII, June 1985

in international maritime transport. These ships were composed of 65.1% dry cargo ships, 14.1% bulk carriers, 11.5% tankers, 4.4% chemical carriers, and 4.6% other types in 1989. The Fleet for cabotage consisted of 489 ships out of a total of 836. These ships engaged in domestic trade were composed of 45.6% general cargo vessels, 14.3% city liners, 13.9% tug boats and service crafts, 9.4% tankers, 5.3% city car liners and 11.5% other types.

The total capacity of the National Fleet were 3,048,573 GRT, 79.4% of which were imported and as 20.6% is domestically built. The majority of National Tonnage was purchased from abroad. The National Fleet was composed of 33.1% bulk carriers, 26.6% tankers, 26.1% general cargo vessels, 6.9% OBO and 7.2% other types. The state owned fleet accounting for 922,356 GRT was composed of 72.6% imported ships and 27.4% domestic construction. Privately owned ships accounted for 2,126,217 GRT consisting of 82.4% imported vessels and 17.6% domestic construction. Imported ships accounting for 2,420,599 GRT are 39.3% bulk carriers, 31% tankers, 16.2% general cargo, 8.7% OBO and 4.9% others. Bulk carriers considered as easy-built ships were the majority among imported ships. Domestically constructed vessels accounted for 627,974 GRT were 64.4% general cargo, 9.8% tankers, 9.4% bulk carriers and 16.3% others. The majority of domestic construction was general cargo (dry cargo) vessels. In general, the majority of the National Tonnage was purchased from abroad. Out of the total National Tonnage, 2,784,859 GRT were engaged in international sea transportation. This tonnage was composed of 36.3% bulk carriers, 28.4% tankers, 25%

general cargo ships, 7.5% OBO and 2.8% others. It is clearly seen that container ships do not sufficiently exist in the National fleet. This is contrary to the recent developments in Turkish Foreign Trade which accounted for more than 70% manufactured goods.

The tonnage for cabotage was 263,714 GRT. The fleet operated in cabotage was composed of 29.2% imported ships and 70.8% domestic built. From this tonnage, 37.3% general cargo ships, 13.4% city liners, 10.8% city car liners, 8.4% tug boats and service crafts, 8% tankers, 7.1% intercity ferries, 5.9% passenger/ferry, 4.3% train ferries and 4.8% others. The majority of ships engaged in cabotage were composed of domestically constructed ships. These ships were comparatively small in size.

For the calculation of the fleet age, it is common to use two different methods which are geometric mean (Tonnage weighted) and arithmetic mean. The Geometric mean and the arithmetic mean of the age of the fleet were 15.5 and 18.8 respectively in 1989. The age of general cargo fleet accounting for 53.7% of the total was 15.4 as an arithmetic mean and 19.6 as a geometric mean. While the age of imported general cargo ships was 21.5 (40.3), the general cargo ships built in domestic shipyards was 9.5 (12.5) years old. The age of tankers accounting for 10.3% of total tonnage was 14.2 (18.6). The tanker fleet

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13 The numbers in the parenthesis show the tonnage weighted age
imported was 14.3 (24.7) years old. The age of tanker fleet domestically built was 12.2 (11.2). The bulk carrier fleet accounting for 5.9% of the total tonnage was 15.8 (15.8) years old. While the age of the fleet of imported bulk carriers was 16.3 (16.8), the bulk carrier fleet built in national yards was 7.2 (7.2) years old. The age of chemical tanker fleet accounting for 2.2% of the total tonnage was 15.1 (15.1). The fleet of imported chemical tankers was 15.7 (15.9) years old. The age of domestic construction in this category was 13.3 (13.7).

As to total National Tonnage, the ages of total imported ships and domestically-built ships were 17 (30.6) and 9.9 (12.5) respectively in the late 1988 and the early 1989. The imported fleet was rather old in comparison with the fleet built in domestic yards. It was an indication that, there is always a handicap in buying second hand ships in terms of age and efficiency. If the time of the late 1990 in which this thesis was written is thought, it can be certainly mentioned that the fleet was more older in the late 1990 than the fleet in the early 1989. As was indicated previous paragraphs, the available data of the early 1989 was used in terms of capacity, ship type, numerical analysis of the fleet and the age in preparation of this thesis. However, the table showing the tonnages of the groupings of different ship types and the total capacity of the national fleet at 1.5.1990 as a latest available data is given in table 15. If the analysis given in previous paragraphs regarding capacity, ship types and age of the national fleet is considered, it can be obvious seen that the Turkish National Fleet containing quite old are subject to replacement in the near future.

5.3.- CARGO TURNOVER DEMANDING SHIPPING SERVICES

The cargo turnover in the Republic of Turkey can be examined under three items. One is imported goods, the other is exported goods and the last one is transit cargoes. The cargo turnover is also classified according to the type of commodities and goods. These are crude oil, petroleum products, chemicals, mineral ores, grain, timber, general cargo (break bulk), vehicles and wheeled machineries, refrigerated cargo, livestock, reefer cargo and agricultural products etc.

The foreign trade of the Republic of Turkey is given in table 16 and table 17 as the cargoes transported by sea and the cargoes transported by Turkish flagged ships\(^1\). In addition, the figures related to ton\(\times\)miles calculations are given by table 18\(^2\).

During the 6 year period, the figure for ton\(\times\)miles for the goods imported increased by 210.4%. It means that foreign trade started between far away countries and the Republic of Turkey. Also in the same period, the figure of ton\(\times\)miles for the goods exported increased 188.2%. It means, the export of goods was started for long distances.

As to the years until the mid 1990s, the forecasting of cargo tonnage of Turkish Foreign Trade to be


\(^2\) Source: Gunay, Muzaffer "The Analysis of Turkish Foreign Trade and the Planning of Turkish Merchant Fleet", Istanbul, 1989 (in Turkish)
transported by sea is given in tables 197 and 2017. On the other hand, the trade in cabotage by years is shown in table 2118.

As is seen, the domestic trade by sea increased 198% between 1960 and 1969. The forecast of the cargoes to be transported in cabotage for the coming years is shown in table 2219. In addition, on the basis of tonXmiles, the total domestic trade by sea is forecasted as 12,500,000,000 tonXmiles for the year 1994.

The transit cargoes through Turkish Ports are shown in table 2320. As is indicated in table 23, between the years 1982 and 1989, the rate of increase in transit cargo is 256%, but, the share of Turkish ships, according to the data available, was 1 M Ton/Year (2% of total) as an average during this period. This share is quite low in comparison with the total transit cargo. The Turkish flag share relating to transit cargo is forecasted 3 M Tons and 4,500,000,000 tonXmiles for the year 199421.

17 Source: Gunay, Muzaffer "The Analysis of the Turkish Foreign Trade and the Planning of the Turkish Merchant Fleet" Istanbul, 1989 (in Turkish)

18 Source: Ministry of Transport Data Center (Gesibil), Ankara, 1990

19 Source: Gunay, Muzaffer "The Analysis of the Turkish Foreign Trade and the Planning of the Turkish Merchant Fleet", Istanbul, 1989 (in Turkish)

20 Source: Ministry of Transport Data Center (Gesibil), Ankara, 1990

21 Gunay, Muzaffer "The Analysis of the Turkish Foreign Trade and the planning of the Turkish Merchant Fleet", p.554, Istanbul, 1989 (in Turkish)
5.4.- CROSS TRADE IN WHICH TURKISH SHIPS PARTICIPATE

The cross trade in maritime transport means the carriage of goods between countries by a ship which is flagged with neither the flag of the country of a loading port nor the flag of the country of a discharging port.

Due to the inherent nature of shipping, the statistical data can not be achieved easily, in particular, the data from the actors taking part in shipping operations. Moreover, the ships operated in a cross trade carry goods without calling their home country in which they are registered. Therefore, the only way to receive data is by examining the port statistics of the countries which are often treated confidentially. The other way is to make an enquiry by using a questionnaire among the participants in the cross trade.

Among the shipowners and shipping companies participating in cross trade, the enquiry was held by the Istanbul and Marmara, Agean, Mediterranean, Black sea Regions Chamber of Shipping in 1986. The results achieved is shown in table 24. The total amount of goods transported in cross trade by the Turkish flagged ships was 10,254,122 tons in 1986. After 1986, there is no sufficient data available. Nevertheless, at least the same amount of carriage is expected to be performed annually until 1994.

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Source: Gunay, Muzaffer "The Analysis of the Turkish Foreign Trade and the Planning of the Turkish Merchant Fleet", Istanbul, 1989 (in Turkish)

Gunay, Muzaffer "The Analysis of the Turkish Foreign Trade and the Planning of the Turkish Merchant Fleet", p.555, Istanbul, 1989 (in Turkish)
5.5. - FUTURE PROSPECTS OF NATIONAL FLEET AND CAPACITY REQUIREMENTS

During the 1980s, mostly second hand ships accounting for the value of about 450-500 M US $ were purchased and imported into the country. At present, the age of total tonnage which is still serving under the Turkish flag is about 15.5 as geometric mean (tonnage weighted) (18.8 as arithmetic mean). It is clear that the buyers taking advantage of low prices of second hand ships under depressed market conditions have purchased comparatively old ships during the 1980s. The total tonnage of the aforesaid ships is about 2.5 M DWT of which 1.6 M DWT needs urgent replacement in order to keep efficiency at a certain level and reduce the operating costs. At the beginning of the 1990s, the remaining tonnage out of tonnage requiring urgent replacement is about 2.7 M DWT.

It is obvious that the existing capacity of the Turkish Shipbuilding Industry which accounts for 357,660 DWT/Year can not cover the whole replacement part of the Turkish Fleet, but, it can construct the 1 M DWT tonnage up to the mid 1990s.

The rest of the fleet which is about 2.7 M DWT will be requiring replacement after the mid 1990s, because, the age of this part will be reaching 20 years in the late 1990s.

Under the highlights of the above mentioned analysis derived from the available information on the current situation of the existing merchant fleet and the researches done by professional authorities, the 1990s are the years for replacement of at least 50% of existing
tonnage, if the efficiency and competitiveness are considered as tools contributing to the national economy and development of the Republic of Turkey.

The above mentioned assumptions were made according to the conditions of the current Turkish merchant fleet. However, since the Republic has opened its economy in an outward direction in terms of liberalization of import and export transactions, foreign trade increased about 200%. At the same time, the maritime transport share of Turkish foreign trade goods increased 170% during the last decade. It means that Turkish Foreign Trade is rising tremendously year by year. The required merchant fleet should also be considered according to the demand indicated by foreign trade goods.

The general forecast of the increase in Turkish Foreign Trade for the years up to 1994 was elaborated in the former sub-chapter of this chapter. The tonnage shown in table 25 is required in order to carry Turkish sea borne cargo.

As to cargo sharing, the UN Code of Conduct concept was emphasized in the bi-lateral agreements between Turkey and other countries. If this concept can be taken into consideration, the tonnage capacity of Turkish ships forecasted in table 22 is required for the transport of Turkish sea borne cargo in the coming years.

The goods handled in the cabotage operations are given in previous the sub-chapter of this chapter. The total tonnage required for the year 1994 is forecasted as

24 Gunay, Muzaffer "The Analysis of the Turkish Foreign Trade and the Planning of the Turkish Merchant Fleet", pp.502-504, Istanbul, 1989 (in Turkish)
777,000 DWT. Out of this need of 777,000 DWT, 156,668 DWT will be available in the hands of Turkish cabotage operators in 1994. The rest of the total required tonnage that is 620,332 DWT will be needed by the cabotage fleet in 1994.

As to the transit cargo transport performed by Turkish flagged ships, the required tonnage by 1994 is forecasted as 174,000 DWT in comparison with the 3 M Tons Turkish flag share within transit cargo which is forecasted for the year of 1994.

As to cross trade, the required Turkish tonnage is forecasted as 365,000 DWT, in comparison with the prevailing share of the cargo tonnage transported by Turkish flagged ships. This cargo tonnage has already been assumed as 10 M tons up to the year 1994.

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25 Gunay, Muzaffer "The Analysis of the Turkish Foreign Trade and the Planning of the Turkish Merchant Fleet", p.550, Istanbul 1989 (in Turkish)

26 Gunay, Muzaffer "The Analysis of the Turkish Foreign Trade and the Planning of the Turkish Merchant Fleet", p.552, Istanbul, 1989 (in Turkish)

27 Gunay, Muzaffer "The Analysis of the Turkish Foreign Trade and the Planning of the Turkish Merchant Fleet", p.554, Istanbul, 1989 (in Turkish)

28 Gunay, Muzaffer "The Analysis of the Turkish Foreign Trade and the Planning of the Turkish Merchant Fleet", p.556, Istanbul, 1989 (in Turkish)
CHAPTER SIX

SHIPBUILDING INDUSTRY IN TURKEY

6.1.- BACKGROUND OF SHIPBUILDING ACTIVITIES

Being surrounded by seas on three sides has given considerable chances to the country to get involved with maritime activities throughout its history. That’s why needless to say in this paper that shipbuilding activities had been existence centuries ago. Even today it's possible to see the roots of shipyards traced in ancient times along the coast of the Anatolian Peninsula. Sinop (on the Black Sea) and Alanya (on the Mediterranean) shipyards established by Selcuk Turks could be mentioned as the first modern examples of their times in 1200 years. The west coast of Anatolia had witnessed shipbuilding activities such as Izmir shipyards set up by Turks (Aydin Beyliği) in 1300 years. Considerable shipbuilding activity had started during the second half of the year 1400 in Istanbul by Ottoman Turks by establishing Istanbul shipyards which are the fundamentals of the current shipbuilding industry in Istanbul.

In the first half of 19th century, the dry docks in Halic (Golden Horn) were built as a continuation of shipbuilding activities started in 1400 years. Under this infrastructure, shipbuilding in Turkey reached the 19th century. After the foundation of the Republic, the shipbuilding industry has gradually made progress in respect of capacity expansion by building new shipyards, particularly since 1950. Shipbuilding activity had reached the potential to build 6500 DWT General Cargo ships in the late 1950s. Turkey has put the shipbuilding industry within the five year development plans since 1963 in which
the planned period was started. The first five year planned period (1963-1967) witnessed great efforts and activity in order to build up ships for cabotage shipping.

