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Cabotage system of Nicaragua

Carlos Arturo Bell Bonilla

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CABOTAGE SYSTEM OF NICARAGUA

by

CARLOS ARTURO BELL BONILLA

NICARAGUA

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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I wish to acknowledge my sincere gratitude to all professors and all the persons who helped me during my two years in the World Maritime University.
To my wife Elizabeth.
my son Carlos Alberto,
my daughter Karla Vannessa
and
my mother.
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INTRODUCTION

The present work deals with problems regarding the cabotage system in Nicaragua, taking into account the many factors which are important to develop Nicaragua socially and economically.

There are many problems because Nicaragua has a totally different position in the social and political aspects in comparison to other countries of the area.

Therefore integration within the countries of Central America is difficult.

Nicaragua is an agrarian country which depends on commodities such as, sugar, cotton and coffee. Also the geographical location is of great importance in Central America.

In this paper the cabotage system, and what role it plays within the economy will be analyzed. Furthermore what means of transport should be used to distribute commodities and the consumption products to the local market will be discussed. thus, this is where the cabotage is important.

The population is situated in areas whose main means of communication are on rivers, lakes, lagoons and coastal areas to provide the products which are essential for the people and for internal commerce.

The purpose of this study is to make a brief analysis of each point of interest and to cover a review of the actual structure of the cabotage system, and all problems.
regarding this mode of transportation.

In other words all problems concerning internal navigation. The study is composed of seven chapters and each chapter has as the goal to make a description of the main problems regarding maritime administration, the national fleet of cabotage and other items as follows:

- Characteristics of the country.

- Commerce and historical antecedents.

- Different economic parameters to make a classification of the measures to be taken.

- The size of the problems and possible short term solutions within the economic, the social, the operational and administrative aspects based on conclusions and recommendations.

- A thorough analysis, which in general terms represents the real situation of transport in water areas should be looked for.

- Review of the cost structure and the tariff system and to improvement of the present situation.

In my point of view this study represents my experience in the area and my own considerations, I believe that in any form I am making a real description of the cabotage.

During the last five years my job was in the Directorate of Water Transport, particularly in the area of internal
navigation which is responsible for the area in the ministry of construction and transport or MICOTRANS.

Perhaps it will be possible in the future to make a more technical analysis which will be more adequate to the changes caused by new techniques on ships, handling systems and the introduction computer systems in maritime and coastal transport.
CHAPTER I

GENERAL CONSIDERATIONS

In this chapter each of the factors implicated in the development and evolution of Nicaragua will be analyzed. Furthermore characteristics, such as geography, climate, and other important aspects concerning transportation such as waterways, channels and ports will be described.

A brief description of international trade and main commodities for exports will be made in the last part of the chapter.

1.1 DESCRIPTION OF NICARAGUA

In this point, the importance Nicaragua has as country and what position it has in Central America can be seen. Also general characteristics of geographical location, social and economic aspects will be described.

Nicaragua is an independent republic in Central America. It is headed by a president, Commander Daniel Ortega Saavedra. The republic was founded in 1821, when it was recognized as an independent republic. It is the most extensive country in Central America with a surface of about 130,000 square kilometers. There are two main lakes in the western part called Lake Nicaragua and Lake Managua with an approximate area of 9,000 square kilometers. There are approximately 120,000 square kilometers of land and the rest of the total area is water in different forms, such as rivers and lagoons.
The political division of Nicaragua consists of 6 regions and 3 special zones. Each region is divided by departments as follows: see map.

- Region I ......Esteli, Matagalpa and Nueva Guinea.
- Region II ......Leon and Chinandega.
- Region III ......Managua.
- Region IV ......Masaya, Granada, Rivas and Carazo.
- Region V ......Boaco, Chontales and Rama City.
- Region VI ...... Jinotega.
- Special Zone I .. Puerto Cabezas.
- Special Zone II .. Bluefields.
- Special zone III. San Juan River.

The capital is Managua City with a population of approximately one million inhabitants. It is situated in the Pacific area and is important to the government because the central government is situated in Managua. There are also local governments in the other regions or cities. The total population of Nicaragua is about 4 million inhabitants. Nicaragua is bound on the north by the Republic of Honduras. On the east by the Caribbean Sea, on the south by the Republic of Costa Rica and on the west by the Pacific Ocean.

Nicaragua is known as the land of lakes and volcanoes. This is due to the topographic form. The climate is tropical and there are two seasons: the winter season begins in May and finishes in November, whose main characteristic is rainfall and very strong and dangerous storms. The summer season begins in December and finishes in April, with temperatures between 30 and 36 degrees, sometimes 40 degrees. Normally the average temperature is between 21 and 29
degrees. Nicaragua is situated 15 degrees, 10 m and 43' north latitude and the longitude is 83 degrees and 30' west of Greenwich with a coastal line on the Atlantic of 360 kms and on the Pacific a coastal line of 375 kilometers. In the Caribbean area the coastal line is 510 kms.

Nicaragua is not only an agrarian country but also an important fishing country. Fishing is done principally in the Caribbean area where there are potential resources, such as crustaceans and other species. There is also meat production in the western part of the country.

Nicaragua is divided into 2 large zones, namely the Pacific Zone and the Atlantic Zone.

a- The Pacific Zone is formed by regions I, II, III, IV, V, VI. There are three races, White, Indians and a mixture of both. There are also a few Black people. In the Pacific zone the most important language is Spanish and the religion is traditionally Catholic and Protestant. The main activities are agriculture and rearing of bovines animals.

b-the Atlantic Zone is formed by three special zones I, II, III. There are two dominant races; Black people and Indians (the Ramas, the Caribbies, and the Miskitos). In this area the population speak English, Spanish and the local languages or dialects. The principal religion is the Morava church which is a somewhat similar to the protestant. The principal activity is fishing which is of great importance concerning exports and is the principal resource for living there.
The main attributing characteristics of Nicaragua are as follow:

Color of flag ...........white and blue

Official Religion ......none

Currency ................Cordoba

Official Language ......Spanish

Types of property ......State, Private, Mixture and Cooperative

Use of Land .............Agriculture, Cattle and Woods

Average of precipitation 61.5 inches in the Pacific
154.9 inches in the Atlantic

Education ..............Primary, Secondary and Superior

Capital ..................Managua

Official independence day ................ 15 of September

Official revolution day .................... 19 of July

1.2 BRIEF DESCRIPTION OF THE WATERWAY SYSTEM

In Nicaragua the waterway system plays an important role in the movement of cargoes and passengers. There are more than 1,600 kilometers of navigable waters in the inland waterway system. In this chapter two distinct inland
waterway systems will be explained.

1.2.1 CENTRAL LAKES AND RIVER SYSTEMS

The importance of the lakes in cabotage is given for the service of transportation of goods by lakes. There are two important lakes.

Lake Nicaragua or Cocibolca is situated in Region IV with a distance of 165 kilometers on the longest navigable lake and has connections with the San Juan river. The average depth is 13 meters and a maximum of 75 meters. Lake Managua or Xolotlan is not navigable because the Somoza administration completely destroyed it by contamination of excrement, urine, dead animals and other things causing pollution. At present the lake is in the same condition because cleaning is necessary but costs many million of dollars not available now.

1.2.2 ATLANTIC COAST SYSTEM

The Atlantic coast has an approximate area of 60,000 kms and it represents around 50 percent of the national territory. There are many rivers and lagoons as well as the Caribbean Sea, with a navigable area of 1,192 kilometers. The principal point of interest in cabotage is Bluefields City because this city plays an important role in the distribution of waterways which are in communication between communities. Bluefields is joined with different places through routes of transportation by means of rivers, lagoons, lakes and the Atlantic Ocean.

The second point of interest is the Escondido River which joins Rama city with Bluefields and has a distance of 91 kilometers and is the main communication link with the
Nicaragua is a country whose economy is based on agrarian products or commodities by exports. In 1979 when the new government was created by the Sandinista Revolution, new reforms were introduced to the economy at the same time as the Agrarian Reform was implemented in Nicaragua. The objective of the Agrarian Reform is the total distribution of the land in equitable manner, principally in cooperatives or family groups to cultivate the land.

Other steps of importance were nationalization of banks and insurance companies. These measures were taken under state control.

The natural resources are administrated by IRENA* whose objective is to look after them. The main activity involved is agriculture. After 1979 cooperatives have been created in diverse regions whose goals are to cultivate the land, to create an organization which represents the interests of the people taking into consideration the ecological condition of the land. The name of the organization is ATC**

* IRENA (INSTITUTO DE RECURSOS NATURALES)

** ATC (ASSOCIASION DE TRABAJADORES DEL CAMPO)
In the last 4 years the economic crisis has been going up because the war which was imposed by the United States to Nicaragua actually represents a loss of 12,000 million dollars and approximately 60,000 lives. The damage made to the economy and the use of 40 percent of the national budget to military forces have not allowed development in other essential areas.

In 1987 until today diverse meetings between the five presidents of Central America have resulted in an agreement to stop the war and rescue the national economy with measures whose objectives are to reduce the national budget and to distribute the productive forces.

In the period from 1985 to 1989 the foreign trade in Nicaragua was dramatically reduced due to factors of international character which affected Nicaragua. These factors are:

The low price of commodities in the international market, the high value of machinery and equipment, the increase in petroleum products and high freight rates.

