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## Organization of maritime transport in the Islamic Federal Republic of Comoros

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WORLD MARITIME UNIVERSITY  
MALMO, SWEDEN

ORGANIZATION OF MARITIME TRANSPORT  
IN THE ISLAMIC FEDERAL REPUBLIC OF COMOROS

by

DAOUDOU SAIDI'S.  
COMOROS



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.

Signature: Daoudou Saïdi S. .....

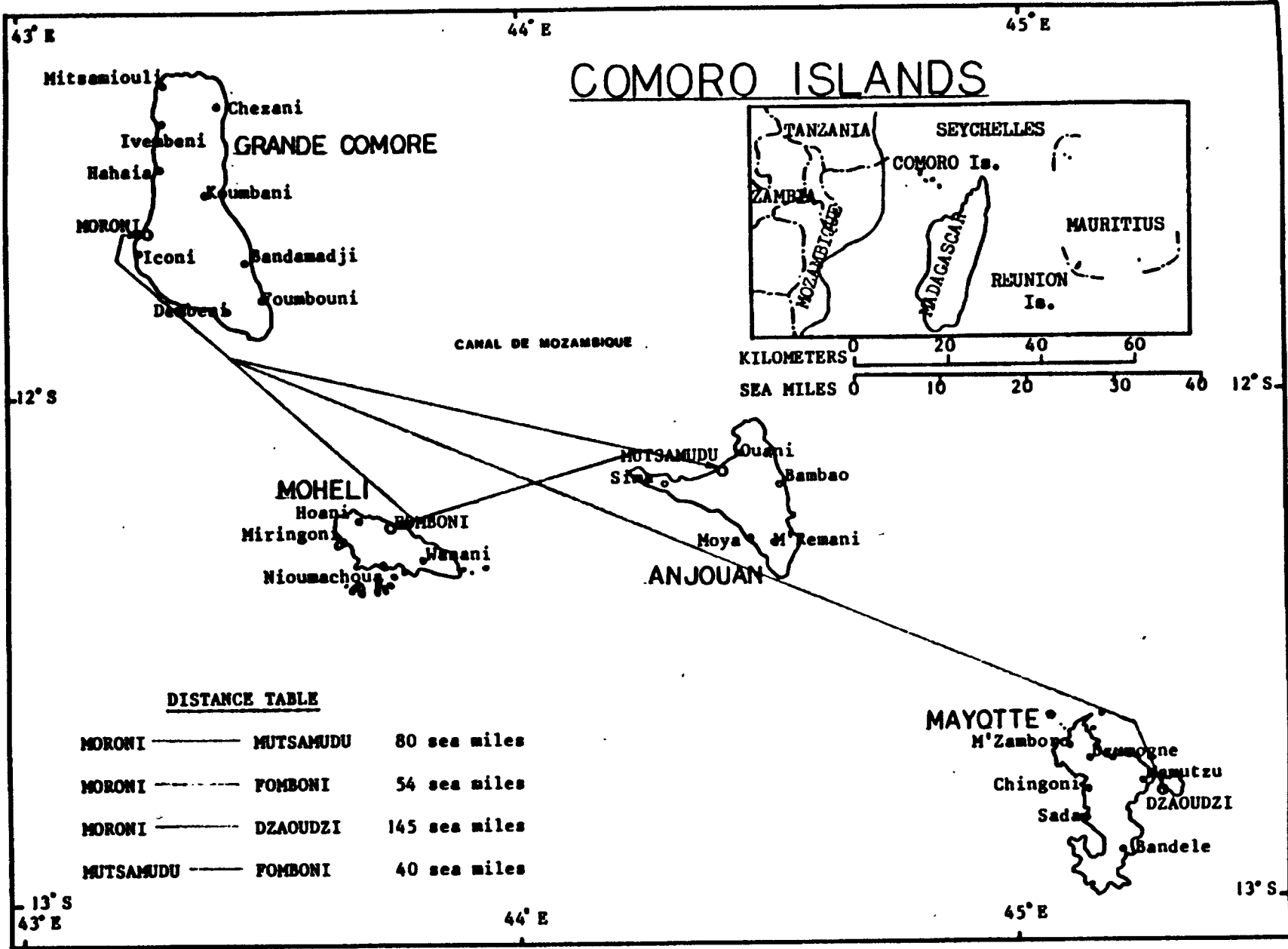
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Supervised and assessed by: .....