After the first plan mentioned above, four five-year development plans have already been implemented in Turkey. During the application of these plans, the development for shipbuilding capacity has continued. On the other hand, the shipowners have been supported both to import from abroad and to buy from domestic shipyards. Nevertheless, the financial support by governments could not reach the substantial subsidy program concept which was being implemented by West European and Far Eastern countries and Japan as well as centrally planned economies. For this reason, inter alia, shipbuilding could not reach intensive export potential likewise in Japan, Far Eastern dynamic Asian economies and European countries. There is no doubt about it that the Turkish shipbuilding industry has been exporting the ships, but, these transactions have remained limited in comparison with its existing shipbuilding potential.

6.2.- NATIONAL SHIPBUILDING CAPACITY AND RECENT DEVELOPMENTS

National Shipbuilding Capacity consists of shipyards and repair yards accumulated under the umbrella of three separate categories. They are Navy shipyards, state owned facilities subordinated to the Turkish Shipbuilding Industry Co.Inc. and shipyards possessed by the private sector. Navy shipyards are not the subject of this research paper. However, it is useful to say that they are able to build merchant ships up to 25,000 DWT.

The main shipbuilding activity is assembled in the
shipyards of the Turkish Shipbuilding Industry Inc. Company. This company is operating Pendik, Halic, Camialti and Istinye shipyards in Istanbul, and Alaybey Shipyard in Izmir. Halic and Camialti shipyards were expanded in the late 19th Century while Istinye Shipyard was built in the early 20th Century.

For years, one of the main investments in the shipbuilding industry has been Pendik Shipyard which was started in 1939. The shipyard has gradually grown up and become able to build ships up to 75,000 DWT in 1982. Currently, in the shipyard, the grave dock is under construction. When it is completed, the facility will be able to lay keels up to 170,000 DWT ships. This is expected within the next few years. The Pendik Shipyard has been producer of marine diesel engines under licence since 1982. It is believed that the engine manufacturing will increase in association with the rising ship production.

The private shipbuilding activity is also very old in Turkey. It started as wooden construction. Subsequently, small steel boats which were used for short sea shipping were launched. These activities are being continued even today, particularly on the Black Sea coast. In addition, yacht and pleasure craft production is available on the Agean coast of Turkey. In order to promote private shipbuilding activities, Aydinli Bay in Tuzla of Istanbul was allocated by the government for private enterprises in 1979. So far, these private builders have been busy building simultaneously the vessels and the yards themselves. For the time being, some yards are still under construction in order to outfit the necessary machinery and equipment. The largest shipyard out of the Tuzla area lies on the Marmara Sea with the
capacity for handling vessels of up to 30,000 DWT, but, its deliveries were under 10,000 DWT ships during the 1980s.

Existing shipyard capacities and expected expansions are shown in table 26 and table 27. The total shipbuilding capacity is 357,660 DWT/Year in Turkey. As is seen, the major increase in the capacity as a total will be performed by privately owned shipyards. However, the production capability of these yards will intensify to build 5,000-30,000 DWT ships. It seems that the capacity to be reached in 1995 will be a significant potential in order to export ships. Nevertheless, it may be insufficient to enter substantially into the world shipbuilding market, because, to construct large size dry and liquid bulk carriers is impossible in respect of shipyard capacities. In fact, the economies of scale urge the bulk commodity market to require large size vessels.

6.3. - COST STRUCTURE

As far as it is known, the shipbuilding cost compromises two components which are materials together with equipment and operating costs. In the Turkish shipbuilding industry, the material cost can be considered in two parts as domestic procurement and imports. In general terms, the material and equipment imported account for 50%-55% of a total cost. The remaining 15%-20% is spent on internal market to purchase domestically available materials and equipment. The rest of the total cost which is 30%-35% represents labour costs which are the most effective criterion to compare international


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Within the existing organisational structure of the shipbuilding industry which is substantially state owned, newbuilding prices show different levels in the private sector than in the public sector. Nevertheless, as an average calculation, the cost for newbuildings can be considered 800-1000 US $/DWT for bulk cargo ships in Turkey. In comparison with world shipbuilding prices from different regions, the cost is much lower than West European newbuilding costs. Turkish shipbuilding costs are even less than Japanese costs which are given for dry bulk cargo ships as 1250-1450 US $/DWT.

The aforementioned Turkish newbuilding costs can compete with South Korean costs if the Turkish shipbuilding Industry is rationalized in terms of the construction period, arrangement of importing materials and equipment in due course, improvement of technology being used and reorganisation of financial arrangements for newbuildings both by government-backed finance institutions and commercial banks.

6.4. - DOMESTIC DEMAND FOR NEW CONSTRUCTION

During the last decade, Turkish shipowners and shipping companies mostly preferred to purchase secondhand ships from abroad. Of course, there were strict reasons and strong grounds for these decisions. The main reason, among others, was cheaper secondhand prices because of the low freight rates resulting from recession in shipping in the early 1980s. Therefore, the national fleet needs young and efficient tonnage for competitive operations. As an average, the age of the fleet is about 15.5 years as a
geometric mean (18.8 years by arithmetic mean). Needless to say, the national fleet needs renovation in the short run.

On the other hand, the national fleet is able only to carry approximately 40% of international Turkish maritime cargo. There is no doubt that increasing the share of Turkish Flagged ships in the carriage of Turkish Foreign Trade assists the country in achieving a proper balance of payments record.

Turkish Foreign Trade Cargo tending to rise since 1980 will be 69.4 M tons in mid 1990 and 88 M tons in 1994. Currently, around 80% of total Turkish import and export goods are carried by sea transportation.

Even if there is no increase in Turkish foreign trade goods carried by sea, the age of the fleet itself urges replacement of the fleet.

At present, the existing capacity of the Turkish shipbuilding industry 357,660 DWT/YEAR is far from providing the whole tonnage to be replaced. Nevertheless, some part of the tonnage to be replaced can be constructed in domestic shipyards provided that international and internal competition is granted. Ships above 30,000 DWT may be imported due to the lack of the slipway for construction. Only one shipyard is available for

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2 Istanbul and Marmara, Agean, Mediterranea, Black Sea Regions Chamber of Shipping "Report on Maritime Sector", p.94, Istanbul, 1989 (in Turkish) (As was explained in section 5.2)

3 Table 18 shows Turkish foreign trade cargo as imports and exports by years.

4 As it is explained in section 6.2 and table 24
construction up to 75.000 DWT ships.

The ship types required by the Turkish economy and cross trade participation are crude oil carriers, product tankers, LPG and LNG carriers, bulk carriers, timber carriers, general cargo ships, Ro-Ro, container ships, reefer vessels and live stock ships. Most of these ships can be built in Turkish shipyards. However, some of them such as product carriers, Ro-Ro ships, LNG and LPG carriers require additional know-how and advanced technology to be transferred in comparison with the existing facilities. The serial construction of more easy-built and less complex dry and liquid bulk carriers may be considered the first alternative to be constructed in Turkish shipyards.

6.5.- GOVERNMENT ASSISTANCE TO SHIPBUILDING IN TURKEY

Out of a few examples of privately owned successful shipyards, traditionally the shipbuilding industry has been developed to the present time by government ownership. As a common practice, the other government owned companies operating in the maritime field are clients of this shipbuilding industry.

Frankly speaking, the shipbuilding industry did not take place within the development strategies of the country in order to export ships to the international shipbuilding market. Nevertheless, the Turkish shipbuilding industry has been determined for many times as an activity supporting national fleet to be expanded and renewed. Even these decisions were not effective because of having a capability of comparatively constructing small ships in size. Also, complete shipyard expansion projects were not hurried in which would make
the industry able to support the national fleet. Before 1980, the Turkish foreign trade goods were not substantial enough to accordingly encourage the fleet expansion. After 1980, in association with the increase in export and import of goods, the available conditions concerning the national fleet brought the need for a comparatively large tonnage, but, the need for a quick expansion was giving priority to purchasing secondhand ships. Hence, temporary government support was given to the shipping industry to enlarge the national fleet. Domestic shipbuilders were not supported in the strict sense. The export credit schemes broadly implemented by major shipbuilding nations have never been considered as examples of developing the shipbuilding industry. However, government involvement with financial arrangements as to shipbuilders and shipowners are summarized as follows.

The credit schemes were only available for those who use them in the domestic market. They can be provided for constructing newbuildings and shipbuilding facilities. Eligibility for these schemes requires certain requirements. One of the obligations is to possess the project supported by the related public authority. The conditions for achievement of this support are issued every year by competent authority. Another issue is the share of equity capital contributed by the project owner himself that its requirements are also subject to publication every year. This share is normally set up between 20% and 30% of the whole price of a newbuilding contract. This amount of contribution by the project owner is discouragement to get involved with a newbuilding contract, because, there is a restricted possibility to find a commercial bank specializing in shipbuilding finance except the state owned Maritime Bank providing finance in cooperation with the Turkish Central Bank. By
this cooperation, the total contract price can be financed as 10% by the Maritime bank and the remaining 90% by the Turkish Central Bank. However this scheme is not permanent and depends on government decisions. In the case of mediation of a commercial bank instead of the Maritime Bank, the Turkish Central Bank can finance only 70% of a contract price. The remaining 10% is supplied by the commercial bank itself at a market interest rate which is currently over 50%. The credit advanced by the Turkish Central Bank is at the annual interest rate of 40% for export guaranteed projects and 45% for the domestic market. The repayment period is 5 years with a two years moratorium term for ship conversion and shipyard development. The repayment period can be extended to 8 years with a term of 3 years moratorium if the project financed deals with a newbuilding. In addition to this, theoretically, shipbuilding, purchasing and the shipyard development fund controlled by the Ministry of Transport is available for financing ship acquisitions, but, it has never been in operation sufficiently so far. When it is used by the Maritime Bank, the interest rate is 16% on a fixed basis. The repayment period is normally not extended beyond 8 years. For the import of ships from abroad, the limitation of tonnage and age are subject to Government considerations decided every year.

As is seen the conditions in which the credits are provided are very far away from the conditions of OECD Understanding for export credits. As to other means of government assistance to the shipbuilding industry and vessel import from abroad, several measures are in force for the time being. The import of a ship to be registered under the Turkish Flag and material utilized for the production of ships are exempted from customs duties. Tax reduction incentives for investments of newbuildings are
also available under the general framework of income and corporate tax legislation. The other means of incentives for investments and reimbursement for using machinery and equipment domestically manufactured are applied within the framework of assistance for promotion.

On the other hand, another important matter is the securities and guarantees on the loan or credit provided by both state and/or privately owned banks. As a capital intensive investment, a newbuilding requires a huge amount of investment capital. Performing loan transactions, in order to afford investment capital, results in the need for sufficient security such as mortgage and asset-based guarantees granting heavy debt burdens. Government backed organizations supplying security and insurance for loan transactions are not available in Turkey as they exist in major shipbuilding countries.

Nevertheless, all these measures of assistance are subject to change every year and they are not sufficient as well as those implemented by major shipbuilding nations.
CHAPTER SEVEN

SHIPPING AND SHIPBUILDING POLICIES OF EC

7.1. - THE EC SHIPPING INDUSTRY AND RECENT DEVELOPMENTS

As is known, most of the member countries of the EC are traditional shipowning as well as shipbuilding countries. Some of them indebted to shipping and/or shipbuilding for their economic development.

After the signing of the agreement establishing the European Economic community in 1960, the regulations ruling Community shipping have been adopted in the mid 1980s. During the 1970s and 1980s, several protective measures were inserted into legislation by mostly developing countries in order to protect national fleets and other maritime interests. Open registries were offering more softened tax obligations and manning requirements to shipowners. To become more competitive in the market, many shipowners registered their ships in open registry countries. In addition, there were countries introducing legislation to set up flags of convenience.

Starting from the early 1980s, the EC merchant fleet share in the total world fleet sharply decreased from 29.7% in 1980 to 15.4% in 1988. The EC fleet was 117.1 M GRT comprising 11218 ships in 1980 but 58.5 M GRT comprising 6512 ships in 1988. This tonnage slightly

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1 Commission of the European Communities "A Future for the Community Shipping Industry-Measures to Improve the Operating Conditions of Community Shipping", COM(86)266 Final, p.5, 133 Brussels, 3 Aug.1989
increased to 60,403 M GRT in 1989.*

Due to the market conditions characterized by oversupply of tonnage and low freight rates, only efficient ships could compete. Therefore, initiatives were also focused on fiscal and financial measures provided that compliance with the relevant rules of the EC Treaty in order to reduce the burden on community shipping and more briefly on the shipowning companies. In addition to the foregoing, several measures in other areas relating to shipping were proposed by the Community Commission. The important one was the enforcement of applications of international maritime safety and pollution prevention regulations adopted by the IMO to the ships calling at Community ports. Particularly, these enforcements would be intensified on the ships flagging flags of open registries having loosened control on the ships in terms of IMO and ILO rules and regulations.

The European Community, taking into consideration the threat of third countries related to implementation of protectionist and subsidy policies causing sale of Community ships and flagging out of the Community fleet, put the four regulations into force in 1986. Those are as follows:

1. - Council Regulation (EEC) No4055/86 of 22 December 1986 applying the principle of freedom to provide services to maritime transport between member states and between member states and third countries.


* Source: Lloyd's Register, Statistical Tables 1989

** European Communities Official Journal, L378 Vol.29

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application of articles 85 and 86 of the Treaty to maritime transport.


On the other hand, the EC Council agreed on the further development of the shipping policy. Hence, the EC Commission started to find out sufficient incentives for Community shipowners to register their ships within the member states and consequently man the ships with Community seafarers. In order to achieve these goals, the Commission proposed to establish a European Community Register so called EUROSA.