There are many factors which directly affect and to a great extent the production of commodities. The factors are:

- The war of aggression imposed by the USA.

- The reduction in the volume of cargo because the war is concentrated exactly in areas of production and thus the
land cannot be cultivated.

- Reduced incomes due to fall of prices in the market.

- Devaluation of the currency due of inflation.

- The commercial balance is totally negative; the deficit in 1987 was approximately 546 million dollars, added after the external debts.

- The blockade imposed by the United States against Nicaragua in 1985.

In addition to the last statement, the value expected from exports in the agriculture sector in 1988-89 will go down because in October 1988 a hurricane (the Joanna) passed through the Atlantic Zone in Nicaragua. This phenomenon caused serious damage to the economy by the order of 14 million dollars. The value of the exports was calculated in 205 million dollars for sale of 7 products in 1989, but in fact only 191 million dollars will be in foreign currency.

To have a clear idea of the problems in monetary terms the following factors or causes have to be taken into account.

Negative effect of the climate.

Depression of international prices.
Too much rainfall or sometimes no rainfall.

Very strong winds let the production on the floor.

The seven commodities can be found in the following table.

<table>
<thead>
<tr>
<th>PRODUCTS</th>
<th>1985</th>
<th>1986</th>
<th>1987</th>
</tr>
</thead>
<tbody>
<tr>
<td>COTTON</td>
<td>91.0</td>
<td>41.0</td>
<td>43.3</td>
</tr>
<tr>
<td>AJONJOLI</td>
<td>5.3</td>
<td>2.4</td>
<td>2.6</td>
</tr>
<tr>
<td>COFFEE</td>
<td>117.9</td>
<td>106.7</td>
<td>115.4</td>
</tr>
<tr>
<td>SUGAR</td>
<td>6.9</td>
<td>6.7</td>
<td>7.7</td>
</tr>
<tr>
<td>MELAZA</td>
<td>0.6</td>
<td>1.1</td>
<td>-</td>
</tr>
<tr>
<td>BEEF</td>
<td>10.9</td>
<td>4.7</td>
<td>12.9</td>
</tr>
<tr>
<td>BANANA</td>
<td>16.4</td>
<td>14.3</td>
<td>14.6</td>
</tr>
<tr>
<td>c/OTHERS</td>
<td>-</td>
<td>40.1</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL US DOLLARS</td>
<td>249.0</td>
<td>219.0</td>
<td>196.5</td>
</tr>
</tbody>
</table>

The relation 1987/1985 of the total values is less than 20% and will be similar in 1988 and 1989 because the factors before mentioned damaged the economy. To assimilate this situation it is necessary to implement an economy based on planning. In 1989 it will be difficult to forecast which variation the economy will have.

Last year the variation was 62%. During the last 3 years 1984, 1985, 1986, Nicaragua has accumulated a deficit of
about 1.695 million dollars and it is very difficult to stop the inflation which is 120% per month. In the last five years the inflation has been 27,000%. To improve the economy, the social budget and living standards foreign help is necessary.

Other elements which influence the deficit is the freight rate paid by transportation of commodities. The volume of goods carried by sea caused a payment of approximately 65,894,626.56 U.S.dollars, during the year 1987.

Freight paid in exports............ 26,530,204.39

Freight paid in imports............ 39,364,422.17

A large part of the foreign trade is carried by foreign shipping companies because Nicaragua does not have a developed fleet. However the price of the products which have been transported increases and this price is added to the new value of the products when it is imported and rest when it is to exported.

To make a reduction on imports Nicaragua has many projects to develop in the next few years namely;

1- TEXNICA II is a pattern factory with a capacity of 3000 ton of yarn to produce clothes and breeches of cotton. Eighty percent will be exported.

2- Hydroelectric projects co-financed by the International Bank of Development and the Nicaraguan Government. This project will save 3,000,000 U.S.dollars per year.

3- Inflation reduction means a formula to generate
incentives to production.

4- Regulation of the informal sector which represent 60% of the economic activity.
CHAPTER II
THE CHARACTERISTICS OF CABOTAGE

In this chapter the legal basis, laws and different definitions of the cabotage system will be analyzed, as well as the historical background.

2.1 LEGAL BASIS AND DEFINITIONS

In Nicaragua there are no special regulations applicable to cabotage. The basic legal principles are inserted in Decree 1104, on Law of Protection to the Merchant Marine.

There is no legal division of cabotage but only a division of National Cabotage and Regional Cabotage.

In Chapter 1, article 2 describes National Cabotage. Which is transport of merchandise or passengers between different ports within the national territory on the sea, rivers, and lakes.

Regional cabotage is the transport of merchandise or passengers by sea, between Central American ports.

Article 11. The service of Maritime Transport and Cabotage. Will be subject to licenses which will be issued by the Ministry of Construction and Transport.

Article 20. The National Cabotage remains reserved 100% of the cargo to national shipowners.

Article 21. The Regional Cabotage is reserved 50% to national shipowners and 50% to the other party.
There are many definitions to describe the meaning of cabotage.

The purpose of these definitions is to show each point of view of the different authors have.

In the magazine named The Civil Marine Bulletin, Cabotage is defined under two points of view.

1- Nautical cabotage: Is making navigation following the coast.

2- Commercial Cabotage consists of two or more ports in the same territory or maritime regular lines of cabotage is to serve at traffic of merchandise or passengers between different ports in the national territory. This has been performed by national flag ships.

Bjorn Foss in the book Coastal Shipping defines the term cabotage as coastal shipping saying:

[Coastal Shipping as shipping operations taking place with in the territorial waters of country or between port of call in one country, however the use of the term may differ throughout the world.]

  Madrid, Spain.
** Norwegian Shipping Academy 1983.
  Proffesor Bjorn Foss.
In Norway for example, it is generally related to operations within Norwegian waters, however, extend coastal shipping also covers traffic to parts of Denmark and Sweden as regional cabotage. Coastal Shipping in Portugal covers traffic to the Azores and Madeira even if the waters between the continent and the islands are largely international, coastal operations (cabotage) also covers traffic between Portugal and North Africa (peninsular cabotage) within peninsular cabotage also Spain plays an important role because they have traffic with the Canary Islands (Teneriffe, Marseilles and others). In East Africa all traffic along the coast of the countries and even up to the Arabian Peninsula is called coastal shipping.

Peter Brodie in the book Dictionary of Shipping Terms* defines Cabotage as coasting trade, that is, the movement of cargoes by ship between ports on the same coast or between ports of the same country.

Cabotage is reservation of the coastal trade of a country to ship operations under the flag of that country.

The Ministry of Transport of Nicaragua ** defines Cabotage as an activity which is performed by ship within the national territory. The main purpose of cabotage is to transport goods and passengers from a place to a destiny. Cabotage should be on rivers, lakes and the sea, sometimes lagoons and channels. This activity is also called internal navigation or coastal service.


** Internal materials not published.
The Ministry of Transport defines Regional Cabotage which is another form of cabotage in Nicaragua, as a transport service between a national port and any regional port in Central America. In our case this activity is performed from the port of Corinto to different places in Central America and the Caribbean region principally Cuba, Dominicana and sometimes other places.

Actually this service is limited because in Nicaragua there is no national fleet to cover this area.

The Cabotage consists of:

- Scheduled services.
- Non scheduled operations.

A service is considered scheduled when the movements take place between different countries ports on the basis of given departure and arrival time.

Sometimes other terms are used:

Coastal Services: These are basically the long distance or medium distance services, covering several countries or any region.

Country or Regional Services: These services will basically serve ports of call within one country or region. In many cases the country services may act as feeders to the coastal services, as these normally only will call at the most important ports. The country services on the other hand will call at the small ports.
Local Services: these services will generally operate within limited areas, perhaps, only one municipality.

2.2. HISTORICAL BACKGROUND

Historically cabotage has played an important role in Nicaragua. In the last centuries domestic shipping dominated the means of transportation. The main ways of transportation among the different communities and the main commercial areas was in the rustic transport on rivers, lakes, lagoons, channels and the sea. Actually this mode of transportation is decreasing because the uses of land transport and air transport have directly influenced directly the movement of cargo and passengers.

Cabotage as mode of transportation on waterways before the revolution has been in total disorganization. Each company is not a free operational organization. Also free administration because the Directorate of Navigation was only called as such as the Directorate but never take bothered to give good services but carried out the activities according to the interests of the monopoly services. The inefficient directorate was destroyed in 1979 when the revolution look over this service normatives and regulations principally to the areas where the service were private hands with private capital.

In 1980 after one year after the revolution the Ministry of Transport was created to cover three areas; sea, land and air transport through three directorates.

At present the organization of the cabotage system depends on the Directorate of Water Transport, and the three types of shipowners, namely: private shipowner who
represent individual interests with 50% of the fleet, State Enterprises which represent state property with 45% of the fleet. In the next development plan the latter will be increased with newbuildings. The cooperative is less maybe a 5%. This cooperatives have representation in the river waterway system with embarkation of less capacity (canoes) and the tourism system of the Granada Islands with a capacity of about 15 people.

The organization of the cabotage is for means of the regional office or subsidiary offices which depend on the central institution to carry out the annual plan of work.
The principal objective of this chapter is a description of the actual organization of cabotage. The Water Transport Directorate regulates study analyses, develop tasks, goals and operations of the water transport sector. This chapter will be divided into 3 parts.