Co-assessed by : .....



IN THE NAME OF ALLAH,  
THE COMPASSIONATE, THE MERCIFUL.



DISTANCE TABLE

MORONI	————	MUTSAMUDU	80 sea miles
MORONI	-----	FOMBONI	54 sea miles
MORONI	————	DZAOUZDI	145 sea miles
MUTSAMUDU	————	FOMBONI	40 sea miles

## ACKNOWLEDGEMENTS

I am most grateful to Mr. Attoumane ASSIMAK, State Secretary in Charge of Transports and Tourism - Moroni, who so kindly advised me on the subject.

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And finally to my Course Professor, Aage OS, Professor P. S. VANCHISWAR, and I. BATTISTA, English Teacher, who so kindly gave me their constructive comments on various chapters of this paper and scrutinised the English.

## DEDICATION

To my Mother, Father, and Wife

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## INTRODUCTION

Maritime transportation is a phase of production that is indispensable to economic progress. Many nations and geographical areas are non contiguous, separated by both political and topographical barriers, and ocean shipping has always represented a major means of transportation among nations. Without adequate facilities for moving goods and people from one place to another, economic and social activities would be severely limited.

The strong need for a great merchant fleet as powerful economic tool and military weapon has been in the history of many countries. The shipping industry is an extremely complex subject. It embraces not only ships of various types, design and employment; but also the cargoes and passengers they carry, the origins and destinations of goods and persons, the routes sailed, the personnel who operate and manage them afloat and ashore and the laws and rules relating both to the ship and the shipping company.

The technological improvements have tended to reduce the cost of ocean transportation and have improved the services which the shipping industry provides. New models of transport have arisen and older ones have been improved or replaced. There is no reason to believe that the end of this process has been reached, although improvement in speed is naturally slower than other forms of transportation such as airways, railroads and motor-vehicle transport due to economic consequences. The most important effect of improved ocean shipping is reduced in the cost of goods which it brings about.

Cheap transportation reduces the price of goods by lowering the cost of producing them.

There has been severe criticism in most developing countries, that the governments have not particularly understood the problems facing the national shipping industries in these countries, neither appreciated the importance of the contribution made by the industry to the national economy of the country concerned - particularly the contribution of shipping profits to the balance of payments.

Whatever the problems affecting the relations between the shipping industry as a whole and the government, the existence of a suitable organised administrative apparatus looking after the problems of merchant marine is necessary as part of an infrastructure.

A government must not only have the capability to exercise an influence on the developments in the marine economy, but also the motivation to do so.

A seaport is a link of vital importance in the transportation chain and it is, therefore, essential that ports are properly planned to meet all foreseeable demands.

Trade should be regarded as flows of goods which are trans-shipped from one mode of transport to another at a seaport with a minimum delay. Congestion at a seaport, whether on the landward or seaward side, cost large sums of money to resolve. It usually takes a heavy commitment of men and machinery to sort out a traffic jam on the landward side, and causes substantial losses, both material and financial, to the cargo owners. If the jam

occurs on the seaward side there are heavy demurrage charges to pay for the time the ship lie idle.

Sea transportation, as such, is now so cheap that its cost can particularly be disregarded in international trade. What costs money is the business of berthing the ship in the dock, transporting the goods over land to the quay, and loading them aboard the ship. It is the handling stages that are expensive in practically all transport operations.