The fact which is very clear is that during the past decade the importance of Far Eastern countries has grown sharply in terms of trade. The manufacturing and processing facilities have been established in many industrial sectors in these countries. Therefore, the trade between EC members and Far East newly industrialized nations has tended towards less-volume but higher-value goods in comparison with trade in the past. As a consequence, the role of the economies of EC countries, as manufacturers of cargoes, has become relatively less important in respect of volume transported by sea. These developments have caused the shifting of trade patterns from Europe to the Far Eastern Region regarding the production of ship demand-oriented industries. This has been inevitably a negative effect on demand for EC

* Hubner, Wolfgang "Second Registers within the EEC-Actual Situation and Perspectives, Bilbao, 2 Nov 1989

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merchant fleets in the Community market. Therefore, the efficiency in shipping operations is more important than ever before for the EC fleet.

On the other hand, Community vessels flagged out and/or demolished have not been replaced by the modern newbuildings except in the cases of German and Danish fleets. In the Community fleet, the ships less than ten years old comprise 34% of the total as an average. It can not be thought that the Community fleet is now old, but, it is obvious that there is a reduction in newbuilding investments. As a consequence of these developments, the number of seafarers employed by community fleets fell from 307,000 in 1980 to 169,000 in 1986. The number of seafarers from other nations employed on board the Community-registered vessels was 54,000 in 1980 and 18,600 in 1986. After further declining, the numbers of EC nationals and non-nationals employed on board the vessels registered in the EC member states were 129,081 and 14,775 in 1989.

7.2.- EC SHIPPING POLICY CONSIDERATIONS

After encountering the situation of loosing comparative advantage in respect of operational costs in shipping services, the EC member countries have started to respond by putting into force the wide variety of measures. These measures have been introduced mainly with

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* Commission of the European Communities "A future for the Community Shipping Industry-Measures to Improve the Operating Conditions of Community Shipping", COM(89)266 Final, p.8, 3 Aug.1989

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the aim of reducing operating costs. Operating costs themselves have certain components which are easily affected by government intervention. These components are taxation of shipping companies and seafarers and social security contributions. Furthermore, the member states have initiated providing financial aid to shipping companies in the form of aid for repatriation and training of crews and operating subsidies. The offshore and/or international registers established by member states have been utilized in favor of shipowners in order to lower registration costs and taxation. Through these registries the shipowners from the Community have started to employ non-Community seafarers with their home-oriented salaries and conditions. As a manpower source, developing countries and some of the centrally planned economies have been suppliers of seafarers.

All the above mentioned measures have been considered by the EC member countries individually. Nevertheless, the Community Commission has pointed out the need for introduction of such measures not individually by member states but altogether under the control of the Commission. According to the opinion of the Commission, if the measures were put into force by member states separately and outside the common framework and understanding, their objectives might not be reached. Furthermore, measures separately implemented could cause divergence of operating conditions between the fleets of member states and unreasonable competition conditions between shipowners from member states.

On the other hand, the foregoing financial measures implemented in order to cope with loosing the comparative advantage of operating costs have to comply with the relevant regulations of the EC treaty. For this reason,
the Community Commission has set up guidelines for the measures offered to the national fleets of member states by taking into account the development of the single market at the end of the 1992.

The Commission of the European Community has determined the reasons why the Community needs a fleet. The first consideration is about the vitality of a shipping fleet as a strategic question. The Community itself is one of the world leading trading areas. For this reason, it is not acceptable that Community trade can depend on the fleets of third countries. In order to transport export and import goods, Community shippers should have the opportunity to employ the Community fleet on the basis of competition. The second reason is the employment potential offered by the fleet itself. At the same time, besides employment, the fleet provides an opportunity for having well experienced and trained seafarers. The third determinant issue is the settlement of shipping related activities if a strong fleet is possessed by the Community. The fourth decisive matter is the balance of payments problem. The direct and indirect contribution of having and operating fleets to the balance of payments of the member countries is undeniable. Last but not least, out of the foregoing economic and commercial as well as social stand points, the member countries may have defence systems heavily dependent on the merchant fleet and skilled national seafarers. The Commission, by taking into account the above mentioned considerations, has indicated that active shipping policy can prevent the merchant fleet from liquidation by introducing financial and fiscal measures as well as encouraging competition.

The Community Council, in order to assist shipping
by securing free and fair competition in the market, adopted four regulations in 1986 as the fundamentals of shipping policy. As to the basic principle of the Community, shipping has to be in the same category with the other industrial areas as to international competition. Even maritime transport between the member states has to be open to international competition. Therefore, the considerations for shipping policy determined by the Commission have been built up on the following basic grounds.

- Non-protectionist shipping policy based on free and fair competition must be fulfilled.
- International safety and prevention pollution regulations must be complied with.
- The financial capabilities must be considered.
- The divergence between member states in relation to separate implementation of certain measures of assistance must be reduced.
- The employment of the Community seafarers must be maintain to the greatest extent possible.

The Commission has decided that the foregoing considerations could be put into force by setting up the following actions.

- To establish a Community Register offering favourable conditions which will provide assistance to shipowners to become more competitive.
- To set up common principles for the financial and fiscal measures assisting shipowners by member states.
- To develop research programs in order to increase the efficiency of the Community fleet.
7.3.- PRINCIPLES OF FINANCIAL ASSISTANCE FOR THE COMMUNITY MERCHANT FLEET

As is known, the financial and fiscal measures have been developed in some of the member states for assisting national fleets in the case of confronting cost handicaps in the market. Uncoordinated measures of assistance have not been allowed by the Commission by relying on the EC treaty to prevent distortion of competition between member states. In addition, the Commission has put the conditions for the state aids which would be considered as compatible with the common market principles. The aim of the Commission is to use the financial and fiscal measures in a way that the Community can apply the common shipping policy which will simply ensure the ships registered in the Community and employment opportunity for Community seafarers.

According to the Commission, the element of taxation is a suitable tool to develop measures of assistance. Nevertheless, any new application in order to organize tax incentives creates problems because of the complex nature of taxation systems available in member states. In fact, to organize tax relief, the exemptions can be done for the specific needs of the industry. For the shipping industry which is unusually mobile in respect of assets in ships and even administrative headquarters moving from country to country easily, one of the suitable tax incentives is corporate tax. This type of tax influences directly the operating conditions of ships through affecting the net profitability of shipping operations. If tax relief can be provided on the corporate tax, the shipping companies can easily maintain the efficiency and competitiveness of their fleets by investing in the modernization of existing fleets. All additional taxes not based on profits can be
abolished. The profit derived from the sale of merchant ships can be exempted from tax provided that there is reinvestment in purchase and/or newbuilding. An accelerated depreciation regime can be allowed to shipping companies for seagoing vessels. Chartering a ship to be operated in international trade can be treated as a ship purchased and the incentives can be recognized in the company which is the owner of the transaction concluded.

The application of the measures related to taxation referred to above is one of the ways of reducing employment-related operating costs having direct impact on the competitiveness of a vessel. The taxation of seafarers is also an important issue affecting the operating costs. Some part of the tax burden on a seafarer is paid by the shipowner. The contribution of the seafarer to the payment of tax also changes from one member to another. Seafarers in some member countries already benefit from special tax arrangements applied more generously than to other taxpayers. In 1985, the Commission accepted a proposal setting up a favourable tax regime for seafarers from the Community nationals employed on board the ships registered in the Community. The favourable taxes according to the proposal can be in the form of tax exemption for the working period at the international waters outside the Community territory and territorial waters, or tax deductions for the period spending on board.

The social security contributions also take a significant place in the operating costs. They are partially paid by shipowners and seafarers to the


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government. The Employers' part of payment is bigger than the part of seafarers. These type of contributions differ from member to member states. The Commission also supports minimizing social security contributions against offering full social security protection for Community seafarers.

In the member states, the training of seafarers is considerably important, particularly training arising from international instruments. Although the cost of training is subsidized by governments of member states, the shipowners and seafarers still pay the considerable cost of training in many cases. The training quality is taken into account by the Community as a crucial point which should be reached at a certain level for successful shipping operations. Therefore, the matter of training is also regarded as an area in which considerable government assistance could be applicable.

The inherent nature of shipping means that repatriation of seafarers is always costly for shipowners, particularly in deep sea trade. Therefore, the cost for repatriation could be regarded as an area where government assistance could be provided. Already in some member states, this kind of subsidy is available (UK, Denmark). The Commission's consideration is that it should be implemented in other member countries for Community nationals. In order to provide compatibility with the EC treaty and Community law, the Commission has examined government aids in the form of those referred to above. As a result, the schemes for the reduction of seafarers' personal taxation, direct financial assistance to shipowners, the subsidization of training costs of seafarers and the repatriation costs have already been approved by the Commission. Besides this approval, the Commission has also decided to develop an appropriate
policy framework for state aids. The criteria which have been fixed by the Commission under the objectives of modernization of the fleet is as follows:

- The amount of aid must not exceed a ceiling defined on the basis of the cost handicap which Community vessels confronted in the market.
- The aids must only grant to restore the conditions in which the Community vessels can properly compete.
- The transparency and temporariness must be protected.
- Government assistance must not particularly contribute to increasing existing capacity to be considered over capacity.

Under the heading of general principles and criteria, the Commission has already specified the conditions and framework of government aid to the shipping industry which are discussed in this chapter section 7.4.

7.4.- STATE AID TO THE COMMUNITY SHIPPING INDUSTRY AND ITS COMPATIBILITY WITH THE EC TREATY

The information provided by member states to the Commission about the forms of government assistance already available for the shipping operators are as follows:

- Direct subsidies for operating ships
- Financial loss coverage by governments
- Loan guarantees for capital goods purchase
- Tax reliefs on the earnings retained from shipping operations and on the income of seafarers
- Reduction of contributions for social security protection of seafarers
However, the Community has indicated that the measures of assistance taken individually by member states, in order to increase the competitiveness of their fleets, were not sufficient and adequate to improve the situation of the Community fleet as a whole.

Under the light of relevant articles of the EC Treaty, the Commission has established the types of government aids and their compatibility with the Common Market. The ships and operators registered within the Community are eligible to benefit the following types of state aid.

7.4.1. - AID FOR REDUCING MANNING COSTS

In order to reduce the operating costs, providing assistance for social security contributions and taxation of seafarers' incomes have been considered compatible with the Common Market by the Commission. The compatibility can be assured without reducing social security levels for the Community seafarers employed on board the ships registered in the Community.

7.4.2. - AID FOR REPATRIATION AND TRAINING OF CREW

The Community Commission has decided that the aid for repatriation in order to reduce the employment costs of Community seafarers on board the ships registered in the Community is adequate for shipping companies. The compatibility can be assured by providing reimbursement for repatriation costs as not more than 50% of the total cost. On the other hand, to provide a subsidy for the training cost of the Community seafarers employed on board ships registered in the Community has been regarded as one of the ways of granting aid by the Community. In this case, the aid may be compatible by arranging the training on a supernumery basis without employing the trainees in
the operation of ships.

7.4.3. - AID FOR OPERATING SHIPS

This type of direct aid given to shipping companies simply in order to improve the liquidity situation must comply with the competition policy determined by the Commission. Such aid may be considered as compatible with the Common Market if it is provided to shipping companies on the basis of restructuring the companies themselves.

7.4.4. - AID FOR TAXATION OF EARNINGS

The taxation of earnings is regarded as one of the fields to provide government assistance by the Commission. It is also considered to be compatible with the Common Market provided that the tax incentives are implemented on the earnings achieved by the Community shipowners operating ships registered in the Community.

7.4.5. - AID FOR INVESTMENT

This type of aid given to the shipping companies is regarded by the Commission as adequate in order to modernize member states' fleets. The compatibility can be assured by implementing the provisions of relevant Council Directive on aid to shipbuilding which is currently in force.

7.5. - EC SHIPBUILDING POLICY

As is known, shipbuilding is an industry influenced by the inter-relationship between several number of economic-politics, social and technical variables changing from country to country. In addition, developments in shipping which is a user of shipbuilding products, whether in the nature of expansion or reduction, are influenced by the trend in international trade and economic growth.
Hence, shipbuilding is dependant on international trade activities.

The current situation of world shipbuilding has resulted from initiatives done by individual nations trying to develop and keep surviving it for their own benefit and/or advantage.

The position of shipbuilding in the EC, reflecting the foregoing issue, is considered among the troubled industries of the Common Market. It is not necessary to discuss the West European shipbuilding industry in this part of the Paper. Nevertheless, it is important to discuss the concept of shipbuilding policy which is determined by the Community Council authorized to regulate the industry, inter alia, in terms of government involvement and restructuring process. It is not surprising that the shipbuilding nations among EC members are found offering state aid to the industry. In fact, many types of aid were technically an infringement on the common market understanding of fair competition.

Certain stipulations of the Rome Treaty establishing European Economic Community cover the shipbuilding industry indirectly through articles on maritime policy and subsidy. Articles 84/2 and 113/1 are connected with the shipbuilding industry.

Article 84/2 states "The Council, may, acting unanimously, decide whether, and by what procedures, appropriate provision may be laid down for sea and air transport".

Article 113/1 states "After the transition period has ended, the common commercial policy shall be based on uniform principles, particularly in regard to changes in tariff rates, the conclusion of tariff and trade agreements, the achievement of uniformity in measures of liberalization, export policy and measures to protect trade, such as those to be taken in the case of dumping or subsidies".

The former article is a source from which the common maritime policy including the shipbuilding industry is formulated. The latter article provides a legal basis to eliminate the artificial barriers to competition such as subsidy policies. The directives on aid to shipbuilding are closely related to this clause providing government assistance.

In the late 1960s, the EC Council introduced the First Directive into force. During the implementation period of the first directive the member states agreed on the ceiling on aid as 10% of the contract price of newbuildings. This ceiling was reduced to 5% in the year 1972 and 4% in the year 1973 during the application of the Second Directive. After the implementation of the two initial directives, the Third Directive was adopted in 1975. The third one was stipulated in order to implement the OECD resolution of 1974 to finance newbuildings, to restructure and to rationalize the shipbuilding industries existing in the member states. Nevertheless, optimistic market expectations and conditions did not allow the implementation of a comprehensive control on aid programs.

until 1978 when the Fourth Directive was adopted. The grants of production aid were first accepted by the fourth directive which was also extended twice when it expired. Hence, the Fifth Directive was put into force at the beginning of 1987 with a wide variety of measures of assistance and aid for the shipbuilding industry. At the beginning of 1987, the Sixth Directive on aid to shipbuilding which is permitting the member states to implement a wide range of aid and subsidy programs came into force.