3.1 ANTECEDENT AND ORGANIZATION CHART

In 1960, the Water Transport Directorate was established as a result of the need to organize and regulate the services of the waterway system. Its first task was the creation of different offices to plan activities related to classification, regulations and control of the shipping company or individual owners.

Many difficulties and problems occurred hence development in this area was not possible.

Until 1988 the organization consisted of a head of office, called General Directorate and supported by two offices called.

Legal Office or Legislation.
Programming and Controlling Office.
(see organization chart).

After the General Directorate there are two directorates of a specified area.

The Directorate of Maritime Safety and Engineering with three departments.
Naval Engineering Department.
Port Engineering Department.
Maritime Safety Department.

The Directorate of Maritime Transport Economy with three Departments.

International Maritime Transport Department.
Inland and Coastal Navigation Department.
Port Economy Department.

Due to changes carried out by the government in February 1988 the Ministry of Transport was joined with the Ministry of Construction, to form a new Ministry called the Ministry of the Construction and Transport.

This change has not affected the structure of the directorate but it has had some effect on the administrative office.

The administration has been transferred to a central office. There have also been changes in the enterprises ENAP and ENICAB * were merged to minimize the influence of the operational cost of the service.

* ENAP (EMPRESA NACIONAL DE PUERTOS)

* ENICAB (EMPRESA NACIONAL DE CABOTAGE)
3.2 FUNCTIONS, OBJECTIVES AND TASKS.

To make an analysis of the functions of the Directorate it will be necessary to take into consideration the importance of each office.

The Directorate of Water Transport has the following functions.

1- To regulate, formulate, implement and control the waterways system as a whole, that is international and inland coastal shipping.

2- To review and implement policies to improve the shipping sector and to include coastal shipping policies.

3- To promote the ratification or adherence to International Maritime Conventions.

4- To formulate and implement the primary and subsidiary legislation related to sea, river and lake transport.

5- To promote, encourage and develop national water transport in the public interest.

6- To promote the development of the national merchant marine or national fleet and make investments in the cabotage fleet.

7- To look after the safety of navigation and ports, safety of life at sea and protection of the marine environment by means of the policies and measures to
prevent the pollution of the sea, rivers, lakes and other waterways.

8- The maintenance of lighthouses, navigational aids and the safety of waterways.

9- To approve and supervise new buildings and repair of ships in national or foreign shipyards by national shipowners. To carry a national register of ships.

10- To issue certificates, look after the process of the registration of ship and to examine all certificates.

11- To approve national and international port tariffs and review freight rates and make the cabotage tariff.

12- To attend all problems regarding the transport on waterways and port installations and equipment.

All the general functions are divided into the different departments. Cabotage belongs to the Inland and Coastal Navigation Department.

This department has two principal functions which are:

a) to develop and implement a policy as well as analyse problems, which confront the waterways system and the real situation of the waterways system.

b) to make a cabotage tariff and to implement a normative control within the sector. This control can be by means of decree or in practical application, such as those which result from periodical evaluation and
As a second point of interest of the General Directorate are the objectives which are:

a) to ensure the supply of water transport in the different parts of the country.

b) to ensure efficient transport operation and good service in ports.

c) to reduce pollution by sea, rivers, lakes and others.

d) to provide standard services in ports to both the state sector and the private sector, thus ending discrimination.

e) to maintain fleet and port infrastructure through a process of planned periodic repairs.

f) to provide a reasonable standard of freight and tariff rates according to political decisions and the socio-economic situation.

The objectives described above are usually carried out. However, it is sometimes difficult to complete because of the war.

The following steps are the tasks of the Directorate.

These tasks play an important role in the development of the standards.

The tasks of each directorate are outlined below.
The Directorate of Maritime Safety and Engineering has many tasks which are undertaken by three departments: Naval Engineering, Port Engineering and Maritime Safety. The responsibilities of this directorate are:

Maritime Safety and Prevention of Marine Pollution.

Shipbuilding, ship repairs and the maintenance of port and ship plans.

The periodical review of engine structures and equipment which will ensure that the vessel is in good condition as well as the periodic review of port structure.

The Directorate of Maritime Transport Economy consists of three departments; International Maritime Transport, Inland and Coastal Navigation and the Port Economy.

The following are the tasks of these departments.

Regulate, implement and control maritime policies with specific reference to economic and commercial aspects.

The review and implementation of all forms of maritime tariffs.

To analyse the elasticity of demand so as to enable the industry to offer improvements in services. To study and make predictions of shipowners, liquidity and to offer loans when necessary.

The Inland and Coastal Transport Department of the Directorate of Water Transport plays an important role in the development of activities for internal navigation.
The functions which are carried out by this department are:

1- Analysis of the cost of operations, demand and supply conditions affecting fleet. The impact of social conditions, the development of policy tariffs and any other recommendations which may to increase the improvement of services.

2- To serve as a support organ of the directorate.

3- To support all measures in respect of tariffs, policies regarding improvement of services.

4- To make conclusions and recommendations to shipowners, enterprises and directorates.

5- To conduct studies in the area to discover the principal problems in each type of transportation including the tourism sector.

6- To look after all measures regarding normative controls.

Other organs of the directorate are: Legal Office, Programming and Controlling Division whose roles are as follows:

a) to prepare and analyse statistics on the movement of cargoes and passengers along different routes and ports. To make a budget in collaboration with other departments and in reference to the annual plan.
b) to give answers to all legislative problems regarding ships.

c) to control over documentation, certificates and laws.

d) to discuss the plans of work with the enterprises, the directorate and the head of the ministry.

e) to prepare all matters pertaining to the entry in force of decrees.

This support regarding internal navigation or cabotage also have tasks referent to maritime transport and international trade, freight and shipping companies but it is not necessary to mention in this chapter because the scope of the thesis is the cabotage system.

3.3 PRINCIPAL PROBLEMS OF THE DIRECTORATE

The Directorate of Water Transport has three problems to develop maritime and inland and coastal transport. These problems are:

1- The Directorate General has restricted the functions in order to be able to the unique body dealing with planning, rules, regulations and control of ports, cargoes, passengers of national water transport. Other institutions were given some function which correspond to the directorate general as a regulatory body.

The Directorate General does not have a proper legal instrument to regulate in due form the water transport. A manner of suggestion, the Directorate General needs
to issue an organic decree regulatory the specified functions and duties of the Directorate General.

2- Training and educational program for maritime personnel is minimal, because there are a little external help. Also does not exist a master plan.

The problems facing the Directorate General caused mainly by lack of highly qualified and experienced maritime personnel and which has not allowed it to be fully dynamic.

This deficiency has produced a situation that most of the function of the Directorate General have not been undertaken properly or some have not been undertaken at all.

The lack of national training plans, have affected in a broad sense the development efficiency and effectiveness of the Directorate General.

The high rotation of the civil services due to salary has not allowed the directorate to retain the civil servants that had already received some basic training in maritime fields.

3- The Directorate General has an insufficient budget to develop functions, tasks and goals, the unestable economic situation which the country has been suffering as consequence of the external policy adopted by the United States of North America.

The Directorate General has not sufficient material resources such as equipment, office materials and other resources because lack of funds.

To improve this situation there are two main principal suggestions:
a) The Directorate General shall create national Ad-Hoc committees of private and governmental agencies involved in maritime affairs in order to contribute with the government in the formulation of a maritime policy. Also create commission to analyse the requirements in monetary terms.

To develop a fully dynamic Directorate General should be provided of the financial support for the activities and resolve the economic problems in the areas.

b) Development of a multimission maritime administration with multimission personnel units.

The best officials shall be trained in such a form to develop their capabilities to work as utility. The personnel have to be cross trained and assigned out of sub-speciality to assure the multimission organization works.

A manpower plan training shall be prepared in order to determine the quantity of personnel needed to be training to make the Directorate General effective and efficient.

The program of the WMU shall be taken into consideration and also the studies offered in the areas of Maritime Administration, Shipping Economics and Coastal Shipping and Port Operation.

Also intensive training programs in special fields shall be given to complementary the staff. (see chapter VI)
Chapter II reviews some of the characteristics of cabotage, its role within the transport system and repercussions on the national socio-economic environment.

The principal objective of this chapter is to make a description of the natural waterways in respect of demand and supplies and to outline general problems within the sector.

4.1 GENERAL DESCRIPTION

The internal water system navigation is called cabotage in Nicaragua. Cabotage is divided into three main systems that are: pluvial, lakes and coastal trade.

The coastal trade consists of:

a- Transportation of cargoes and passengers on Lake Nicaragua or Cocibolca in the Pacific Zone.

b- Transportation of cargoes and passengers in the Atlantic Zone.

Both areas are served by ships constructed of wood, steel and aluminium. Ships constructed of wood are generally poorly maintained thus they have a high rate of accidents.

In 1982 for example the ship called Santa Elena was largely responsible for an accident on Lake Cocibolca. This accident resulted in the total destruction of the
vessel and 70 casualties. As a result of this accident the government has undertaken an inspection campaign of vessels. Three licenses was cancelled recently.

4.1.1. MAIN ROUTES AND PRINCIPAL PORTS

A) NAVIGATION IN THE PACIFIC AREA

In the Pacific area there are two main activities, lake navigation and tourism.