The general development of today's ports reveals a need for more space, less sheds, faster handling and more specialized handling equipment. At the same time ports have to be more involved in the cargo flow from origin to destination, in the movement of ships and hinterland vehicles and in the preplanning of the arrivals and the handling operations of the cargo.

Obstacles in the world-wide distribution will lead to congestion and delays, and are generally caused by low productivity in port and hinterland, lack of co-operation, co-ordination and communication, seasonal and monthly concentration of arrival of ships and cargoes, trade practices influencing the scheduling of vessels, conditions of weather and tide, and various barriers to smooth operation of cargo handling in the port.

When someone asks, "How much will it cost to run a ship?" The answer should be: "It depends on the factors involved". The same reply should be given to anyone asking about a preferable management organisation for a shipping company. Whatever the factors and the decisions taken, in the end it will be the people involved who

will make it work. Whichever system or organisation is used, there seems little doubt that motivation is a key factor.

Having decided upon the type of organisation best suited to manage the company's ship, the next step is to decide on the number of people and skills required to support the various parts of the organisation. This should not exclude consideration of the use of part time or outside expertise in certain areas if this is more suitable financially and practically.

Maritime departments of governments have extended their requirements and warnings, which needed to be on to ships. Similarly institutions have also produced rules which required the attention and adherence of the master.

At the same time, the management terminology crept into the industry, and sea staff became used to hearing statements such as "the ship is to be well maintained to company's standards". Another significant phrase was "it is the company's policy".

The effect of the activities of governments, institutions, and management practice, has gained considerable momentum: world concern about shipping safety and pollution from ships has resulted in a number of rules and regulations adopted by the major maritime nations.

Institutions such as the International Shipping Federation (ISF), and the International Chamber of Shipping (ICS), have also issued warnings and reports of accidents. Similarly P & I Clubs have produced guidelines

and warnings on matters affecting the carriage of cargo in ship and the prevention of accidents to ship and shore personnel. Also organizations as the World Health Organisation (WHO) and the Interantional Labour Organisation (ILO) have affected the industry through their decisions and recommendations.

The conventions developed by the International Maritime Organisation (IMO) prove the complexity and detail of the shipping industry.

The objective of this paper is to analyse the problem my country is facing in the maritime transportation organisation. Therefore I have chosen to deal with the subject by first presenting the country.

The different existing organisations at the government level, the maritime affairs organisms, and the basic problems and solutions are treated in chapter one.

The second chapter concerns the inter-area and international trade, and the different route services.

The port organisation falls in chapter three with the followig aspects: the Comoran ports, the evolution of the vessel traffic, the role of the ports in the through transport concept, adjustment, resource limitations, facilitation measures and the role of the customs and the port authority.

Chapter four contains the policies regarding government assistance and management policy for the shipping company, and the major international conventions to be ratified by my country are summerized in annex.

An estimated total of more than 500 billion dollars of capital is invested in the fleets of the world merchant marine. The process by which this sum was created is not peculiar to the shipping industry, but special characteristics of financial management in the merchant marine need to be recognized and understood. This is what chapter five deals with.

Chapter six is the conclusion and contains some propositions on organisation charts and general recommendations on maritime policies.

This paper clearly owes much to the intelligent criticisms and suggestions offered by so many teachers and colleagues. However, none of those who helped me by their evaluations and suggestions can be blamed for any shortcomings this paper might have.



GENERALITIES OF THE ISLAMIC  
FEDERAL REPUBLIC OF THE COMOROS

GENERAL CHARACTERISTICS

I. THE COUNTRY.

The Comoros Archipelago consists of four islands lying in a strategic position in the center of the northern entrance to the Mozambique Channel. The islands, whose distance ranges from 50 to 90 kilometers, have a total area of 2,236 square kilometers (see table 1).