As is seen in the foregoing explanation, the level, variety and ceiling for aids were increasing gradually until the initial years of the sixth directive. This was because of severe competition from Japan and the Far Eastern newly industrialized countries.

7.6.- STATE AIDS ON SHIPBUILDING IN COMMON MARKET

The shipbuilding industry, in all community member countries, was very much an economic-politics issue rather than the industrial issue. For this reason, the member governments have been used to applying broadly varying subsidy and government assistance programs. Some of them, as explained in previous chapters, are not directly devoted to the shipbuilding industry. However, at the end of the day, they come to the last stations which are shipbuilders. Among these types of government support, direct aid for construction (Production), tax refunds, preferential credit terms and government guarantees for the order price irrespective of the final construction cost can be counted.

The tendency of the Commission is to encourage the production of specialized vessels which are
technologically advanced, relatively costly and difficult to build. The Community Council is now in the position of accepting the principles of transparency and capacity reduction initiatives. A bit more detail, a production aid should be given according to fixed ceiling. It must be transparent. On the other hand, the states, when they offer aid for restructuring, must directly link them to a reduction in the capacity.

As in the case of other industrial areas such as the steel industry, there is no shipbuilding fund established by the Community. Nevertheless, the shipbuilding regions suffering job losses are offered financial assistance from the Regional Development Fund and Social Fund.

The shipbuilding industry in some member countries has seen severe adjustment and restructuring during the last decade. Currently, as seen from the shipbuilding scene, this change will survive until the mid 1990s in which the world shipping tonnage will probably start to demand intensively new construction.

Whilst the fifth directive was laying down principles preventing the distortion of competition between member countries, the sixth directive brought about the limitation concept for the state aids directed to the shipbuilding industry. The ceiling was 20% of a price of a newbuilding contract under 6 M US $ and 28% of a contract price above 6 M US $ in the 1988. The maximum level of the ceiling was reduced to 26% by the Community Commission for the year 1989. The Commission decided to set 20% ceiling for state aid for the period after first

January of 1990.

There are other implementations of state aid that enables the member countries to offer assistance to less developed countries which are not subject to a ceiling. This type of aid which is outside the application of directives is often interpreted differently and broadly by putting even some newly industrialized countries into the less-developed country status.

As it is clear that the amount of subsidy allowed by the EC Commission is to give a chance to the Community shipyards to compete with the Far East shipbuilding industries and to pay the difference between contract prices offered by the Community yards and Far East shipbuilders.

The state aid to shipbuilding is considered under mainly two categories by the Sixth Directive. They are operating aid (Production aid) and restructuring aid. The Community Commission had mentioned these two types of aid with a distinction between them in its proposal.

The operating aid is explained as several types of assistance by the sixth directive. Contract-related production aid, loss compensation, rescue aid and all other types of aid facilitating the continued operation of shipbuilding and ship conversion companies are considered as operating aid.

The restructuring aid is devoted only to reducing the existing capacity of the shipbuilding industry.

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Simply, any type of restructuring aid may not be granted if it tends to increase the existing capacity of the Community shipbuilding industry and/or to establish new shipbuilding facilities. Under this concept of restructuring aid, the shipbuilders may enjoy with the investment aid, aid for facility closures and aid for research and development allowed by the Commission, provided that the implementation of conditions is established.

Spain and Portugal, as the latest participants in the Community, were exempted from four years of application of the sixth directive’s conditions by the Directive itself.\(^{12}\)

CHAPTER EIGHT

LIKELY INTERACTIONS BETWEEN TURKISH SHIPPING AND SHIPBUILDING ACTIVITIES AND RELATED EC POLICIES

8.1.- INTERNATIONAL IMPLICATIONS OF THE SHIPPING AND SHIPBUILDING POLICIES OF THE EC

First of all, it is obvious that there is a heavy reliance on the Community for its foreign trade in competitive and efficient shipping. The Community is one of the biggest trade regions in the world. As a total, the EC foreign trade volume accounts for 700 B ECU which is more than double the foreign trade of Japan and about 100 B ECU more than US foreign trade. Namely, shipping is vital for almost all countries which are members of the EC. In fact, about 90% of EC foreign trade is done by sea transport. Approximately 70% of total seaborne trade between member states is performed by the ships registered in the Community. Under these conditions, the main objective of the Community shipping policy is to ensure a safe guard for free access to a free world shipping market. The Community is in the opinion that there is nothing to be achieved by a protectionist shipping policy. On the other hand, the Community gives the opportunity to its foreign traders to have advantages of freight rates offered by foreign flagged ships any time in free and fair competition. These two objectives were stipulated in the Council Regulations relating to "Freedom to provide international shipping services" and "Free access to ocean

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Commission of the European Communities "A Future for the Community Shipping Industry- Measures to Improve the Operating Conditions of Community Shipping", COM(89)266 Final, p.11, 152 Brussels, 3 Aug.1989
In addition to these principles, implementation of the competition rules agreed by the Rome Treaty and unfair pricing hampering the means of competition are the main targets of the EC shipping policy. These principles were also agreed by issuing the other two Council Regulations relating to "Unfair pricing practices" and "Rules of competition". These Council Regulations forming the backbone of the common shipping policy agreed and adopted in 1986 are certainly of interest to many countries. This is due to the important occupation of the EC in international shipping trade.

In addition to four Council regulations, the early regulation No954/79 known as the Brussels Package also brought international implications. This regulation making the EC party to the UN Code of Conduct for Liner Conferences put the reservations on articles 2, 3, and 14 of the UN Code of Conduct itself. The EC is in the opinion that the UN Code of Conduct for liner conferences is not compatible with the provisions of the Treaty of Rome. This incompatibility is particularly with the principle of non-discrimination on grounds of nationality. This principle underlines the right of establishment and the freedom to provide services in the EC. In addition, the UN Code of Conduct is not in conformity with the competition

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2 Chapter Seven, section 7.1, Council Regulations EEC No.4057/86 and EEC No.4056/86

3 The Treaty establishing the European Economic Community by coming into force in 1958

4 Chapter Seven, section 7.1, Council Regulations EEC No.4057/86 and EEC No.4058

principles of the EC, because the Code brings regulations on the relationships between shipowners on the one hand and between shippers and conferences on the other hand.

As was mentioned in the previous chapter, the Community has already been working to improve the operating conditions of community shipping. This includes the establishment of Community Register so called Euros for ships to be flagged with the European Flag in addition to the national flag. On the other hand, the Community Commission has cleared its opinions on the matters of financial and fiscal measures concerning shipping operations with ships registered in the member states. Hence, various financial measures have been designed for Community shipowners\(^*\). The mutual recognition of equipment used on board the ships will be adopted. More importantly, port state control will be intensified on the ships calling at the Community ports. In fact, all these measures and applications are to put the Community shipowners in a better position in competition. The fleets of countries participating the international shipping in the Community member countries will be under pressure when these measures are fully in force. These countries will likely review their respective relevant applications corresponding to the EC measures.

8.2. - THE EC APPROACH TO RESTRUCTURING THE SHIPBUILDING INDUSTRY

After the severe competition by Japan in the 1960s, and the new entrants from the Far East into the world shipbuilding market in the 1970s, most of the EC member countries run into difficulties in their shipbuilding

\(^*\) Chapter Seven sections 7.2 and 7.3
industries. With the parallel of the substantial capacity increase of the Republic of Korea from the mid 1970s, the subsidization policy has started to apply in all shipbuilding countries. The EC has been faced with the problem of developing a policy for the support of the shipbuilding industries of member countries from the late 1960s onwards. The policy had to comply with the provisions of the Rome Treaty relating to the competition. At the beginning, there was a general consensus confirming that shipbuilding was an important industrial activity in economic and strategic terms. Therefore, the position of the shipbuilding industry in the member countries should have been protected by applying counter-strategies against the applications of Far East countries. This was raised as a common interest in the EC. Hence, the EC Commission recognized that the shipbuilding industry has noticeably grown worse in comparison with the situation in other countries.

In this respect, the EC directives on aid to shipbuilding have been explained previously. In these directives, the aid to shipbuilding was agreed under certain conditions such as the ceiling which is not allowed to go beyond. It was the feeling that the directives could compensate the distortions in competition faced by the Community yards. On the contrary, the shipbuilding industry has declined in the EC and relocate in the Far East countries during the application of six directives. It is expected that the seventh directive will be in force from 1 Jan. 1991. Under this perspective, the shipbuilding industry has undergone a restructuring program, especially in West European countries including the EC member states compelled by market economy forces to

*Chapter Seven section 7.5*
reduce and restructure their capacities. In fact, some EC member countries were successful in keeping their shipbuilding industries surviving.

The readjustment programs of shipbuilding in Far East countries indicate different aspects than those shown by the EC member states. The EC has always been willing to take part in coordination with Japan and the Republic of Korea in order to overcome the crisis faced by shipbuilding. In fact, the Republic of Korea has overtaken Community shipbuilding. The commission has made repeated contacts by indicating its readiness to discuss matters with the government of the Republic of Korea for the formation of cooperation in this sector. The problem was discussed at bi-lateral meetings in June 1986 and April 1987, but, no response has been forthcoming.

The restructuring program in Japan was intended to reduce capacity by 40% until 1989. After this reduction, the Japanese plan was to hold 40% of world production capacity in the 1990s by a slight increase in its capacity. According to the Commission, there was no doubt that this target would bring an additional threat to the EC shipbuilding industry. That's why the EC Commission initiated seeking coordination through numerous contacts.

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8 Commission of the European Communities, "Shipbuilding-Industrial, Social and Regional Aspects", COM(87)275 Final/2, pp.11-13, Brussels, 10 Dec.1987

9 Chapter Three section 3.4, sub-section 4.3.3


The initiatives were related to setting up coordinated action at the multilateral level on problems such as overcapacity and standardization.

The Commission was of the opinion that Japan was overestimating the shipbuilding market conditions and opportunities of the 1990s to be available for its own industrial activities. This action has not been inclined to allow the expected new or expanding shipbuilding activities in the developing countries. Furthermore, the Japanese target would cause further decline and possibly total withdrawal for the EC shipbuilding from the market.

The Commission was not in a position to accept this conclusion and decided to increase its pressure on these countries by considering joint action with all the world's shipbuilding countries and even taking concrete measures likely to be envisaged in the field of external commercial policy.

As was explained previously, executing restructuring objectives, creating an atmosphere for competition and being of a regressive nature were the main principles for providing aid to the shipbuilding industry.

Although the realization of the foregoing measures, the shipbuilding industry has declined and even withdrawn from the international market in almost all EC member countries. Many shipyards have diversified into the

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construction of warships, offshore platforms and installations and even non-marine work. Some shipyards have entered into the construction of specialized ships requiring advanced technology and experience. To a certain extent, Germany, Denmark, Spain, Portugal and Italy have kept surviving a part of their shipbuilding industries.

As a result of the approach made by the EC shipbuilding policy, the shipbuilding industry in the EC member states has been gradually loosing its market share since the mid 1970s.

6.3.- OBSERVATIONS AND CONSIDERATIONS ON EFFECTS OF RELATED EC POLICIES TO TURKISH SHIPPING AND SHIPBUILDING ACTIVITIES

The Republic of Turkey has long been an associate member of the EC since 1960. After the foundation of the republic, trade relations have been developed by the efforts of both sides. The Turkish foreign trade volume with the EC member countries has been considerably on the increase, particularly after 1980. The goods imported from EC countries accounted for about 40% of total Turkish import volume while the goods exported to the EC member states accounted for about 50% of total exports in 1989. On the other hand, the Turkish industry has long had strong connections with the Community members in terms of technology and know-how transfer.

As was explain in chapter five, the majority of Turkish foreign trade volume is subject to maritime transport. Although the Turkish fleet has increased with the parallel rise of Turkish foreign trade since 1980, the capacity of the fleet has not reached the sufficient tonnage to be able to carry at least 40% of the foreign
trade goods. On the other hand, the Turkish fleet is relatively old, but the ships are in the conditions complying with international rules and participating in international maritime transport.

Due to the application of liberal economic policies in Turkey, especially since 1980, the Turkish fleet is encountering competition from foreign flagged vessels in the transportation of Turkish foreign trade goods. These vessels participating in Turkish international shipping trade may be from developed countries, developing countries and/or centrally planned economies.

The Turkish Shipping, to a great extent, complying with the understanding of OECD common shipping policy for member countries, is in the legislative structure easily harmonizeable with the EC common shipping policy principles. This point is important for further development of the Turkish shipping industry, because, the national fleet is subject to an increase in capacity under the pressure of the rising foreign trade of the country.

In the case of developments in the membership relations between the Community and the Republic of Turkey, for the Turkish side, the problem will lie in the question of whether Turkish ships can compete under the competition conditions to be created by non-protectionist open market economy forces in the free trade environment. This will depend on the characteristics of the Turkish tonnage itself and management skills of the personnel both onboard and onshore. The main comparative advantage of the Turkish fleet will be the relatively lower costs of

14 Although there have been recent changes in the economic structure of these countries, the state support are assumed as ongoing.
On the shipbuilding side, there is no doubt that the Turkish shipbuilding industry has great potential having relatively less financial resources, lower technology and specialization. Nevertheless, in case of progress in the membership between Turkey and the EC, having relatively lower cost manpower, the existing industry will attract the orders on one side and sufficient capital on the other side for further modernization. Hence, Turkey will go into candidacy for the next relocation of the world shipbuilding industry.
CONCLUSION

In most cases, the decisive authorities for policy making encounter difficult problems when weighing up the various interests comprising a maritime policy. These interests may spread over in different fields such as in industrial development, national defence, financial assistance, protectionist measures, employment, foreign currency earnings and so on. All these different aspects of maritime policy may often be in conflict with each other, even if compromising points are many times reached. No doubt about it, maritime interests and other national priorities may be complementary. Nevertheless, the actual situation of the world economy and the comparative advantages forming industrial structure changing country by country affect the decisions of policy makers.