Navigation on the lake is composed of 4 routes called Granada to San Carlos, Granada to Altagracia, Granada to Moyogalpa and San Jorge to Moyogalpa.

The route from Granada to San Carlos, a distance of 168 kms is the longest and most important route. It has 2 intermediate ports (San Miguelito and Morrito) and joins the Pacific area (port of Granada) with the Atlantic area (Special Zone III).

The route from Granada to Ometepe Island is composed of two routes;
1-Granada to Altagracia with a distance of 58 kms.
2-Granada to Moyogalpa with a distance of 70 kms.

The route from San Jorge to Moyogalpa, is the shortest route (15 kms), San Jorge is located in Rivas City. Moyogalpa is an important route for the transport of passengers. It is situated on Ometepe Island.

Tourism is dominated by small ships with a capacity of 15 persons. Assese and Painted Stone in Granada are major
tourist ports.

B) NAVIGATION IN THE ATLANTIC ZONE

The Atlantic Zone is divided into 3 Special Zones and 1 complementary place.

The most important routes are:

In Special Zone I: The principal port is Puerto Cabezas. The distance between this zone and neighbouring communities are tabulated below.

<table>
<thead>
<tr>
<th>FROM</th>
<th>TO</th>
<th>DISTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Puerto Cabezas</td>
<td>Bluefields</td>
<td>253 kms</td>
</tr>
<tr>
<td>Puerto Cabezas</td>
<td>Sandy By</td>
<td>57 kms</td>
</tr>
<tr>
<td>Puerto Cabezas</td>
<td>Pakura</td>
<td>58 kms</td>
</tr>
<tr>
<td>Puerto Cabezas</td>
<td>Awastara</td>
<td>41 kms</td>
</tr>
<tr>
<td>Lamblaya</td>
<td>Prinzapolca</td>
<td>97 kms</td>
</tr>
<tr>
<td>Lamblaya</td>
<td>Wawashar</td>
<td>19 kms</td>
</tr>
<tr>
<td>Lamblaya</td>
<td>Wounta</td>
<td>61 kms</td>
</tr>
<tr>
<td>Lamblaya</td>
<td>Karota</td>
<td>17 kms</td>
</tr>
<tr>
<td>Lamblaya</td>
<td>Hallower</td>
<td>46 kms</td>
</tr>
<tr>
<td>Lamblaya</td>
<td>Walpasiksa</td>
<td>96 kms</td>
</tr>
<tr>
<td>Lamblaya</td>
<td>Layassika</td>
<td>66 kms</td>
</tr>
<tr>
<td>Lamblaya</td>
<td>Kligna</td>
<td>36 kms</td>
</tr>
<tr>
<td>Lamblaya</td>
<td>Kukalaya</td>
<td>42 kms</td>
</tr>
<tr>
<td>Lamblaya</td>
<td>Kuanlato</td>
<td>50 kms</td>
</tr>
</tbody>
</table>

Special Zone II: The principal route within the Atlantic area is Rama to Bluefields.
This route is important because it joins the communities of Bluefields (the most important in the SZII) to Rama (the principal port of the fifth Region). Other routes are:

<table>
<thead>
<tr>
<th>FROM</th>
<th>TO</th>
<th>DISTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bluefields</td>
<td>Rama</td>
<td>91 kms</td>
</tr>
<tr>
<td>Bluefields</td>
<td>Bluff</td>
<td>18 kms</td>
</tr>
<tr>
<td>Bluefields</td>
<td>Laguna de Perlas</td>
<td>49 kms</td>
</tr>
<tr>
<td>Bluefields *</td>
<td>Orinoco</td>
<td>99 kms</td>
</tr>
<tr>
<td>Bluefields</td>
<td>Corn Island</td>
<td>91 kms</td>
</tr>
<tr>
<td>Bluefields</td>
<td>Barra Rio Grande</td>
<td>188 kms</td>
</tr>
<tr>
<td>Bluefields</td>
<td>Cruz Rio Grande</td>
<td>325 kms</td>
</tr>
<tr>
<td>Bluefields</td>
<td>Tasbapuani</td>
<td>130 kms</td>
</tr>
<tr>
<td>Bluefields</td>
<td>Tortuguero</td>
<td>94 kms</td>
</tr>
<tr>
<td>Bluefields</td>
<td>Punta Gorda</td>
<td>81 kms</td>
</tr>
</tbody>
</table>

* covers Kukra Hill

Special Zone III, is composed of 5 routes which originate in San Carlos City to Communities.

<table>
<thead>
<tr>
<th>FROM</th>
<th>TO</th>
<th>DISTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Carlos</td>
<td>El Castillo</td>
<td>55 kms</td>
</tr>
<tr>
<td>San Carlos</td>
<td>Sabalo</td>
<td>45 kms</td>
</tr>
<tr>
<td>San Carlos</td>
<td>Azucena</td>
<td>20 kms</td>
</tr>
<tr>
<td>San Carlos</td>
<td>Solentiname</td>
<td>25 kms</td>
</tr>
<tr>
<td>San Carlos</td>
<td>Morillo</td>
<td>15 kms</td>
</tr>
</tbody>
</table>

Region 5 is included in the Atlantic area because it joins the Pacific Zone with the Atlantic Zone. There are six
routes on the River Siquia.

<table>
<thead>
<tr>
<th>FROM</th>
<th>TO</th>
<th>DISTANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Esperanza</td>
<td>Kisilala</td>
<td>10 kms</td>
</tr>
<tr>
<td>Esperanza</td>
<td>Mataka</td>
<td>20 kms</td>
</tr>
<tr>
<td>Esperanza</td>
<td>Wapi</td>
<td>37 kms</td>
</tr>
<tr>
<td>Esperanza</td>
<td>Correntada</td>
<td>37 kms</td>
</tr>
<tr>
<td>Esperanza</td>
<td>Boca de Pilan</td>
<td>70 kms</td>
</tr>
<tr>
<td>Esperanza</td>
<td>Garrobo</td>
<td>50 kms</td>
</tr>
</tbody>
</table>

The community of Wapi is the center generator of cargoes and passengers.

C- PRINCIPAL PORTS

In Nicaragua the port installations are administered by the National Enterprise of Ports (ENAP).

There are 2 types of ports.

International Ports: There are Ports called Sandino Port, San Juan Port, Rama Port, and Corinto Port.

The most important international port is Corinto whose installations move 95% of the international trade of Nicaragua.

In 1987 a total of 1,096,599.88 tons of cargo were loaded and discharged from this port.
The table below shows types of cargoes.

<table>
<thead>
<tr>
<th>TYPE OF CARGO</th>
<th>LOADING</th>
<th>DISCHARGE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Cargo</td>
<td>102,160.31</td>
<td>537,210.18</td>
<td>639,370.49</td>
</tr>
<tr>
<td>Granel Solid C.</td>
<td>49,427.69</td>
<td>183,608.00</td>
<td>233,035.69</td>
</tr>
<tr>
<td>Granel Liquid C.</td>
<td>1,998.00</td>
<td>135,895.17</td>
<td>137,893.17</td>
</tr>
<tr>
<td>Refrigerated C.</td>
<td>86,300.53</td>
<td>---</td>
<td>86,300.53</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>239,886.53</strong></td>
<td><strong>856,713.35</strong></td>
<td><strong>1,096,599.88</strong></td>
</tr>
</tbody>
</table>

The second classification of ports in Nicaragua are national ports.

National ports are categorized by the following criteria.

Role of the ports: The ports are playing an important role in the business of shipping because they are used for operations of loading, discharge, stowage and manipulations of the cargo.

Port classification: The classification of port can depend on the use, e.g. port destination to merchandise, port destination to passengers, port of victual oil and bunker, port to fishing, port of naval building, and port of transit or terminal.

Types of Ports: The port can be classified as follows:

For natural condition, such as a natural port, a protective port and an artificial port.

For site situation: external port and internal port.
For destiny: military port, commercial port and recreative port.

For function: independent port and service port.

There are many ports in the national category but in this chapter only the most important are described.

1) The port of Granada.
The port of Granada is located in the fourth region in the Pacific Area. The installations are composed of a concrete harbor with a length 270.6 meters and 5.4 meters in breadth. The storage and yard areas are approximately 260 square meters each.

2) The ports of Altagracia and Moyogalpa
The ports of Altagracia and Moyogalpa are located on Ometepe Island. These ports are in a state of disrepair and the wood structures are unsuitable for modern shipping activities.

3) The port of San Jorge.
The port of San Jorge is located in Rivas City. It plays an important role in communication with Ometepe.

4) The ports San Miguelito and Morrito.
The port of San Miguelito and the Port of Morrito are intermediate ports enroute to San Carlos to Granada.

5) The port of Bluefields.
The port of Bluefields is the most important port in the Atlantic Zone and is located in Bluefields City.

6) The port of Rama / Arlen Siu.
The port of Rama, called Arlen Siu is located in Rama City along the Escondido River. This port is of such importance that it has been classified as a national and international port. It plays a pivotal role in the transport of cargo in Special Zone II.

7- The port of Puerto Cabezas.
The port of Puerto Cabezas is the most important port in Special Zone I. It is the distribution centre for products including food, merchandise and equipment.

4.1.2 BRIEF ANALYSIS OF THE DEMAND

There are two types of demand, CARGOES and PASSENGERS.