The coastal line has 340 km on the Indian Ocean. The nearest countries are to the West Mozambique and Tanzania, to the South Madagascar. The average temperature : Moroni January = 27 C, 80 F; April = 26 C, 78 F; July = 23 C, 73 F; October = 27 C, 77 F.

The topography of the islands, which are volcanic, is broken, providing widely beautiful landscapes. The climate is maritime and tropical with over two meters of rainfall in the rainy season so the vegetation is lush(\*1).

II. THE POPULATION.

The population was estimated to about 429,330 in 1982

---

*(\*1) First International solidarity Conference for the  
Development of the Comoros - Moroni August 1983.*

(see table 1). It is composed of Antalote, Cafare , Makoa, Oimatsaha, Sakalava. 48.1% of the population is under 15 years of age. The population growth rate is 3.1% per annum. The density is 192 per square kilometer, one of the highest in Africa, especially if account is taken of the arable acreage.

The country had to absorb 17,000 Comorans repatriated from Madagascar in 1977, which has increased the rate to 3.6% over the past 15 years. The Government, aware of these problems, has adopted, in the context of a project financed by the World Bank, the opening elements of a family planning policy suited to the people's Moslem customs and beliefs.

Living conditions are harsh, insanitary housing, restricted access to water and electricity, undernourishment, etc., resulting in high infant mortality (200/1000) and a low life expectancy of 41 years for men and 45 years for women. In the school year of 1978-1979, 72% of the 7/12 age group were in school. The school system, inherited from the former colonial power (France) needs to be fitted to the country's requirements. It lacks personnel trained in agriculture, health, teaching, government, management, and industry. The nation therefore depends on technical assistance. To maximize the efficiency of such assistance, the Government has begun to develop a policy for better control of the use and coordination of the aid it receives(\*2).

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(\*2) See note (\*1).

### III. POLITICAL ORGANIZATION.

The Republican Constitution of 1975 was suspended before ratification. A new Constitution was approved by popular referendum in 1978. Several amendments were made in 1982. The executive power is vested in the President, assisted by a council of Government. The President is the head of both the State and the Government. There is a Federal Assembly consisting of 33 Deputies. There are also 57 Councillors.

The Comoros became independent in 1975 after being ruled by France since 1843. It became a French Overseas Territory in 1947 and was granted self-government in 1961. The island of Mayotte, of the same archipelago, has remained under French administration. The Constitution envisages the island of Mayotte as eventually rejoining the Comoran community.

The President Ahmed ABDALLAH ABDEREMAN was outsited in 1975 by Ali SOILIHI who in turn was deposed in 1978 by a mercenary-backed coup that reinstated ABDALLAH. The President Ahmed ABDALLAH A. was re-elected without opposition in October 1984 for a second mandate of six years. The "Union Comorien pour le Progres" (U.C.P.) is the sole legal party(\*3).

### IV. THE ECONOMY(\*4).

The currency is the CFA Francs, equal to one hundred

---

(\*3) *The Africa Contemporary Record (ARC). 1984*

*The Comoros - Physical Social Geography by R.J. HARRISON CHURCH.*

centimes. The Islamic Federal Republic of the Comoros (IFRC) is a poor nation classified by the United Nation as one of the less advanced countries (the 1982 per capita GDP approximated US 300).

The topography creates many microclimates favourable to a variety of farm products. The agriculture, which generates 40% of the GDP, is the livelihood of most of the people as 80% of them live in rural areas. Food agriculture serves the domestic market primarily (grain, tubers, fruits, vegetables, etc.) with a high degree of subsistence farming (87% in the case of animal output and 76% for vegetable products.). But the production is insufficient to feed the fast growing population and food imports account for half of the total import volume. About 10% of the land is devoted to cash crops (vanilla, cloves, ylang-ylang), which, with copra, represent 99% of the exports.