The objectives to be achieved by implementation of the maritime policy may diversify with economic and industrial development, promotion of foreign trade, employment generation, marine based support to national defence and control on transport activities. The parties holding interests in the maritime policy may be shippers, shipping operators, shipbuilders and repairers, defence organisations, finance and an insurance community and so on. In modern economic systems, all these interests contribute to the policy making studies for forming a successful maritime policy to be implemented in a country.

Under the concern and pressure of many interested parties and diversified objectives taking place from the national perspective, maritime policy must also consider the international aspects and implications of maritime activities. As is known, economic development is mostly heavily dependant on trade for almost all nations and
maritime transport is a major part of international trade and a major influence on the balance of payments of a country. For these reasons, maritime policy can not be developed and implemented in isolation from international aspects and implications.

Maritime policy may consist of certain parts such as shipping, shipbuilding, shiprepairing, port activities, transport tariffs, manpower generation, registration of ships, coastwise shipping, growth of national fleet, implementation of protectionist measures, subsidy and government assistance programs, consideration of international codes and agreements and so on. However, in this paper, the promotion of the shipbuilding industry which is considered as a main supportive source for expansion of the national fleet has been taken into consideration. In more detail, the possibilities and opportunities of developing shipbuilding have been sought in this paper by looking deeply into the sources of finance and financial procedures. Due to the results of this study, the following opinions have been reached.

As to international implications, the techno-economic and structural changes in shipping and shipbuilding, as has also been mentioned in chapter two and chapter three should be considered in making shipping and shipbuilding policy to be implemented in Turkey. The existing industrial potential, foreign trade volume and skilled workforce will be strongly urging the Republic of Turkey to participate all shipping activities as described in chapter two. In order to realize this option, the possession of an efficient, competitive and productive merchant fleet is a must.

The sources of finance and financial problems have
been indicated in chapter four. There is no doubt that in all industrial branches other than shipping and shipbuilding, finance is a very important matter. Nevertheless, being extremely highly capital-intensive activities, this gives a special place to shipping and shipbuilding within financial aspects. In addition, existing worldwide government interventions rely mostly on bringing solutions to the capital intensive problems of shipping and shipbuilding industries. These financial burdens are huge which is not easily affordable by the individual investors and companies.

The financing of shipbuilding and ships can be diversified into two parts. The first part consists of government support in the form of measures of financial assistance, credit schemes and insurance undertakings through state-owned financial institutions. The second part is the financial arrangements and insurance activities organized by commercial banks and financial entities of which their works are totally up to market conditions. Depending on the case of a finance transaction, one of these two finance systems and/or their joint arrangements can be utilized in financing ships. In developing countries, the government has to be involved in financing national fleets and its supportive source shipbuilding, if there is an intention to develop them. This action does not exclusively belong to developing countries. The developed countries are also interested in financing their respective shipping and shipbuilding activities. Chapter Four shows examples of financial arrangements implemented by Japan, the Republic of Korea and Germany as world leading shipbuilding nations. The first two of them put the shipbuilding industry into their national development strategies on the way to industrialization. Consequently, they succeed in
substantial exportation of newbuildings and became a world power in this industry. The 1990s will probably witness intensive new ship exports to be made by Japan and the Republic of Korea. Germany also succeeded in keeping its shipbuilding industry alive by implementing financial measures and an aid program including direct government assistance, although other West European countries have failed and come across capacity reduction problems.

As has been explained in chapter five, the last 10 years witnessed a remarkable development in the Turkish economy. The volume of exports and imports have increased tremendously, but, the share of the Turkish Flag carrying Turkish Foreign Trade goods has decreased. The fleet is relatively old and the existing tonnage is not sufficient even to carry 40% of trade volume. Its operations are comparatively highly costly influencing competition. Despite the increasing share of manufactured goods in foreign trade, there is a lack of container ships in the fleet. For these reasons, the foreign exchange outflow in the form of freight rates payments is on the rise day by day. Of course, this has effects on the balance of payments unfavourable for the annual budget. The European Community has also spent remarkable efforts on regulating the financial assistance of governments performed in the member states as laid down in Chapter Seven. Nevertheless, it is clear that governing bodies of the EC, Council and Commission, did not forbid direct government aid to shipbuilding but brought about limitations and compatibility questions. Government assistance other than direct aid was also encouraged by easing the understandability of compatibility problems for subsidies to shipbuilding and shipping industries. Anyway, all these efforts could not prevent the shift of shipbuilding to the Far East newly industrialized countries.
The history of development indicates that almost all developed nations reached their highly industrialized levels by practicing shipping and shipbuilding as part of their heavy industries. However, each stage in the development of countries depends on certain industries. The fixed characteristics of the products of these certain industries always correspond to a given age of industrial development. From the heavy industry standpoint, shipbuilding and, to some extent, shipping have relocated in Far Eastern countries, because these activities do not any longer correspond to the age of existing development in the industrialized nations. Even the steel industry (Metallurgy) can be added to the categories of shifted industries as has been spoken about in the first chapter. Steel production in newly industrialized countries and developing nations is on the increase for two decades. Namely, these industries are ready to incline to relocate to the countries in which the per capita is in between 1000 US $ and 2000 US $.

Parallel to relocating the shipbuilding and shipping industries, the international division of labour has been reformed in the developing world. In shipbuilding and shipping activities, the share of the developing countries has been on the increase for the last two decades. In the fourth quarter of the 20th century, it was realized that the developing countries were capable of copying, innovating and manufacturing in many industrial fields especially in shipping and shipbuilding. Some of the developing countries have proved this by producing high-tech oriented industries such as information technology, electronics and computerization, robotics and aircraft industry. These nations have risen the status of newly industrialized countries.
Cost and productivity are also paramount issues for industrial development affected by international market conditions. The cost, and to some extent productivity, can be assumed to have comparative advantages for developing countries today. One of the reasons for relocation of the shipbuilding industry is the availability of lower cost (Operational, labor and material) in developing countries. As a result of taking advantage of having a low cost workforce and material, industrial development has been performed in the Far Eastern region. After the realization of these proceedings, recent developments have shown that the shipbuilding industry has started to look for lower cost countries to shift to once again, because the labour costs and costs of living have begun to increase in newly industrialized countries. Moreover, the world tonnage is subject to massive replacement of 340 M DWT as an optimistic opinion during the next decade(s), as has been explained in chapter three.

From the foregoing stand points, having a relatively advanced industrial infrastructure and skilled manpower, the Republic of Turkey can benefit from the further relocation of shipbuilding and shipping industries. Of course, provided that effective measures are applied in order to increase productivity in existing shipbuilding facilities and ship operating companies, because the Turkish Economy will be depending more upon the foreign trade and seaborne transportation. In this regard, building up an efficient national fleet will become one of the inevitable key policies for securing and contributing the stability of the national economy.

Besides having comparative advantages in the above mentioned points, it is clear that the main problems are
related to the subject of financing ships and the shipbuilding industry in Turkey. It has been mentioned with reference to Turkish shipbuilding in Chapter Six, an effective financial system has never been continuously implemented in order to develop these industries for taking part in international markets. That’s why this paper has approached examining the sources of finance and their applications. The examples from selected countries have been elaborated in terms of financial arrangements and sources of finance supplied by both government and market based institutions.

Any direct aid by a government to shipbuilding and shipping companies is not acceptable under the conditions of the market economy, because experience shows that the aid given directly by governments in return for nothing destroys effectiveness, efficiency, productivity and more importantly competitiveness. For this strong reason, this paper is not proposing directly an aid program to be implemented in shipbuilding and shipping industries. Nevertheless, the three step development program may be integrated with the maritime policy. The first step is establishment of a rationalization program by taking into consideration the world market conditions. As a second step, after realization the rationalization, financial assistance and a promotion program may be implemented by taking into account the conditions of competition in the international market. In this respect, the OECD Understanding and EC applications as well as examples from Japan and the Republic of Korea have been explained in chapter four. Lastly, after successful proceedings in shipbuilding and shipping industries, the measures of assistance in the form of depreciation, tax deferral, write-offs etc. which are internationally implemented and acceptable under the conditions of competition in the
market economy may be integrated into maritime policy. Hence, the products of Turkish Shipbuilding may show up within the Turkish Foreign Trade goods. In addition, the national fleet can be expanded with new ships built by domestic shipbuilders. There is no doubt that earnings will contribute to the country's balance of payments.

In order to carry out these objectives the following rationalization program is recommendable.

1. The privatization and restructuring plan may be introduced through development of cooperation including technology and capital transfer with shipbuilders from world leading shipbuilding countries particularly from Europe, which is mostly in difficulties due to high costs in their respective industries.

2. The shipyards owned by the private sector may voluntarily merge as a joint venture and/or consortia under several number of groupings as a requirement for economies of scale in order to promote competition in the domestic market as well as in the international market.

3. The shipping companies privately owned may go voluntarily into establishing groupings in the form of joint ventures and/or consortia in order to be able to afford the conditions of credit schemes which will be introduced by the government to promote national fleet expansion.

4. The restructuring program in the form of participating in joint ventures, consortia and/or joint services may be introduced for state owned international ship operating organisations in order to increase efficiency, productivity and competitiveness.

After realization of the rationalization program, the following measures for assistance as has been emphasized in the previous paragraphs may be put into
force for the use of companies voluntarily agreeing to participate into the groupings. These should comply with the conditions of competition in international markets.

1. To insert export credit schemes under the coverage of OECD Export Credit Understanding.

2. To introduce credit schemes for domestic use under the conditions of no more favour than OECD Understanding.

3. To develop credit guarantee schemes under state support for shipbuilders in case of failures of foreign buyers in repayments and possibility of protracted defaults.

4. To establish or designate an insurance organisation which will be in charge of insuring the risks of shipbuilders, with necessary support given by the state.

5. To provide financial assistance in the form of credit for modernization of existing facilities and improvement of effectiveness and productivity in the shipbuilding industry in favour of the development of competition under the market economy conditions and principles.

6. To provide aid only for scientific research for ship and shipbuilding related industries in order to support research to be instructed by the industry itself.

7. To implement project finance concept in financing newbuildings to be constructed for the domestic market as well as the international market by applying project appraisal and risk management methods in case of credits provided by state owned financial institutions under the conditions no more favourable than OECD Understanding.

8. To promote lease financing to be arranged in the cases of having employment requiring a long term charter.

9. To encourage the private sector in making new investment of at least two new dry docks with the capacity
of each up to 250,000 DWT ships as an addition to the dry
dock under construction for building ships up to 170,000
DWT, in order to go into the world VLCC market, as a
requirement of economies of scale. (Optional and depends
on the results of a project appraisal)

10. To introduce a state assistance program for the
encouragement of demolition of old tonnage in order to
replace inefficient obsolete vessels with new energy and
manpower saving ships.

11. To design a shipping promotion plan in order to
assist fleet expansion for import of specialized and
domestically non-available ships complying with efficiency
and productivity requirements to be laid down by the
shipping promotion plan itself for the use of deep sea
operators.

12. To set up the Turkish National Institute of
Maritime Economics which will be in charge of: research
for market surveys; analysis of the development of
particular markets; analysis of international shipping and
shipbuilding problems; strategy development for maritime
industry; collection and evaluation of statistical data
for shipping, shipbuilding and ports; short and long term
forecasting in shipping and shipbuilding markets; cost
benefit analysis and risk management applications for
development projects; development of logistic systems,
intermodal and multimodal transport problems in relation
to maritime transport; publishing research papers for the
use of the maritime industry and concerned organisations;
it will also organize national as well as international
conferences and seminars on shipping, shipbuilding and
port activities. This Institute may serve internationally
in cases of request and instruction by foreign
organisations and interests. The organisational structure
of the Institute may be comprised of the industrial
bodies, organisations, associations, port authorities,
universities and government agencies holding interests in maritime activities. This will be promoting an increase in efficiency, productivity and competitiveness.

13. To form a fund and/or revise existing ones in order to supply finance in the execution of the above mentioned proposals.

After successful implementation of the rationalization program and, as a consequence, finance system for promoting shipbuilders and shipping companies, according to experience practiced, several measures of assistance may be applicable. These measures of assistance may also comply with the legislation of the EC in force by taking into account the likely future developments in the matter of membership between the Republic of Turkey and EC. These measures of assistance may be in the form of accelerated depreciation, tax deferrals and incentives, aid for personnel training and customs duty exemptions. This kind of assistance may only be applicable after realization of some further developments in the shipbuilding industry and shipping activities. In all cases, to be a full member of the EC in a near future or to stay in the same position for a long period, the Turkish shipbuilding industry, having great potential in respect of domestically produced low cost material, relatively lower cost and skilled manpower and its own need for maritime transport may be a candidate for one of the leading shipbuilding powers attracting Europe and the Middle East markets because of collapsed and restructured West European shipbuilding industries. In fact, even an existing potential of Turkish shipbuilding facilities may form the fundamental infrastructure for further development and use for the European shipbuilding market. This is because the clear vision for the future of the expected tremendous growth in the world economy and trade
volume after the changing of centrally planned economies into market economies.

The new concept and innovative attitude in finance, efficiency of ship operations and promotion of the shipbuilding industry is needed in maritime activities in the Republic of Turkey. For example, the development bank and export import bank mechanism for the financing of shipping and shipbuilding through public funds, as in the cases of Japan and the Republic of Korea explained in Chapter Four, may be thought of as facilitating and making efficient the transactions to be undertaken partly by commercial financial institutions.