The cargo is transported in diverse modes of packages such as: barrels, bags, boxes and units.

During 1987 cargo and passengers moved were 52,143.74 tons and 498,404 passengers respectively.

The regional breakdown is given below.

<table>
<thead>
<tr>
<th>REGION IV</th>
<th>CARGOES</th>
<th>PASSENGERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Granada to San Carlos</td>
<td>13,912.07 tons</td>
<td>77,130 pass</td>
</tr>
<tr>
<td>Granada to Ometepe</td>
<td>13,111.21 tons</td>
<td>63,379 pass</td>
</tr>
<tr>
<td>San Jorge to Moyogalpa</td>
<td>5,044.10 tons</td>
<td>127,428 pass</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REGION V  (Siquia)</th>
<th>CARGOES</th>
<th>PASSENGERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECIAL ZONE I (P.C)</td>
<td>1,265.99 tons</td>
<td>10,333 pass</td>
</tr>
</tbody>
</table>

38
**SPECIAL ZONE II**  
17,298.67 tons 129,269 pass

<table>
<thead>
<tr>
<th>Destination</th>
<th>Tons</th>
<th>Passengers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bluefields to Rama</td>
<td>12,825.74</td>
<td>101,886</td>
</tr>
<tr>
<td>Bluefields to Bluff</td>
<td>540.67</td>
<td>3,850</td>
</tr>
<tr>
<td>Bluefields to Kruka Hill</td>
<td>1,789.64</td>
<td>4,506</td>
</tr>
<tr>
<td>Bluefields to L. Perlas</td>
<td>1,714.06</td>
<td>3,278</td>
</tr>
</tbody>
</table>

**SPECIAL ZONE III (S.C)**  
889.75 tons 31,532 pass

* Tons equivalent 2,000 lb (pounds)

During 1988, cabotage moved 46,347.61 tons and 509,501 passengers, when compared with 1987 figures this represents a decrease of 11% for cargo and an increase 2% of passengers (see table 4).

According of these figures the state sector moved 24,408.41 tons (53% of the total) and 141,123 passengers (28% of the total). The private sector moved 21,939.20 tons (47% of the total) and 368,378 passengers (72% of the total).

The participation of the regions was the following:

**REGION IV**  
27,132.85 tons 230,718 pass

<table>
<thead>
<tr>
<th>Sector</th>
<th>Tons</th>
<th>Passengers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private sector</td>
<td>13,765.85</td>
<td>158,503</td>
</tr>
<tr>
<td>State sector</td>
<td>13,367.00</td>
<td>72,415</td>
</tr>
</tbody>
</table>

**REGION V (Siquia)**  
1,432.80 tons 46,340 pass

**SPECIAL ZONE I (P.C)**  
689.79 tons 7,354 pass
SPECIAL ZONE II 16,342.26 tons 193,287 pass
Private sector 5,300.85 tons 124,579 pass
State sector 11,041.41 tons 68,708 pass

SPECIAL ZONE III 749.96 tons 31,802 pass

In the last 3 years the quantity of cargo transported was decreased as shown on the following page.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>QUANTITY OF CARGO IN TONS</th>
<th>% DECREASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>119,242.10</td>
<td>base</td>
</tr>
<tr>
<td>1987</td>
<td>52,143.74</td>
<td>86-87 57%</td>
</tr>
<tr>
<td>1988</td>
<td>46,347.61</td>
<td>87-88 61%</td>
</tr>
</tbody>
</table>

4.1.3 BRIEF ANALYSIS OF THE SUPPLY

Internal navigation in Nicaragua is carried out by a fleet of 282 ships of varying types and quality.

The distribution of the vessels according to routes and gross tonnage (is shown in table 5).

There are 146 vessels of less than 5 GRT, 93 more than 5 GRT and 43 canoes.
Levels of activity according to the type or location of waterways for 1986 and 1987 is shown in the table below.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>86</th>
<th>87</th>
<th>VARY</th>
<th>ROUTES</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal</td>
<td>76%</td>
<td>71%</td>
<td>-5%</td>
<td>37</td>
<td>30</td>
</tr>
<tr>
<td>Pluvial</td>
<td>14%</td>
<td>19%</td>
<td>+5%</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Lake</td>
<td>10%</td>
<td>10%</td>
<td>--</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>100</td>
<td>--</td>
<td>53</td>
<td>46</td>
</tr>
</tbody>
</table>

As to The ownership of these ships: 85.9% are private and 14.1 are state owned.

The lack of data about vessels makes it impossible to study there the distribution or ownership patterns along this route.

The present Lake Nicaragua fleet is capable of transporting 224,460 passengers and 48,960 metric tons.

A demand and supply analysis for passenger services in the Fourth Region is represented below.

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>DEMAND</th>
<th>SUPPLY</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PASSENGERS</td>
<td>PASSENGERS</td>
<td>%</td>
</tr>
<tr>
<td>GRA TO SC</td>
<td>77,130</td>
<td>72,000</td>
<td>107</td>
</tr>
<tr>
<td>GRA TO OI</td>
<td>63,379</td>
<td>70,380</td>
<td>90</td>
</tr>
<tr>
<td>SJ TO MY</td>
<td>127,937</td>
<td>82,180</td>
<td>155</td>
</tr>
</tbody>
</table>

<p>|            | 267,937| 224,560| 119 |</p>
<table>
<thead>
<tr>
<th>ROUTE</th>
<th>DEMAND TON M</th>
<th>SUPPLY TON M</th>
<th>USE %</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRA TO SC</td>
<td>12,647.33</td>
<td>32,400.00</td>
<td>40</td>
</tr>
<tr>
<td>GRA TO OI</td>
<td>11,919.28</td>
<td>7,380.00</td>
<td>161</td>
</tr>
<tr>
<td>SJ TO MY</td>
<td>4,585.54</td>
<td>9,180.00</td>
<td>50</td>
</tr>
</tbody>
</table>

29,152.15 | 48,960.00 | 60 |

The supply has been decreasing for two reasons.

a- On the route Granada to San Carlos there is a strong competition from land transport.

b- The extended periods needed for ship repair and deviations out of passengers service (transport of bananas).
4.2 PROJECTS TO IMPROVE CABOTAGE

To improve cabotage in Nicaragua, there are many projects relevant to the Pacific and Atlantic areas.

In this article a brief description of each project, will be made.

ATLANTIC ZONE.

There are four important projects which are capable of influencing the quality of cabotage services provided within 5 years.

BUILDING OF DEEP WATER PORTS

There are several objectives for the construction of deep water ports along the Atlantic Zone of Nicaragua.

1- To attract vessels (non-Nicaraguan) using the Eastern Atlantic Trade Route. This objective is practical, given the length of their journey from North Western Europe or North America Via the Panama Canal.

2- The increase in ports of call and in particular the port of Corinto.

3- The reduction of congestion in Nicaraguan ports e.g. Corinto.

A deep water port is located in the Special Zone II. (Bluff) This port is of strategic importance as most of the cabotage cargo is obtained in this area. (along the Escondido River)
The main goal of this project is the development of a new infrastructure which is capable of serving large vessels using the Atlantic route.

The first stage of this project should have been completed in 1989. This deadline was not achieved as the hurricane Joanna destroyed some of the construction. The occurrence of the natural disaster has created serious financial repercussions. (The hurricane Joanna affected the areas of Bluff, Bluefields and Corn Islands.

INTERCOASTAL CANAL PARALLEL TO THE ESCONDIDO RIVER

This study is in fact a project of great importance to the area. Its importance is derived from its communicatory functions between Bluefields and neighbouring areas.

Adjacent to the deepwater ports there will be highly productive areas, hence cabotage vessels are assured of sufficient cargo.

The development of the project will enable improvements in security and safety standards. External funding is required for the completion of the project.

NEW BUILDING OF SHIPS IN THE ATLANTIC SHIPYARD.

The need for new construction of ships in the Atlantic Zone is longstanding.
The project represents to Nicaragua an opportunity for establishing a new sector on the economy thus increasing the earnings of the private and public sectors.

It also represents a new source of employment, improves the new jobs and increases the prospects for economic advancement.

INTEROCEANIC CANAL IN NICARAGUA.

This project is located close to Costa Rica along the border of the San Juan River. The size of investment (estimated at U.S.$10,000 million) makes it one of the most important projects undertaken in Nicaragua.

If this project succeeds it is expected to provide the region with an alternative route to the Panama Canal, thus earning for Nicaragua large quantities of foreign exchange.

As a second part of this passage, the Pacific area and the projects for its development will be analyzed.

PACIFIC AREA.

PROJECT FOR THE IMPROVEMENT OF TRANSPORT BY NEW BUILDING IN THE DIAMOND SHIPYARD.

In 1984 the Nicaraguan Government signed an agreement with the Dutch Government to finance the building of 4 ships. This project will be carried out by the Damen Shipyard Company of Holland. Damen will bring all materials and equipment to Nicaragua in order to build 2 passengers
ships and 2 cargo ships.

In the Diamond Shipyard the parts of the ship will be joined with technical assistance by the assesor.

In 1987 both governments signed the second part of the project. The goals of the project are: firstly, the improvement of services in Lake Cocibolca principally along the Granada to San Carlos route.

Secondly, the replacement of the existing fleet of the Ometepe Islands.