Farming methods are primitive and yields low. Development prospects are limited by a shortage of arable land, lack of personnel trained in agronomical research and agricultural supervision, and the absence of technologies suited to conditions in the Comoros. The Government has established a federal system of supervision and extension (CEFADER/CADER) to provide leadership and structure to the rural areas.

Activities in the other sectors are limited. But new opportunities are opening up for small industries and crafts since the organization of the "Banque de Developpement des Comores" in 1982 and the 1983 reform of the

---

(\*4) See note (\*1)

Investment Code to adapt it to the Government's strategy aimed at promoting private initiative in industry (primary processing of farm products, staples, construction), transport and trade.

The population explosion combined with a shortage of arable land and the rising cost of fuel oil has led to deforestation, cultivation of the slopes and, hence, increasing erosion. Between 1969 and 1974 wooded areas shrank 44% over-all and 69% on Anjouan the most densely populated island.

From the stand point of economic performances, the GDP rose from CFA 12.8 billion in 1976 to 32.6 in 1982, a nominal increase of 18.8% per annum. In constant prices, the GDP moved up 5.5% per year on an average, with a spurt late in the period, annual growth going from 3.5% in the period 1976-1978 to 6.5% between 1978 and 1982. Growth was strong in the Government (10.7%), electricity and water (9.4%), construction and public works (9.1%) the primary sector expanded at an average yearly rate of 4%.

The internal budget outpaced the GDP at 5.7%. The consolidated (federal, three governorates, special treasury accounts, external aid agencies) budget deficit amounted to 39.1% of the GDP in 1982, up from 31.8% in 1979. This reflects the development efforts and the insufficiency of internal resources and public finance management. Since 1982, the Government has reorganized to absorb the treasury deficit, to improve tax collection (founding of the General Tax Agency), to centralize the treasury, to audit revenues and expenditure (creation of the General Finance Inspectorate) to tauten the management of the

public enterprises. This is beginning to produce results: budget revenue increased 34% in 1982.

#### V. THE INFRASTRUCTURE.

Improvement of international and internal communications is a prerequisite for the country's development:

- Carriage by sea is adversely affected by the small size and isolation of the islands and the inadequacy of the port facilities. The government has constructed a deepwater port at a technically acceptable site (Mutsamudu, Anjouan) as a first step to improve ocean transport. An over-all strategy (enhancement of port management and facilities on Moroni and Moheli, formulation of an inter-island transport policy, staff training) will be implemented in the period 1983-1990.
- Remarkable progress has been made in the construction of the road system. The islands' belt roads are practically finished. The rural areas producing food must now be opened up to improve marketing and encourage rural development. At the same time, maintenance of the existing roads will be improved and special attention paid to staff training in this sector. The Government will also expand research to develop appropriate roadbuilding methods designed in particular to cut construction and maintenance costs and reduce raw materials.

Table 1: - POPULATION  
 - SQUARE KILOMETERS  
 - DENSITY PER SQUARE KILOME-  
 TERS BY ISLAND IN 1982.

	Whole:	Grande:	Anjouan:	Mayot-:	Moheli
	Archip:	Comore:		te	
Population	:429,330:	206,300:	147,700:	56,880:	18,450
Square Km2	: 2,236:	1,148:	424:	374:	290
Density/SQKm2:	192:	180:	348:	152:	64

*Source: Department of Tourism, Secretariat in Charge  
 of Transport and Tourism -Moroni-*

## CHAPTER ONE

### THE DIFFERENT ORGANIZATIONS

#### I. GOVERNMENTAL ORGANIZATION.

In the Islamic Federal Republic of Comoros, the ministries which concern the maritime field to a certain extent are:

- The State Secretariat in charge of Transports and Tourism.
- The Ministry of Equipment, Environment and Urban Planning.
- The Ministry of Agricultural Production, Industry and Crafts.
- The Ministry of Economics and Finance.