However, the author of this paper believes that if the whole program as a package of three steps: the rationalization plan, government assistance and promotion program, and measures of assistance are applied step by step, success will be inevitable. Otherwise, the application of measures individually is likely to become insufficient and reluctant in achieving development objectives.
### TABLE 1

**GDP GROWTH RATES IN SELECTED COUNTRIES AND REGIONS**

<table>
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<tr>
<th>REGIONS COUNTRIES</th>
<th>OPTIMISTIC</th>
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<th></th>
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<td>DEVELOPING COUNTRIES (EX. CHINA)</td>
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<td>5.0</td>
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<td>1.1</td>
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<td>3.3</td>
<td>3.3</td>
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<td>-1.2</td>
</tr>
<tr>
<td>UNITED STATES</td>
<td>3.4</td>
<td>3.2</td>
<td>3.2</td>
<td>-2.0</td>
<td>-1.0</td>
</tr>
<tr>
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<td>2.6</td>
<td>2.9</td>
<td>-0.3</td>
<td>-0.2</td>
</tr>
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<td>5.0</td>
<td>3.9</td>
<td>3.4</td>
<td>4.1</td>
</tr>
<tr>
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<td>1.2</td>
<td>2.4</td>
<td>-1.7</td>
<td>-2.0</td>
</tr>
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<td>EASTERN EUROPE</td>
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<td>3.4</td>
<td>3.5</td>
<td>3.1</td>
<td>3.4</td>
</tr>
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<td>5.2</td>
<td>5.0</td>
<td>4.9</td>
<td>3.5</td>
<td>4.0</td>
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<tr>
<td>MIDDLE EAST</td>
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<td>3.0</td>
<td>3.2</td>
<td>-4.1</td>
<td>-2.9</td>
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<td>6.7</td>
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<td>4.3</td>
<td>4.3</td>
<td>1.4</td>
<td>0.1</td>
</tr>
<tr>
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<td>3.0</td>
<td>4.4</td>
<td>-2.5</td>
<td>-2.0</td>
</tr>
<tr>
<td>TROPICAL AFRICA</td>
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<td>4.5</td>
<td>4.6</td>
<td>0.1</td>
<td>-0.6</td>
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<td>4.3</td>
<td>3.9</td>
<td>4.7</td>
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<td>EAST &amp; SOUTH ASIA</td>
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<td>8.0</td>
<td>3.8</td>
<td>4.6</td>
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<tr>
<td>REP. OF KOREA</td>
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<td>9.6</td>
<td>9.2</td>
<td>3.9</td>
<td>6.7</td>
</tr>
<tr>
<td>CENTRALLY PLANNED ASIA</td>
<td>9.7</td>
<td>9.4</td>
<td>9.3</td>
<td>9.0</td>
<td>8.0</td>
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### TABLE 2: The Shares of the Major Groups in the World Fleet

**TOTAL FLEET AS AT:**

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<th></th>
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<th></th>
<th></th>
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<tr>
<td></td>
<td>MILLION</td>
<td>PER CENT OF WORLD Tonnage</td>
<td>MILLION</td>
<td>PER CENT OF WORLD Tonnage</td>
<td>MILLION</td>
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<td>OECD Countries (1)</td>
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<td>54.8</td>
<td>159.0</td>
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<td>142.4</td>
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<td>Open Registry Countries (2)</td>
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<td>27.8</td>
<td>111.2</td>
<td>27.5</td>
<td>120.4</td>
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<tr>
<td>USSR/Eastern Europe (3)</td>
<td>28.8</td>
<td>7.3</td>
<td>34.9</td>
<td>8.6</td>
<td>35.3</td>
</tr>
<tr>
<td>Developing Market-Economy Countries</td>
<td>34.3</td>
<td>8.7</td>
<td>82.4</td>
<td>20.4</td>
<td>85.5</td>
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<tr>
<td>Rest of the World (4)</td>
<td>7.8</td>
<td>2.0</td>
<td>14.6</td>
<td>3.6</td>
<td>14.5</td>
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<tr>
<td>World total</td>
<td>393.7</td>
<td>100.0</td>
<td>404.9</td>
<td>100.0</td>
<td>403.4</td>
</tr>
</tbody>
</table>

1. Including Great Lakes Fleets.
2. Bahamas, Cyprus, Lebanon, Liberia, Oman, Panama and Vanuatu.
3. Albania, Bulgaria, Czechoslovakia, Germany (Democratic Republic), Hungary, Poland, Romania and USSR.
4. Bermuda, Cuba, China (PR), Faroe Islands (Included with Denmark from 1988), Falkland Islands, Gibraltar, Israel, North Korea, South Africa, Vietnam.

**NOTE:** Values in brackets for 1986-1989 reflect the changes which result from reclassification of Antigua, Bermuda, Cayman Isles, Gibraltar, Malta and St. Vincent as open registry countries.

**SOURCE:** Lloyd's Register of Shipping
### TABLE 3: The Relation Between Flag and Domicile of Owner

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>Tonnage of Flag Million GT</th>
<th>Per Cent of Domicile</th>
<th>Tonnage of Domicile Million GT</th>
<th>Per Cent of Flag</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liberia</td>
<td>46.26 (4 101)</td>
<td>2.4</td>
<td>1.04 (51)</td>
<td>39.2</td>
</tr>
<tr>
<td>Panama</td>
<td>46.54 (3 462)</td>
<td>8.5</td>
<td>2.27 (215)</td>
<td>95.3</td>
</tr>
<tr>
<td>Japan</td>
<td>26.36 (1 412)</td>
<td>99.4</td>
<td>55.43 (3 209)</td>
<td>48.8</td>
</tr>
<tr>
<td>USSR</td>
<td>25.06 (4 138)</td>
<td>100.0</td>
<td>25.06 (4 135)</td>
<td>100.0</td>
</tr>
<tr>
<td>Greece</td>
<td>21.14 (1 063)</td>
<td>99.4</td>
<td>41.02 (2 442)</td>
<td>43.2</td>
</tr>
<tr>
<td>United States</td>
<td>20.30 (1 037)</td>
<td>98.1</td>
<td>41.75 (1 704)</td>
<td>59.7</td>
</tr>
<tr>
<td>Cyprus</td>
<td>18.11 (1 130)</td>
<td>11.1</td>
<td>3.60 (172)</td>
<td>82.6</td>
</tr>
<tr>
<td>Norway (incl NIS)</td>
<td>13.74 (706)</td>
<td>97.3</td>
<td>24.98 (1 177)</td>
<td>58.5</td>
</tr>
<tr>
<td>China (PR)</td>
<td>12.94 (1 395)</td>
<td>98.4</td>
<td>13.89 (1 441)</td>
<td>95.6</td>
</tr>
<tr>
<td>Bahamas</td>
<td>10.58 (531)</td>
<td>4.3</td>
<td>0.51 (28)</td>
<td>82.1</td>
</tr>
<tr>
<td>Philippines</td>
<td>8.96 (606)</td>
<td>53.0</td>
<td>3.18 (341)</td>
<td>94.1</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>7.29 (641)</td>
<td>72.6</td>
<td>17.68 (982)</td>
<td>49.8</td>
</tr>
<tr>
<td>Korea (South)</td>
<td>7.21 (493)</td>
<td>96.6</td>
<td>9.31 (582)</td>
<td>81.8</td>
</tr>
<tr>
<td>Singapore</td>
<td>7.21 (419)</td>
<td>51.1</td>
<td>4.84 (402)</td>
<td>53.5</td>
</tr>
<tr>
<td>Italy</td>
<td>7.10 (642)</td>
<td>98.6</td>
<td>7.26 (677)</td>
<td>93.5</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>6.34 (202)</td>
<td>36.6</td>
<td>19.40 (798)</td>
<td>11.0</td>
</tr>
<tr>
<td>India</td>
<td>6.10 (367)</td>
<td>99.7</td>
<td>6.32 (405)</td>
<td>95.3</td>
</tr>
<tr>
<td>Brazil</td>
<td>5.88 (332)</td>
<td>99.7</td>
<td>6.30 (340)</td>
<td>97.4</td>
</tr>
<tr>
<td>Taiwan</td>
<td>4.88 (223)</td>
<td>91.0</td>
<td>6.10 (357)</td>
<td>56.9</td>
</tr>
<tr>
<td>Iran</td>
<td>4.71 (154)</td>
<td>99.4</td>
<td>4.39 (155)</td>
<td>98.7</td>
</tr>
<tr>
<td>Denmark (incl DIS)</td>
<td>4.64 (332)</td>
<td>99.4</td>
<td>7.00 (523)</td>
<td>63.1</td>
</tr>
</tbody>
</table>

| Germany (FR) | 1.64 (468) | 99.6 | 9.13 (965) | 50.3 |
| France      | 4.13 (239) | 92.2 | 4.43 (298) | 74.5 |
| Netherlands | 3.51 (517) | 88.8 | 4.08 (625) | 72.6 |
| Sweden      | 1.96 (200) | 95.5 | 3.79 (280) | 68.2 |
| Yugoslavia  | 3.50 (281) | 98.2 | 3.75 (303) | 91.7 |
| Romania     | 3.64 (349) | 100.0| 3.66 (352) | 99.1 |
| Canada      | 2.71 (380) | 93.2 | 3.57 (406) | 87.4 |
| Spain       | 3.47 (491) | 98.8 | 3.51 (533) | 90.6 |

**All OECD Countries**  
243.03 (15 038)  
**World Total**  
393.96 (29 175)

**NOTES:** Figures in brackets indicate number of ships. The percentages are derived from these values. The table only considers ships of over 1 000 gt.

**SOURCE:** Lloyds Register of Shipping
### TABLE 4
The Relation Between Particular Flag and Country of Domicile of the World Fleet

<table>
<thead>
<tr>
<th>COUNTRY OF DOMICILE</th>
<th>NATIONAL FLAG</th>
<th>LIBERIA</th>
<th>PANAMA</th>
<th>CYPRUS</th>
<th>SINGAPORE</th>
<th>BAHAMAS</th>
<th>OTHER LISTED COUNTRIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>44</td>
<td>5</td>
<td>42</td>
<td>n.a.</td>
<td>1</td>
<td>1</td>
<td>Philippines 5</td>
</tr>
<tr>
<td>Greece</td>
<td>43</td>
<td>6</td>
<td>12</td>
<td>26</td>
<td>n.a.</td>
<td>2</td>
<td>Malta 5 Honduras 2</td>
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<tr>
<td>United States</td>
<td>59</td>
<td>15</td>
<td>10</td>
<td>n.a.</td>
<td>2</td>
<td>3</td>
<td>U.K. 2 Cayman Isl. 1</td>
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<tr>
<td>Norway</td>
<td>59</td>
<td>14</td>
<td>8</td>
<td>n.a.</td>
<td>5</td>
<td></td>
<td>Philippines 4</td>
</tr>
<tr>
<td>Germany (FR)</td>
<td>50</td>
<td>7</td>
<td>8</td>
<td>14</td>
<td>5</td>
<td>n.a.</td>
<td>Antigua 7</td>
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<td>Netherlands</td>
<td>72</td>
<td>n.a.</td>
<td>5</td>
<td>n.a.</td>
<td>4</td>
<td></td>
<td>Hong Kong 5 Bermuda 5 Gibraltar 3</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>50</td>
<td>8</td>
<td>5</td>
<td>2</td>
<td>n.a.</td>
<td>8</td>
<td>U.K. 4</td>
</tr>
<tr>
<td>Denmark</td>
<td>63</td>
<td>n.a.</td>
<td>6</td>
<td>n.a.</td>
<td>7</td>
<td>9</td>
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<td>France</td>
<td>75</td>
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<td>5</td>
<td>n.a.</td>
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<tr>
<td>Belgium</td>
<td>66</td>
<td>5</td>
<td>n.a.</td>
<td>14</td>
<td>7</td>
<td>n.a.</td>
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</tr>
<tr>
<td>Sweden</td>
<td>68</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>5</td>
<td>8</td>
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<tr>
<td>Finland</td>
<td>63</td>
<td>n.a.</td>
<td>5</td>
<td>n.a.</td>
<td>23</td>
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</tr>
<tr>
<td>Hong Kong</td>
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<td>26</td>
<td>47</td>
<td>n.a.</td>
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<tr>
<td>Singapore</td>
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<td>6</td>
<td>22</td>
<td>n.a.</td>
<td>n.a.</td>
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<tr>
<td>Taiwan</td>
<td>57</td>
<td>6</td>
<td>33</td>
<td>n.a.</td>
<td>n.a.</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>COUNTRY OF DOMICILE</th>
<th>NATIONAL FLAG</th>
<th>JAPAN</th>
<th>HONG KONG</th>
<th>GREECE</th>
<th>UNITED STATES</th>
<th>NORWAY</th>
<th>OTHER LISTED COUNTRIES</th>
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<tr>
<td>Panama</td>
<td>9</td>
<td>39</td>
<td>11</td>
<td>9</td>
<td>5</td>
<td>3</td>
<td>Taiwan 3, Singapore 3,</td>
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<td>Indonesia 2, China (PR) 1</td>
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<td>U.K. 5, Germany (FR) 5,</td>
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<td></td>
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<td>Switzerland 2, Belgium 2, U.K. 2</td>
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<td></td>
<td>Germany (FR) 12, Denmark 9</td>
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<td>U.K. 5</td>
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<td></td>
<td>U.K. 24, France 5</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>U.K. 9, South Africa 6, Liberia 5</td>
</tr>
</tbody>
</table>

**NOTES:** n.a. signifies that the information was not provided in the source document. Percentages relate to numbers of ships over 1,000 gt.