The building of new ships with modern structures will allow the authorities to implement international rules on the matters of:

a) Maritime Safety (SOLAS CONVENTION.)

b) Pollution (MARPOL.)

The agreement further includes improvements in port installation, navigational aids and the enlargement of port areas.

Other aspects of a technical character are:

a) Cargo ships with a capacity of 300 metric tons.
2 carterpillar engines model 3302.
1 Derrick of 10 tons and Draught 1.8 meters.

b) Passenger ship with a capacity of 150 persons.
2 carterpillar engines model 3302.
Speed 8 kn and draught 1.8 m.

The conclusions and Recommendation of the second phase of
The project were;

The building of 1 general cargo ship for the Granada to San Carlos route.

The building of 1 general cargo ship for the Granada to Ometepe Islands route.

The building of 1 passenger ship for the San Jorge to Moyogalpa route. Additional construction will depend on the development of this route.

PROJECT TRAINMAR

The project called TRAINMAR is a regional project in Central America for training in maritime and port aspects.

This project was approved in June 1987 with the financial resources from E.E.C. The program will be conducted by Cocatram with assistance of the UNDP.

The principal objective of the activity is to create a number of centers of training in Nicaragua and the immediate goal is to create the first center in one year.
CHAPTER V
DESCRIPTION OF TARIFF SYSTEM

In this chapter the objective is to describe all components which have an influence on the tariff system and the basis for determining the actual tariffs for transportation of goods and passengers on waterways.

The tariffs play an important role on the price of the many commercial products and also on the diverse shipping business activities.

To make an analysis of the price of commodities and passengers it is necessary to describe the parameters and main policies that are involved in this tariff system.

5.1 ACTUAL STRUCTURE OF COSTS

In this chapter the author will make use of the actual method to determine the freight or tariff and the main elements or parameters which have an influence on the analysis. These parameters are:

1- Operational Costs of the ship which depends on the price on the market.

2- Policies for development in the area of cabotage can be analyzed based on the social situation, economic problems and the political situation.

3- Influence of the demand and supply to calculate the price because this factor is essential in the determination of the cost.

These parameters are used by the Inland and Coastal
Navigation Department of the Ministry of Construction and Transport, in order to calculate transport tariff on rivers, lakes and the sea. (coastal trade)

They are based on the information given by authorities, the state office and shipowners whose knowledge in this matter is important.

The method for the calculations and estimation of the operational costs is based on 2 types of information. To prepare the estimation of cost it is important to provide some information about the ship such as the reference and description of the 2 types of information, namely:

1- The first information is regarding the characteristics of the ship, such as type of ship, capacity, technical characteristics and DWT.

2- The second ideal information, called basic information is in regard to consumption, such as type of engine, consumption of fuel and lubricants, output, insurance, salary of the crew, repair and maintenance. Furthermore additional information which has social and political character is also relevant.

Based on this information the operational costs are calculated in two types.

1- Variable costs: are those costs which are incurred when operating the ship and measured cost per hour affected by:

Fuel consumption
Oil lubricant
Repair and maintenance of the engine
Depreciation of the engine
Port expenses
Profit (20% of these costs)

2- Fixed costs are those which the shipowner pays independently of the running of the ship, and are measured by cost per day or daily cost. It is affected by:

- Hull depreciation
- Repair and maintenance of the hull
- Salary of the crew
- Food for the crew
- Financial cost
- Equipment and accessories and consumption
- Tax and insurance
- Profit (20% of these costs)

In this chapter each cost will be defined depending on the time, in other words the determination of cost elements is per unit of time of the two types of cost.

1- Cost of navigation or Running costs are formed for the following items.

a- Fuel consumption, is equal to consumption per hour multiplied by price of the fuel.

\[ \$ / \text{HR} = \text{Price} \times \text{Consumption} \]

b- Lubricants are equal to capacity of the engine multiplied by price over period of change. (in hours)
c- Repair and maintenance of the engine, is derived by taking the cost of preventive maintenance divided by 4,000 hours.

\[
\frac{\$}{\text{HR}} = \frac{\text{Sum of all cost for maintenance}}{4,000 \text{ hours}}
\]

d- Depreciation of the engine, is equal to the actual value in the market divided by the life of the engine in hours. (This element depends on the total working time per year of the ship.)

\[
\frac{\$}{\text{HR}} = \frac{\text{Actual value of the engine}}{\text{life of the engine in hrs}}
\]

e- Port expenses or port charges are calculated based on port tariffs for service to the ship, such as pilotage, harbors and lifesaving or aids of navigation.

\[
\frac{\$}{\text{HR}} = \frac{\text{Sum of port expenses}}{\text{Hours of voyage}}
\]

A total of 20% of the cost is calculated and taken as profit. This percentage is sometimes used to cover the inflation in spares, the cost of repair and variation in port tariffs.
2- Daily costs: are calculated taking the cost per day as the basis for these costs. Daily costs described below are practically a fixed costs.

a- Depreciation of the hull, is calculated based on the value of the ship or hull minus its residual value, divided by 365 days per the useful life of the ship.

\[
\frac{\text{Actual value of the ship} - \text{Residual value}}{365 \times \text{Useful life}}
\]

b- Repair and maintenance of the hull is equal to the sum of the cost of materials used in repairs plus cost of labour, then divided by the period in days (also can be annual.)

\[
\frac{\text{Sum of expenses for material} + 20\% \text{ for cost of labour.}}{365 \text{ days}}
\]

c- Salary of the crew and administrative team is the salary plus social security multiplied by 12 months then divided by 365 days.

\[
\frac{\text{Salary of Crew and team} + 27.66\% \times 12 \text{ M}}{365 \text{ days}}
\]

d- Alimentation of the crew can be per diem and travel expenses.
$ / DAY = Output for food per month \times 12

\[ \text{365 Days} \]

e- Financial Cost, this element represents loans and interest repayment.

$ / DAY = \text{loans and interest per year}

\[ \text{365 Days} \]

f- Accessory and consumption of energy in respect of the engine, is equal to the total of the sum for means or accessories, such as batteries, means for loading and unloading and fuel in the energy engine.

$ / DAY = \text{Sum of output for acc and consumption}

\[ \text{365 Days} \]

g- Taxes and Insurance is equal to payment for registration of the ship and repayment for insurance.

$ / DAY = \text{Sum of output for taxes and insurance}

\[ \text{365 Days} \]

The value of 20\% of the total fixed cost is used to calculate profit. This sometimes is subject to variation.

To calculate the total operational costs an analysis of the demand for cargoes and passengers should be made based on statistical reports. (annual or every six months.)
The demand is important to calculate two very important parameters which are called in terms of:

a-Passengers-kilometers factor is equal to distance x number of passengers.

b- Tonnage or ton-kilometers factor is equal to distance x number of tons.

5.2 TARIFF SYSTEM CALCULATION

To calculate the tariff is taken into consideration the operational costs fundamentally as cost of navigation and also the cost of the ship.

Procedure to calculate the tariff:

a) The annual cost is equal to the annual cost of navigation (cost of navigation X hrs per year). Plus the annual cost of the ship (cost of the ship X days per year).

   Annual cost = (annual cost of navigation + annual cost of the ship)

b) To calculate the cost per passenger-kilometers that is equal to a percentage of the total cost divided by the factor pass-kms.

\[
\frac{\$}{\text{PASS-KMS}} = \frac{\text{Total Cost}}{\text{Factor Pass-Kms}}
\]
c) To calculate the cost per tonn-kms is equal to a % of the total cost divided by factor tonn-kms.

\[
\frac{\text{\$ / TONN-KMS}}{\text{Total Cost \times \% to Cargoes}} = \text{Factor Tonn - Kms}
\]

When the ship is only for passengers or only for cargoes the formula is equal to

\[
\frac{\text{\$ / ton or pass kms}}{\text{TOTAL COST \times TOTAL COST}} = \frac{\text{TOTAL COST}}{\text{PASS-KMS}} \text{ OR } \frac{\text{TOTAL COST}}{\text{TONN-KMS}}
\]

To calculate the tariff of cargo and passengers the following formulas are used.

\[
\text{TARIFF PER TONN} = \frac{\text{COST PER TONN KMS \times DISTANCE}}{}
\]

\[
\text{TARIFF PER PASS} = \frac{\text{COST PER PASS KMS \times DISTANCE}}{}
\]

The percentage of the passengers and cargoes carried depends on the importance of each route. When the ship carries both passengers and cargoes and the cargo capacity is larger than that for passengers the smaller percentage of cost is borne by the passengers.

After having calculated the tariff, it is submitted to the minister for approval.

In addition, the following are also submitted to the minister for consideration.

a) Socio-economic analysis
b) Comparative analysis between the present tariff against the proposal tariff

c) Recommendations

In this context the recommendations, which serve to show the need for the implementations of the tariffs and the benefits which can contribute to the social development of the people are the most important elements.

5.3 HOW TO IMPROVE THIS SYSTEM

There are many factors which influence the actual methodology. These factors are:

1- Total delay to get information.

2- Wrong information received from the shipowners as they sometimes make an alteration in the price of the spares and also in the cost of maintenance of the ship.

3- Too little cooperation from the shipowners in given information required to calculate the tariff.

4- The speculation problems as a result of the varying costs of spares in different stores.

5- The basis of statistics is not clear because the information given by shipowners (state and private) is not in keeping with the reality.