**SOURCE:** Lloyd's Register of Shipping.
### TABLE 5: The Ship Types and the Regional Distribution

<table>
<thead>
<tr>
<th>TYPE OF VESSEL</th>
<th>TOTAL TONNAGE MILLION GT</th>
<th>PER CENT INCREASE/DECREASE MID-1968/MID-1969</th>
<th>OCRD COUNTRIES (8)</th>
<th>OPEN REGISTRY COUNTRIES (9)</th>
<th>USSR/EASTERN EUROPE (10)</th>
<th>DEVELOPING MARKET-ECONOMY COUNTRIES</th>
<th>REST OF THE WORLD (11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil Tankers (1)</td>
<td>129.58</td>
<td>+ 1.4</td>
<td>35.0</td>
<td>44.0</td>
<td>4.0</td>
<td>15.5</td>
<td>1.5</td>
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<tr>
<td>Chemical carriers</td>
<td>3.41</td>
<td>- 1.7</td>
<td>46.2</td>
<td>34.4</td>
<td>1.4</td>
<td>17.8</td>
<td>0.2</td>
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<td>Liquefied gas carriers</td>
<td>10.05</td>
<td>+ 2.9</td>
<td>51.7</td>
<td>24.3</td>
<td>2.0</td>
<td>21.9</td>
<td>0.1</td>
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<td>Combination carriers</td>
<td>19.97</td>
<td>- 0.3</td>
<td>29.1</td>
<td>40.1</td>
<td>4.0</td>
<td>4.0</td>
<td>-</td>
</tr>
<tr>
<td>Ore and bulk carriers</td>
<td>109.51</td>
<td>- 0.1</td>
<td>28.8</td>
<td>33.7</td>
<td>6.9</td>
<td>26.1</td>
<td>4.5</td>
</tr>
<tr>
<td>General cargo ships (2)</td>
<td>50.85</td>
<td>n.c.</td>
<td>18.6</td>
<td>26.7</td>
<td>17.0</td>
<td>25.2</td>
<td>12.5</td>
</tr>
<tr>
<td>Container ships (3)</td>
<td>22.74</td>
<td>+ 2.0</td>
<td>46.7</td>
<td>21.4</td>
<td>3.6</td>
<td>22.6</td>
<td>5.7</td>
</tr>
<tr>
<td>Refrigerated carriers</td>
<td>6.62</td>
<td>n.r.</td>
<td>22.7</td>
<td>26.5</td>
<td>33.7</td>
<td>14.7</td>
<td>2.4</td>
</tr>
<tr>
<td>Specialised cargo ships</td>
<td>14.67</td>
<td>n.r.</td>
<td>39.8</td>
<td>43.7</td>
<td>3.1</td>
<td>13.2</td>
<td>0.2</td>
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<tr>
<td>Ro-ro ships (4)</td>
<td>7.12</td>
<td>n.r.</td>
<td>57.7</td>
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<td>8.3</td>
<td>1.7</td>
</tr>
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<td>Passenger ships (5)</td>
<td>13.50</td>
<td>n.r.</td>
<td>58.0</td>
<td>17.3</td>
<td>9.9</td>
<td>11.5</td>
<td>3.3</td>
</tr>
<tr>
<td>Other cargo ships (6)</td>
<td>1.09</td>
<td>n.c.</td>
<td>34.3</td>
<td>20.2</td>
<td>8.6</td>
<td>34.7</td>
<td>2.2</td>
</tr>
<tr>
<td>Fishing vessels (7)</td>
<td>11.71</td>
<td>n.c.</td>
<td>32.4</td>
<td>2.3</td>
<td>47.8</td>
<td>15.0</td>
<td>2.5</td>
</tr>
<tr>
<td>Other non-trading ships</td>
<td>9.67</td>
<td>n.c.</td>
<td>43.4</td>
<td>10.4</td>
<td>18.7</td>
<td>21.9</td>
<td>5.6</td>
</tr>
<tr>
<td>All categories</td>
<td>410.48</td>
<td>+ 1.8</td>
<td>33.4</td>
<td>33.0</td>
<td>8.8</td>
<td>20.1</td>
<td>3.9</td>
</tr>
</tbody>
</table>

n.c.: Not comparable with figures in previous Reports.

n.r.: Not previously reported separately by Lloyd's Statistical Tables.

1. Including oil/chemical tankers.
2. Single and multi-deck; excluding passenger/cargo ships.
3. Fully cellular; including lighter carriers.
4. Excluding passenger/ro-ro ships.
5. Including passenger/ro-ro and passenger/cargo ships.
6. Non-oil tankers, tank barges and general cargo barges.
7. Including fish factory ships.
8. Including Great Lakes and United States Reserve Fleets.
9. Antigua & Barbuda, Bahamas, Bermuda, Cayman Islands, Cyprus, Gibraltar, Lebanon, Liberia, Malta, Panama, St. Vincent and Vanuatu.
10. Albania, Bulgaria, Czechoslovakia, Germany (Democratic Republic), Hungary, Poland, Romania and the USSR.
11. Cuba, China (PR), Falkland Islands, Israel, Korea (North), South Africa and Vietnam.

SOURCE: Lloyd's Register of Shipping: Statistical Tables
## TABLE 6: World Bulk Carrier Fleet

**1984-1990**

<table>
<thead>
<tr>
<th>SIZE GROUPS IN DWT</th>
<th>IN SERVICE AT 1ST JANUARY:</th>
<th>ON ORDER 1ST JAN 1990</th>
</tr>
</thead>
<tbody>
<tr>
<td>OIL TANKERS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-40 000</td>
<td>29 743</td>
<td>28 303</td>
</tr>
<tr>
<td>40-150 000</td>
<td>84 723</td>
<td>81 485</td>
</tr>
<tr>
<td>150 000 +</td>
<td>165 813</td>
<td>154 724</td>
</tr>
<tr>
<td>Total</td>
<td>280 280</td>
<td>264 512</td>
</tr>
<tr>
<td>COMBINATION CARRIERS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-60 000</td>
<td>1 456</td>
<td>1 626</td>
</tr>
<tr>
<td>60-100 000</td>
<td>8 366</td>
<td>7 908</td>
</tr>
<tr>
<td>100 000 +</td>
<td>32 378</td>
<td>31 544</td>
</tr>
<tr>
<td>Total</td>
<td>42 200</td>
<td>41 078</td>
</tr>
<tr>
<td>DRY BULK CARRIERS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-60 000</td>
<td>112 190</td>
<td>117 047</td>
</tr>
<tr>
<td>60-100 000</td>
<td>35 199</td>
<td>37 912</td>
</tr>
<tr>
<td>100 000 +</td>
<td>30 698</td>
<td>32 818</td>
</tr>
<tr>
<td>Total</td>
<td>178 087</td>
<td>187 777</td>
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</table>

**NOTE:** A more detailed breakdown by size at mid-1989 is given in Table XVI(b) of the Statistical Annex.

### Table 7

**Shipbuilding Employment**

<table>
<thead>
<tr>
<th>COUNTRIES</th>
<th>YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1980</td>
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<tr>
<td>JAPAN</td>
<td>80,100</td>
</tr>
<tr>
<td>WESTERN EUROPE</td>
<td>198,000</td>
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<td>REP. OF KOREA</td>
<td>42,500</td>
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### Table 8

**Wage in Shipyard $**

<table>
<thead>
<tr>
<th>COUNTRIES</th>
<th>YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1980</td>
</tr>
<tr>
<td>GERMANY</td>
<td>11.25</td>
</tr>
<tr>
<td>DENMARK</td>
<td>11.33</td>
</tr>
<tr>
<td>UNITED STATES</td>
<td>11.94</td>
</tr>
<tr>
<td>JAPAN</td>
<td>6.77</td>
</tr>
<tr>
<td>TAIWAN</td>
<td>1.86</td>
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<tr>
<td>REP. OF KOREA</td>
<td>1.72</td>
</tr>
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</table>
### TABLE 9

<table>
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<th></th>
<th></th>
<th></th>
<th></th>
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<td>4400</td>
<td>3500</td>
<td>180000</td>
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<td>9000</td>
<td>450000</td>
<td>290000</td>
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<td><strong>FINLAND</strong></td>
<td>1500</td>
<td>1000</td>
<td>17000</td>
<td>15000</td>
<td>450000</td>
</tr>
<tr>
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<td>750000</td>
</tr>
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<td>42000</td>
<td>430000</td>
<td>22000</td>
<td>1600000</td>
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<td>2300</td>
<td>9000</td>
<td>2300</td>
<td>70000</td>
</tr>
<tr>
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<td>1600</td>
<td>1400</td>
<td>1000</td>
<td>1000</td>
<td>7000</td>
</tr>
<tr>
<td><strong>ITALY</strong></td>
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<td>26000</td>
<td>400000</td>
<td>250000</td>
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<td>37000</td>
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<td>18000</td>
<td>250000</td>
<td></td>
</tr>
<tr>
<td><strong>NORWAY</strong></td>
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<td>22000</td>
<td>145000</td>
<td></td>
<td></td>
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</tr>
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<td>48000</td>
<td>40000</td>
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</tr>
<tr>
<td><strong>TOTAL</strong></td>
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<td>223600</td>
<td>205900</td>
<td>1182000</td>
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* Forecast

**Source:** ISL, Sreten

### TABLE 10
LABOUR PRODUCTIVITY IN SHIPBUILDING 1980-1985

<table>
<thead>
<tr>
<th>Country</th>
<th>Average Number of Employees 1980-1985</th>
<th>Average Labour Productivity (CGRT) 1980-1985</th>
<th>CES/MAN/NO/Y YEAR</th>
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<tr>
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<tr>
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<td>7900</td>
<td>49900</td>
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<tr>
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</tr>
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<td>54354</td>
<td>7.0</td>
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<td>17.4</td>
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<td>294385</td>
<td>17.4</td>
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</table>

* Including 47,000 Loaned Workers; ** Since 1982.

**Source:** ISL, Breem

### TABLE 11
INTERNATIONAL COMPARISON OF SHIPBUILDING COSTS PER CGRT 1985

<table>
<thead>
<tr>
<th>Country</th>
<th>Working Hours Per Year</th>
<th>Labour Productivity CGRT/MAN/NO/Y</th>
<th>Labour Costs Per Hour in DM 1985</th>
<th>Labour Costs Per Cent in DM 1985</th>
<th>Index German F.R. of = 100</th>
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</thead>
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<tr>
<td>BELGIUM</td>
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<td>29.55</td>
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<td>132.1</td>
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<td>1707</td>
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<td>14.13</td>
<td>1707</td>
<td>100.0</td>
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<tr>
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<td>14.8</td>
<td>14.13</td>
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<td>26.06</td>
<td>1332</td>
<td>79.2</td>
</tr>
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</tr>
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<td>32.77</td>
<td>1822</td>
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<td>46.7</td>
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</table>

* On the basis that for loaned workers hourly compensation is about 2/3 of direct employees

**Source:** ISL, Breem

180
### TABLE 12: World Top-Twenty Shipbuilding Nations Between 1977 and 1987

<table>
<thead>
<tr>
<th>Country of Build</th>
<th>Output</th>
<th>% World Total</th>
<th>1977 Rank</th>
<th>Country of Build</th>
<th>Output</th>
<th>% World Total</th>
<th>1987 Rank</th>
</tr>
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<td>Japan</td>
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<td>8.40</td>
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<td>2</td>
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<tr>
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<td>3.70</td>
<td>3</td>
<td>Yugoslavia</td>
<td>350</td>
<td>2.86</td>
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<td>Taiwan</td>
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<td>1.50</td>
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<td>E. Germany</td>
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<td>1.37</td>
<td>16</td>
<td>France</td>
<td>167</td>
<td>1.36</td>
<td>16</td>
</tr>
<tr>
<td>Finland</td>
<td>361</td>
<td>1.31</td>
<td>17</td>
<td>USA</td>
<td>164</td>
<td>1.34</td>
<td>17</td>
</tr>
<tr>
<td>Taiwan</td>
<td>296</td>
<td>1.01</td>
<td>18</td>
<td>Bulgaria</td>
<td>85</td>
<td>0.69</td>
<td>18</td>
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<tr>
<td>Netherlands</td>
<td>240</td>
<td>0.87</td>
<td>19</td>
<td>Sweden</td>
<td>75</td>
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<td>19</td>
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<td>Romania</td>
<td>196</td>
<td>0.71</td>
<td>20</td>
<td>Norway</td>
<td>62</td>
<td>0.51</td>
<td>20</td>
</tr>
<tr>
<td>Others</td>
<td>1,176</td>
<td>4.20</td>
<td>-</td>
<td>Others</td>
<td>476</td>
<td>3.00</td>
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</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>27,532</td>
<td>100</td>
<td>-</td>
<td><strong>TOTAL</strong></td>
<td>12,259</td>
<td>100</td>
<td>-</td>
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</table>

N.B. Figures in brackets ( ) are incomplete

Source: Derived from Lloyd's Register Annual Summary of Merchant Ships Completed 1987

### TABLE 13: Top-Ten Orderbooks in the Last two Decades

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
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<tbody>
<tr>
<td><strong>No. of % of Ships, World</strong></td>
<td>%% of DWT World</td>
<td>No. of % of Ships, World</td>
<td>%% of DWT World</td>
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<tr>
<td>S. Korea</td>
<td>115</td>
<td>11.4</td>
<td>10,781,914</td>
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<td>Japan</td>
<td>212</td>
<td>21.0</td>
<td>9,981,179</td>
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<tr>
<td>Yugoslavia</td>
<td>47</td>
<td>4.7</td>
<td>2,072,800</td>
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<td>Brazil</td>
<td>35</td>
<td>3.5</td>
<td>1,543,325</td>
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<tr>
<td>Spain</td>
<td>48</td>
<td>4.8</td>
<td>1,455,340</td>
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<td>China</td>
<td>66</td>
<td>6.6</td>
<td>1,393,326</td>
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<td>Poland</td>
<td>46</td>
<td>4.6</td>
<td>1,119,140</td>
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<tr>
<td>Denmark</td>
<td>43</td>
<td>4.3</td>
<td>1,089,598</td>
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<tr>
<td>Italy</td>
<td>33</td>
<td>3.3</td>
<td>909,598</td>
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<tr>
<td>W. Germany</td>
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<td>775,982</td>
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<td>0</td>
<td>0</td>
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<tr>
<td><strong>World</strong></td>
<td>1,105</td>
<td>37,669,999</td>
<td>1,918</td>
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### TABLE 14: Investment in Shipping Capacity for the Replacement of the Old tonnage

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<thead>
<tr>
<th>SHIP TYPE</th>
<th>NEWBUILDING REQUIRED Million Dwt</th>
<th>PRICE PER DWT (1989 Prices) $</th>
<th>INVESTMENT REQUIRED $ Billion</th>
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</thead>
<tbody>
<tr>
<td>TANKERS</td>
<td>180</td>
<td>408</td>
<td>73.5</td>
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<tr>
<td>COMBINED CARRIERS</td>
<td>20</td>
<td>500</td>
<td>10</td>
</tr>
<tr>
<td>BULK CARRIERS</td>
<td>100</td>
<td>497</td>
<td>49.7</td>
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<tr>
<td>OTHER VESSELS</td>
<td>55</td>
<td>1500</td>
<td>82.5</td>
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<tr>
<td>TOTAL</td>
<td>355</td>
<td>607</td>
<td>215.7</td>
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### TABLE 15