6- Other social factors.
There are 3 types of freight rates: Ad Valorems system, Weight/Volume system and the Unit system.

In Nicaragua it is the practice to calculate the freight based on the weight and volume system or the volume of the merchandise. The other two systems are not commonly used.

A general principle of freight rates and fares is to charge what the market can bear. In coastal shipping operations in Nicaragua, there is thus the government who decides on the fare level. In Nicaragua the cabotage is a public service. The cost operations always are below the total revenue.

Possibles solutions will now be highlighted.

There must be new policies, in order to improve the system. In this regard the shipping company most ensure, that its expenses are covered over a period of time.

In order to prevent delays in the flow of information, a computer system should be implemented. Each region office must provide on a monthly basis information with respect to cost of spares, repairs, salaries paid to seamen and the movement of cargo and passengers. This data must be verified.

Efforts must be made to create a balance in respect of the different costs coming from each region. (questionnaires and tables should be develop)

A law should be created which makes it mandatory for shipowners to provide accurate information. A large fine should be charged to those who do not provide such data.
In keeping with the needs of the market a better classification of goods is to be established.

The cost of cargo handling should be included in the overall costs when calculating the tariff. This simplifies the cost control on behalf of the shippers.

There is a need to ensure that the total capacity of each ship is effectively utilized. The schedule of the service or itinerary needs to be reviewed.

The cost classification will be formed in 4 groups.

OPERATING COSTS
VOYAGE COSTS
CAPITAL COSTS
CARGO HANDLING PORT COSTS

1- Operating costs, constitute the expenses involved in the day to day running of the ship, essentially costs concerning crew, stores and maintenance that will be incurred whatever trade the ship is engaged in.

2- Voyage costs, are variable costs associated with a specific voyage and include items such as fuel, port charges dues (see table 6)

3- Capital costs, cover interest and capital repayment and are determined by the way in which the ship has been financed.
4- Cargo handling costs, represents the expenses of loading, stowing and discharging cargo. (see table 6).

** Representation of the Structure of Cost**

<table>
<thead>
<tr>
<th>OPERATING</th>
<th>VOYAGE</th>
<th>CAPITAL</th>
<th>HANDLING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manning</td>
<td>42%</td>
<td>Fuel oil 80%</td>
<td>Interest Loading</td>
</tr>
<tr>
<td>Stores/lub</td>
<td>26%</td>
<td>Diesel 10%</td>
<td>Repayment Discharge</td>
</tr>
<tr>
<td>Repairs/M</td>
<td>12%</td>
<td>Port cost 10%</td>
<td>Stowing</td>
</tr>
<tr>
<td>Insurance</td>
<td>10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administr</td>
<td>10%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There are many factors or elements which influence the structure of costs (see table 7).

To determine the revenue of the ship, the cargo capacity given the size of the ship and areas for bunker/stores should be taken into consideration. (Ship productivity based on operational planning, backhauls, port time, operating speed, off hire time and DWT.)

The freight depends on the market balance, quality of services and competition.
CHAPTER VI
GENERAL PROBLEMS IN THE CABOTAGE SYSTEM

In this chapter general problems of the cabotage system in Nicaragua will be analyzed. These problems will be covered under four points.

6.1 Problems in the port systems
6.2 Problems in the operational system
6.3 Economic problems
6.4 Human resource problems

The political divergencies in Central America, have influenced the development of the maritime and coastal shipping in Nicaragua. Political problems in Nicaragua makes it difficult to obtain materials, articles, and spare parts for the repair of ports, buildings and ships. This situation also creates a number of problems with external and internal repercussions, e.g. a reduction in the supply and consumption of Central American products, and an increase in speculation. The aggregation of these problems had a severe negative impact on the economy.

6.1 PROBLEMS IN THE PORT SYSTEMS

The ports in Nicaragua have not responded to changes in the international shipping area. Such changes include technological advance in ship size, construction and speed. For example, the Port of Corinto is obsolete and does not provide modern facilities required by ships calling at the port in comparison to the ports of European countries and on the American Continent. The ports servicing
coastal trade are also in the same position, because they do not have the facilities nor the means to improve the service they provide.

Some principal problems in the port relate to the size of the harbours, the lack of adequate cranes, and other cargo handling equipment. In respect of the above problems in Nicaragua to improve the services of the ports the following changes are necessary:

1. The establishment of a computerised information system is necessary to make qualitative and quantitative statistical analyses and forecasting.

2. The development of short and long term investment programmes for port development.

3. The development and implementation of training programmes for port personnel.

4. The effective utilization of existing technical and managerial manpower.

5. The creation of a commission to assess and analyse problems and to provide recommendations for foreign investment and credit facilities.

6.2 PROBLEMS IN THE OPERATIONAL SYSTEM

Some of the operational problems concerns the relationship between the Directorate General and shipowners (state enterprises and private owners) and cooperation of the port authorities. The lack of cooperation between these groups retard the implementation of programmes that are
developed each year. The responsibility of control and supervision to be developed by the Ministry of Transport are blockaded by the shipowners. In cases where these areas are developed, the local authorities of the regions are negligent in the implementation of these matters.

The responsibilities for supervising in various aspects of the coastal shipping operations may be shared between the various institutions or may be centralized. In fact there is little consultation between institutions because of the unilateral planning.

The role of the Directorate of Water Transport under the Ministry of Transport should be:

1. Preparing and enforcing legislation

2. Surveying of ships

3. Maintaining and construction of naval vessels

4. Carrying out hydrographic surveys

5. Planning, preparing and enforcing transport policies

However, this may be difficult to fulfill because the institutions lack specialists in areas of planning, control, safety operations, maintenance of ships, and port installations.

In addition, the problem is made worse because of the need to acquire new equipment to replace obsolete pieces. The lack of adequate technical assistance also adds to the problems.
6.3 ECONOMIC PROBLEMS

The economic problems do not permit the creation of investment policies on cabotage due to the monetary crises principally the lack of foreign currency. However, the government of Holland gave a loan to Nicaragua to build four ships for cabotage. These ships were built in the last two years but have made little improvement in the area although they have increased the national fleet. Nevertheless, Nicaragua needs additional credit to develop its cabotage fleet. Studies should be made of the technical requirements relating to the following:

1. Improvements in the state owned fleet

2. Introduction of new or second hand vessels on the routes

3. Introduction of the new cargo handling equipment

4. Improvement in the port installations and terminals.

Economic factors, such as inflation and high prices in the international market for spare parts and cargo handling equipment affect the successful operations of the cabotage system. The low price of Nicaraguan commodities on the international market has a direct effect on the balance of payment. Therefore, the improvement of the transport system is necessary.
6.4 HUMAN RESOURCE PROBLEMS

In Nicaragua, there is a lack of highly trained and qualified personnel. Firstly, personnel working in the Water Transport Directorate is not cognizant of areas of maritime economics and coastal shipping. Secondly, there is an absence of centers of instruction in nautical training in Nicaragua as well as in rest of Central America.

In light of the above mentioned problems Nicaragua need assistance in the training of the following types of personnel:

1. Management and clerical staff and administrative team
2. Maintenance personnel and building personnel
3. Operators of terminal and team support
4. Lecturers for ship’s officers and ship’s crew
5. Lecturers for radio communication officers.

This technical training can be gained through

- College Courses in Latin American schools to officers and crew.
- Master of Science Degree from the World Maritime University for two years.

- Attendance of conferences and seminars or short courses of practical application.

Other problems may concern the motivation of the personnel but review in this area depends on existing governmental considerations for the labour force. In light of the fact that the personnel in the Water Transport Directorate are not fully qualified in maritime affairs, a view must be made taking into consideration the following:

Academic level of the personnel.
Degree of knowledge in the area.
Overall performance during the last 3 years.
CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Navigable waterways are a natural resource for every country. For portions of the population waterways are the only way of communicating with the rest of the country. For others waterways represent a mean for living, specially for those involved in the transportation of goods and passengers. Rivers, lagoons, lakes, and canals are of the utmost importance to the country’s economic development.

In this paper we have defined coastal shipping as: "Shipping operations taking place within the territorial waters of one country". According to this definition, fresh water as well as coastal navigation in Nicaragua should be regarded as Coastal Shipping or Cabotage.

For many communities where the only means of transportation is by water Cabotage Services, specially around Lake Nicaragua and on the Atlantic side of the country, play an important role.

Present development of cabotage in Nicaragua is being influenced by the lack of resources to carry out development programs in maritime and coastal navigation due to economic as well as political factors (economic blockade and war of aggression on one hand and low prices of export commodities in international markets and increasing inflation rates on the other).

Nicaragua's Water Transport Directorate (DGTAN) of the Ministry of Construction and Transportation is responsible
for operation of the fleet owned by the government, port management and operations and the carriage of goods and passengers. DGTAN is also responsible for surveys, control and supervision of all technical aspects.

The following are the main problems of Nicaragua's cabotage that had been analysed in this paper:

1. Poor organization of cabotage services. There is not a clear definition of the services provided. "Open routes for all operators" policy.
2. Poor conditions for investments on ships and ports due to the high rate of inflation and the unavailability of financial resources.
3. Poor conditions of the fleet. Most of the vessels are very old wooden ships.
4. Unavailability of spare-parts. Shipowners claim for spare parts, but the present the country's economic and political situation has made the acquisition of such necessary parts, materials and life saving equipment very difficult. In order to get spare parts shipowners have to pay in hard currency in foreign markets, sometimes at speculative prices.
5. As a consequence of lack of maintenance and unavailability of spare-parts, ships have to be laid-idle for as much a 6 months.
6. Low safety standards. There is not a clear separation between passenger and cargo holds. Cargoes, sometimes classed as dangerous, is not segregated from passengers quarters.
7. Ships, being built of primitive materials do not comply fully with safety regulations.
8. Ships are sometimes overloaded in more than 200%
9. Passengers/cargoes are not insured by any means.

Other problems as important as those mentioned above have to do with management of human resources.

10. Low salaries in the maritime sector,
11. Lack of an appropriate personnel management system which include promotion policies, training of personnel, etc.

RECOMMENDATIONS

1. The present situation of the maritime sector, and cabotage in particular in Nicaragua requires the formulation of a Master Plan for the development of maritime services and administration. The Plan should contain policies, goals and objectives in the short, medium and long term.

2. In the short run DGTAN should keep the implementation of the system for allocation of routes, on the basis of well defined parameters and consultations with operators and users of the route.

3. A new system of tariffs should be implemented. The structure of the new tariff should include cost of operations plus cargo-handling costs. Users would pay only once to the operator of the vessel, agent or shipowner. The latter would pay cargo handling to whoever is in charge of it.

4. New tariffs should be standard regardless of ownership of the vessel. That is, the tariff is set
for the route in question and not on who owns the ships, the State or private-owners.

5. A consultative body, closed to DGTAN, should be created. This body should allow enterprises, shipowners and DGTAN to formulate policies and implement those strategies which are contain in the Master Plann.

6. A Management of Human Resources policy should be formulated. Training and a personnel management system based in seniority should be implemented.

7. The creation of a nautical school in Nicaragua should have a high priority. Efforts should be placed on safety and management.

8. Request for materials and equipment should be based on production needs, available storage and a distribution schedule.

9. Enterprises should be commercially oriented. Specially those organizations in which the state has participation. A self criticism policy should be implemented in every State-owned enterprises to review mistakes, and obsolescence of methods, as well as to review the actual conditions of equipment and the use of the fleet.

10. The elimination of ships which are beyond repair and bring those which can be put into service with reasonable investment should be the policy to follow.
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STUDY OF SZII: DGTAN

HAND DOWNS: HUSSEIN

HAND DOWNS: ALDERTON
TABLE 3

MOVEMENT OF CARGO AND PASSENGERS IN THE CABOTAGE

YEAR 1987

IN THE PACIFIC AREA

<table>
<thead>
<tr>
<th></th>
<th>IV REGION</th>
<th>V REGION</th>
</tr>
</thead>
<tbody>
<tr>
<td>KMS OF RUNNING</td>
<td>219,615</td>
<td>123,376</td>
</tr>
<tr>
<td># OF VOYAGE</td>
<td>4,119</td>
<td>3,834</td>
</tr>
<tr>
<td>TONS</td>
<td>320,67</td>
<td>622</td>
</tr>
<tr>
<td>PASSENGERS</td>
<td>267,991</td>
<td>59,279</td>
</tr>
</tbody>
</table>

IN THE ATLANTIC AREA

<table>
<thead>
<tr>
<th></th>
<th>SII</th>
<th>SIII</th>
<th>SIII*</th>
<th>SIII</th>
</tr>
</thead>
<tbody>
<tr>
<td>KMS OF RUNNING</td>
<td>109,290</td>
<td>324,737</td>
<td>37,695</td>
<td>1,130</td>
</tr>
<tr>
<td># OF VOYAGE</td>
<td>1,970</td>
<td>4,562</td>
<td>1,127</td>
<td>52</td>
</tr>
<tr>
<td>TONS</td>
<td>1,266</td>
<td>17,299</td>
<td>881</td>
<td>9</td>
</tr>
<tr>
<td>PASSENGERS</td>
<td>10,333</td>
<td>129,269</td>
<td>30,309</td>
<td>1,123</td>
</tr>
</tbody>
</table>

TOTAL= 815,843 KMS OF RUNNING, 15,664 VOYAGES
52,144 TONS, 498,404 PASSENGER.

Source: Ministry of Construction and Transport.

1 TON = 910 kg. (tonelada corta)
COMPARATIVE 87-88
MOVEMENT OF CARGO AND PASSENGERS
<table>
<thead>
<tr>
<th>NAME OF SHIP</th>
<th>CAPACITY</th>
<th>PASS</th>
<th>TON</th>
<th>VOYAGES</th>
<th>REGION</th>
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</thead>
<tbody>
<tr>
<td>GUSTAVO OROZCO</td>
<td>200</td>
<td>-</td>
<td>180</td>
<td>IV R</td>
<td></td>
</tr>
<tr>
<td>CLAUDIA CHAMORRO</td>
<td>-</td>
<td>150</td>
<td>90</td>
<td>IV R</td>
<td></td>
</tr>
<tr>
<td>13 DE OCTUBRE</td>
<td>-</td>
<td>150</td>
<td>90</td>
<td>IV R</td>
<td></td>
</tr>
<tr>
<td>MANNING RENNER</td>
<td>120</td>
<td>-</td>
<td>180</td>
<td>IV R</td>
<td></td>
</tr>
<tr>
<td>DONALD GUEVARA</td>
<td>40</td>
<td>-</td>
<td>180</td>
<td>IV R</td>
<td></td>
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<tr>
<td>ELVIS CHAVARRIA</td>
<td>40</td>
<td>-</td>
<td>180</td>
<td>IV R</td>
<td></td>
</tr>
<tr>
<td>CMT.</td>
<td>200</td>
<td>-</td>
<td>180</td>
<td>IV R</td>
<td></td>
</tr>
<tr>
<td>RID SAN JUAN</td>
<td>160</td>
<td>70</td>
<td>180</td>
<td>IV R</td>
<td></td>
</tr>
<tr>
<td>SRA DEL LAGO</td>
<td>56</td>
<td>13</td>
<td>180</td>
<td>IV R</td>
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<tr>
<td>SANTA MARTA</td>
<td>50</td>
<td>5</td>
<td>180</td>
<td>IV R</td>
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<tr>
<td>SANTA MARIA</td>
<td>50</td>
<td>5</td>
<td>180</td>
<td>IV R</td>
<td></td>
</tr>
<tr>
<td>SANTA ELENA 2</td>
<td>40</td>
<td>5</td>
<td>180</td>
<td>IV R</td>
<td></td>
</tr>
<tr>
<td>REYNA DEL SUR</td>
<td>40</td>
<td>5</td>
<td>540</td>
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<td></td>
</tr>
<tr>
<td>KAREN MARIA</td>
<td>56</td>
<td>7</td>
<td>540</td>
<td>IV R</td>
<td></td>
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<tr>
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<td>540</td>
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<tr>
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</table>

Source: DGTAN.
### TABLE 6
A possible pricing system

<table>
<thead>
<tr>
<th>Type of charge</th>
<th>Nature of charge</th>
<th>Charging base</th>
<th>Basic units</th>
<th>Charging system</th>
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<tbody>
<tr>
<td><strong>A. Charges on ship</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 1. Port dues on ship   | Utilization of general maritime facilities and services                          | Two parts: size of ship and type of ship | Gross tonnage* (or grt or length)    | Flat rates for different groups of gross tonnage* (or grt or length) and different types of ship (passenger, bulk carriers, etc. ...)
|                        |                                                                                  |                                      |                                      | Flat rates for different groups of gross tonnage* (or grt or length)            |
| 2. Pilotage            | For piloting the ship                                                            | Size of ship                         | Idem.                                | Idem.                                                                           |
| 5. Berth occupancy     | Occupation of berth by ship                                                       | Three part tariff. Size of ship. Nature of quay. Time at berth | Gross tonnage* (or grt or length) per day | Flat rates per day for different groups of gross tonnage* (or grt or length), and different types of berth (break bulk, ore, oil, etc.) |
| **B. Charges on cargo**|                                                                                  |                                      |                                      |                                                                                 |
| 6. Port dues on cargo  | Utilization of the port (all general facilities and services)                    | Two parts: weight and nature of cargo | Metric ton                           | Flat rates per ton for different groups of products classified according to: (a) the nature of the cargo (ore, oil, general cargo, etc.) (b) what cargo can bear |
| 7. Cargo handling on board | All operations for cargo from the ship's hold to the quay (and vice versa)       | Two part tariff. Weight and presentation of cargo (bulk, bags, palletized, etc.) | Metric ton                           | Flat rates per ton for different groups of cargo classified according to cargo-handling method |
| 8. Cargo handling on quay | All operations for cargo from quay to shed or delivery (and vice versa)          | Idem.                                | Idem.                                | Idem.                                                                           |
| 9. Storage             | Use of transit shed. Free period until ship is fully discharged                   | Three part tariff. Weight. Volume (or stacking condition). Time cargo spends in shed | Metric ton and day                    | Progressively increasing rates per ton per day for different groups of cargo having the same volume (or the same storing conditions) |
| 10. Warehousing        | Use of warehouses. No free period                                                | Idem.                                | Idem.                                | Flat rate per ton per week for different groups of cargo having same storage characteristics |

*As defined by IMCO.*