<table>
<thead>
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<th>TURKISH MERCHANT FLEET BY NUMBER AND TONNAGE (150 grt and over) 1.5.90</th>
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</thead>
<tbody>
<tr>
<td>TYPE OF VESSEL</td>
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<tr>
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<tr>
<td>IMPORTED</td>
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<tr>
<td>DRY CARGO</td>
</tr>
<tr>
<td>BULK CARRIER</td>
</tr>
<tr>
<td>OIL/OIL/ALKOHRID</td>
</tr>
<tr>
<td>OIL TANKER</td>
</tr>
<tr>
<td>CHEMICAL TANKER</td>
</tr>
<tr>
<td>LPG TANKER</td>
</tr>
<tr>
<td>ASPHALT TANKER</td>
</tr>
<tr>
<td>WATER TANKER</td>
</tr>
<tr>
<td>RO/RO</td>
</tr>
<tr>
<td>CONTAINER</td>
</tr>
<tr>
<td>FERRY-BOAT</td>
</tr>
<tr>
<td>TRAIN FERRIES</td>
</tr>
<tr>
<td>LIVESTOCK CARRIER</td>
</tr>
<tr>
<td>FISHERY AND FACTORY</td>
</tr>
<tr>
<td>PASSENGER/PAAS CARGO</td>
</tr>
<tr>
<td>SCIENTIFIC RESEARCH</td>
</tr>
<tr>
<td>CITY FERRY (FOR PASSENGER)</td>
</tr>
<tr>
<td>CITY FERRY (FOR CARG)</td>
</tr>
<tr>
<td>TUG BOAT AND SERVICE</td>
</tr>
<tr>
<td>TOTAL</td>
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### TABLE 16
FOREIGN TRADE AND TURKISH FLAG SHARE

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<tr>
<th>YEAR</th>
<th>FOREIGN TRADE 1000*TON</th>
<th>EXPORT</th>
<th>IMPORT</th>
<th>TOTAL</th>
<th>SHARE OF TURKISH FLAG</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>28,162</td>
<td>-</td>
<td>-</td>
<td>22,824</td>
<td>7,161</td>
<td>31.4</td>
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<tr>
<td>1981</td>
<td>31,715</td>
<td>-</td>
<td>-</td>
<td>20,356</td>
<td>5,297</td>
<td>26.0</td>
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<tr>
<td>1982</td>
<td>35,670</td>
<td>8,999</td>
<td>21,030</td>
<td>29,929</td>
<td>10,513</td>
<td>25.1</td>
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<tr>
<td>1983</td>
<td>38,154</td>
<td>9,414</td>
<td>23,908</td>
<td>33,322</td>
<td>16,592</td>
<td>49.8</td>
</tr>
<tr>
<td>1984</td>
<td>45,727</td>
<td>11,146</td>
<td>28,532</td>
<td>39,680</td>
<td>16,267</td>
<td>46.0</td>
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<tr>
<td>1985</td>
<td>47,118</td>
<td>11,462</td>
<td>29,709</td>
<td>41,172</td>
<td>18,277</td>
<td>44.4</td>
</tr>
<tr>
<td>1986</td>
<td>48,940</td>
<td>13,394</td>
<td>29,027</td>
<td>42,391</td>
<td>17,052</td>
<td>41.6</td>
</tr>
<tr>
<td>1987</td>
<td>59,014</td>
<td>12,941</td>
<td>35,588</td>
<td>48,529</td>
<td>29,018</td>
<td>43.3</td>
</tr>
<tr>
<td>1988</td>
<td>63,064</td>
<td>19,708</td>
<td>32,810</td>
<td>52,518</td>
<td>19,704</td>
<td>37.5</td>
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<td>47,169</td>
<td>15,367</td>
<td>33,670</td>
<td>49,037</td>
<td>20,591</td>
<td>42.0</td>
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<tr>
<td>1990*</td>
<td>-</td>
<td>3,423</td>
<td>9,735</td>
<td>13,158</td>
<td>5,020</td>
<td>38.1</td>
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</table>

* Jan-Sept. 1990 Figures
# Jan-Mar. 1990 Figures

### TABLE 17
TURKISH FOREIGN TRADE CARRIED BY TURKISH FLAG (1000*TONS)

<table>
<thead>
<tr>
<th>YEAR</th>
<th>EXPORT</th>
<th>%</th>
<th>IMPORT</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>1982</td>
<td>1,670</td>
<td>18.8</td>
<td>8,043</td>
<td>42.0</td>
</tr>
<tr>
<td>1983</td>
<td>2,391</td>
<td>25.4</td>
<td>14,201</td>
<td>59.4</td>
</tr>
<tr>
<td>1984</td>
<td>2,887</td>
<td>25.9</td>
<td>15,380</td>
<td>53.9</td>
</tr>
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<td>1985</td>
<td>2,451</td>
<td>21.4</td>
<td>15,826</td>
<td>53.3</td>
</tr>
<tr>
<td>1986</td>
<td>4,664</td>
<td>34.8</td>
<td>13,016</td>
<td>44.8</td>
</tr>
<tr>
<td>1987</td>
<td>4,355</td>
<td>33.7</td>
<td>16,663</td>
<td>46.8</td>
</tr>
<tr>
<td>1988</td>
<td>5,016</td>
<td>25.5</td>
<td>14,689</td>
<td>44.8</td>
</tr>
<tr>
<td>1989</td>
<td>5,233</td>
<td>34.0</td>
<td>15,358</td>
<td>45.6</td>
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<tr>
<td>1990*</td>
<td>1,182</td>
<td>-</td>
<td>3,934</td>
<td>-</td>
</tr>
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* January-March
### TABLE 18

**MILLION TON-MILES CALCULATIONS FOR TURKISH FOREIGN TRADE**

<table>
<thead>
<tr>
<th>YEARS</th>
<th>IMPORT</th>
<th>EXPORT</th>
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<tbody>
<tr>
<td>1982</td>
<td>73,225</td>
<td>15,898</td>
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<tr>
<td>1983</td>
<td>79,420</td>
<td>15,479</td>
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<td>1984</td>
<td>106,335</td>
<td>16,509</td>
</tr>
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<td>1985</td>
<td>111,211</td>
<td>16,018</td>
</tr>
<tr>
<td>1986</td>
<td>129,383</td>
<td>18,618</td>
</tr>
<tr>
<td>1987</td>
<td>154,064</td>
<td>29,924</td>
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</table>

### TABLE 19

**MILLION TON-MILES CALCULATIONS FOR TURKISH FOREIGN TRADE**

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<th>YEAR</th>
<th>IMPORT</th>
<th>EXPORT</th>
</tr>
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<tbody>
<tr>
<td>1990</td>
<td>185,903</td>
<td>35,744</td>
</tr>
<tr>
<td>1991</td>
<td>199,935</td>
<td>39,072</td>
</tr>
<tr>
<td>1992</td>
<td>213,964</td>
<td>42,406</td>
</tr>
<tr>
<td>1993</td>
<td>228,001</td>
<td>45,754</td>
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<tr>
<td>1994</td>
<td>241,649</td>
<td>49,110</td>
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### TABLE 20

**TURKISH FOREIGN TRADE GOODS (FORECAST) (1000 TON)**

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<th>YEAR</th>
<th>IMPORT</th>
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</thead>
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<tr>
<td>1990</td>
<td>53,173</td>
<td>16,260</td>
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<tr>
<td>1991</td>
<td>56,873</td>
<td>17,156</td>
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<tr>
<td>1992</td>
<td>60,572</td>
<td>18,089</td>
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<td>1993</td>
<td>64,272</td>
<td>19,044</td>
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<td>1994</td>
<td>67,977</td>
<td>20,030</td>
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### Table 21
CABOTAGE TRADE IN TURKEY (1000 TON)

<table>
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<tr>
<th>YEAR</th>
<th>GOODS TRANSPORTED</th>
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<tr>
<td>1980</td>
<td>15,529</td>
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<tr>
<td>1981</td>
<td>13,018</td>
</tr>
<tr>
<td>1982</td>
<td>19,458</td>
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<td>1983</td>
<td>18,966</td>
</tr>
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<td>1984</td>
<td>18,095</td>
</tr>
<tr>
<td>1985</td>
<td>18,861</td>
</tr>
<tr>
<td>1986</td>
<td>21,168</td>
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<td>1987</td>
<td>25,394</td>
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<td>1988</td>
<td>29,076</td>
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### Table 22
CABOTAGE TRADE IN TURKEY (FORECAST) 1000 TON

<table>
<thead>
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<th>YEAR</th>
<th>GOODS TO BE TRANSPORTED</th>
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<td>1990</td>
<td>22,637</td>
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<tr>
<td>1991</td>
<td>23,466</td>
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<td>1992</td>
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<td>1993</td>
<td>25,125</td>
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<tr>
<td>1994</td>
<td>25,954</td>
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### Table 23
TRANSIT TRANSPORT THROUGH TURKISH PORTS (TON)

<table>
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<th>YEAR</th>
<th>TRANSIT</th>
<th>SHARE OF TURKISH FLAG</th>
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<td>1982</td>
<td>30,378</td>
<td>504</td>
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<td>1983</td>
<td>34,964</td>
<td>851</td>
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<td>40,428</td>
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<td>49,743</td>
<td>670</td>
</tr>
<tr>
<td>1986</td>
<td>43,301</td>
<td>1,640</td>
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<td>1987</td>
<td>55,813</td>
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</tr>
<tr>
<td>1988</td>
<td>73,530</td>
<td>No Data Available</td>
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<td>1989</td>
<td>77,816</td>
<td>No Data Available</td>
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<tr>
<td>1990</td>
<td>16,885</td>
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### TABLE 24

CARGO TRANSPORTED BY TURKISH FLAG SHIPS IN CROSS TRADE (1906)

<table>
<thead>
<tr>
<th>TYPE OF CARGO</th>
<th>AMOUNT OF CARGO (1000*TON)</th>
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<td>2,192</td>
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<td>LIQUID BULK</td>
<td>5,334</td>
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<tr>
<td>GENERAL CARGO</td>
<td>2,430</td>
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<td>TIMBER</td>
<td>140</td>
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<td>UNSPECIFIED</td>
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</tr>
<tr>
<td>TOTAL</td>
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### TABLE 25

REQUIRED FLEET CAPACITY FOR TURKISH FOREIGN TRADE (1000*TON)

<table>
<thead>
<tr>
<th>YEAR</th>
<th>FLEET CAPACITY FOR TOTAL FOREIGN CARGO</th>
<th>FLEET CAPACITY UN CODE CONCEPT</th>
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<tr>
<td>1990</td>
<td>0.292</td>
<td>5,173</td>
</tr>
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<td>1991</td>
<td>0.934</td>
<td>5,554</td>
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<tr>
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<td>9.540</td>
<td>5,921</td>
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<td>1993</td>
<td>10.623</td>
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<td>1994</td>
<td>10.907</td>
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<td>SHIPYARD</td>
<td>OWNER</td>
<td>CONSTRUCTION CAPACITY (DWT)</td>
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<tr>
<td>---------------</td>
<td>-------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>GOLCUK NAVY</td>
<td>25,000</td>
<td>10,000</td>
</tr>
<tr>
<td>TASKIZAK NAVY</td>
<td>10,000</td>
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<tr>
<td>HALIC TURKISH SHIPB. INC.</td>
<td>5,800</td>
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</tr>
<tr>
<td>CAMIALTI TURKISH SHIPB. INC.</td>
<td>18,000</td>
<td>5,934</td>
</tr>
<tr>
<td>ISTITNE TURKISH SHIPB. INC.</td>
<td>4,700</td>
<td>1,524</td>
</tr>
<tr>
<td>ALAYBEY TURKISH SHIPB. INC.</td>
<td>820</td>
<td>708</td>
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<td>PENDIK 1, STAGE</td>
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</tr>
<tr>
<td>PENDIK 2, STAGE</td>
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</tr>
<tr>
<td>TOTAL (Except 2. Stage)</td>
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</tr>
<tr>
<td>REGION</td>
<td>SHIPYARD</td>
<td>CONSTRUCTION CAPACITY (DWT)</td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------</td>
<td>----------------------------</td>
</tr>
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<td>TUZLA</td>
<td>HIDRODINAMIK</td>
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</tr>
<tr>
<td>TUZLA</td>
<td>GEMAK</td>
<td>8,000</td>
</tr>
<tr>
<td>TUZLA</td>
<td>DESAN</td>
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</tr>
<tr>
<td>TUZLA</td>
<td>SAHIN CELIK</td>
<td>3,500</td>
</tr>
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<td>YILDIRIM</td>
<td>3,500</td>
</tr>
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<td>TUZLA</td>
<td>GEMYAT (GUNSIN)</td>
<td>8,000</td>
</tr>
<tr>
<td>TUZLA</td>
<td>ANADOLU</td>
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</tr>
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<td>DENIZ END.</td>
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</tr>
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<td>YILDIZ</td>
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</tr>
<tr>
<td>TUZLA</td>
<td>CELIK TEKNE</td>
<td>5,500</td>
</tr>
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<td>TUZLA</td>
<td>P.K.M.</td>
<td>6,000</td>
</tr>
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<td>KOK SEDEF</td>
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<td>TUZLA</td>
<td>STFA D. IS.</td>
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<td>TUZLA GEMI END.</td>
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</tr>
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<td>SELAH</td>
<td>13,000</td>
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* Shipyard is under construction or inactive.
VESSEL REQUIREMENTS

(a) TONNAGE (million dwt)

- Oil Tankers: 132.0 million dwt
- Dry Bulk Carriers: 103.0 million dwt
- Combined Carriers: 18.6 million dwt
- General Cargo Vessels: 28.7 million dwt
- Containerships: 24.9 million dwt
- Chemical Tankers: 8.8 million dwt
- Gas Carriers: 9.8 million dwt

(b) FINANCE (USS)

- Oil Tankers: $53.8 million
- Dry Bulk Carriers: $49.0 million
- Combined Carriers: $6.2 million
- General Cargo Vessels: $40.9 million
- Containerships: $21.4 million
- Chemical Tankers: $7.9 million
- Gas Carriers: $17.8 million

Source: Drewry Shipping Consultants Ltd.
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