#### A. THE STATE SECRETARIAT IN CHARGE OF TRANSPORTS AND TOURISM.

The organization chart shows that the State Secretariat counts three main Directions:

- The Direction of Maritime and Road Transportation.
- The Direction of Tourism.
- The Direction of Air Transportation.

I will not comment on all these directions except the Direction of Maritime and Road Transportation which is my concern. It has three main Departments:

- A Road Department.
- An International, Regional and National Maritime Department.



- A Maritime Affairs Department.

#### 1. THE ROAD DEPARTMENT.

This department is in charge of the following:

- On the inquest situation of the road transportation. In this connection it contacts transport professionals, the insurance companies and their clients. It consults the road transportation organisms concerned, such as Police, Road Brigade and Governorates.
- The elaboration of the rules and regulations projects, after analysing the collected informations.
- The control of the application of the actual dispositions, the relation with the authorities concerned (governorats, police, road brigade).
- The establishment and the application of reglementary documents for the practice of road transport professions.

#### 2. THE INTERNATIONAL, REGIONAL AND NATIONAL MARITIME DEPARTMENT.

This Department is responsible for the following:

- To propose to the Government that the international and regional organisms to be member and of which the action is deemed to be useful to the development of the maritime field.
- To propose to the Government the signatures of the international conventions susceptible to facilitate the maritime trade in order to strengthen the Comoran maritime law.
- To draft rules and regulations concerning the navigation and the maritime trade.
- To ensure regular contacts with the firms and compa-

nies dealing with the maritime trade.

- To organize the training for the sea-going personnel, sedentary staff in the entire maritime sector including the administrative and clerical personnel in both governmental and private sectors.
- To establish the navigation licence.
- To establish and keep up-to-date the maritime booklet up-to-date.

### 3. THE MARITIME AFFAIRS DEPARTMENT.

This Department is responsible for the administration of seamen affairs. It establishes and keeps list of the crews, the individual seamen files, and their pension rights up-to-date. It is responsible for the technical control and survey of ships' navigation. By this way, it establishes and keeps the statutory documents, proceeds to the periodical visits of sea-going ships up-to-date. This Department also proceeds inquests connected with the sea and sea-bed resources in linked with the Sea-bed Authority.

### 4. COMMENTS.

Until now, few matters of the activities of the Maritime Direction have been brought back since 1975. A small part of the seamen affairs have been kept in position and the remainder not because of lack of either the personnel to do the job or the structure. For instance, normally the seamen have a retiring pension and insurance which have not existed since 1975. Therefore the management of the seamen affairs lives without an object for the moment at least.

The Maritime Direction will have to establish the navigation control of ships and the annual visits. These controls and visits have not been practiced for a long time because the activities of the Direction are reduced to few matters . Until now it is satisfied with the liquidation of the running affairs.

The Maritime Direction is actually reduced to a Director and two Associates who work occasionally manner together with a Technical Adviser. This personnel is therefore not sufficient to carry out the work.

In general, the maritime transport sector is the one in great difficulties because of insufficient means in personnel (number and qualification). The State Secretariat is at an embryonic stage. The means at its disposal is not a match for tasks to be undertaken. Its means is becoming worse: no car, no telephone, there were three secretaries working full time, now there is none.

This decline shows that this sector has not been given the highest priority.

#### B. THE MINISTRY OF EQUIPMENT, ENVIRONMENT AND URBAN PLANNING.

The Ministry is in charge of the construction of the ports. The utilization and the maintenance are recovered by the "Office National des Ports" (ONP) which is under the authority of the State Secretariat in charge of Transports and Tourism. The management of the light houses, buoys and beacons were relieved from this Ministry and actually they are under the ONP. It seems that it has been difficult to have resources allocated to

this service after 1975.

#### C. THE MINISTRY OF AGRICULTURAL PRODUCTION, INDUSTRY AND CRAFTS.

The fishing and the living resources are under the authority of the Ministry of Agriculture. The State Secretariat deals with the research and rescue of seamen and in particular the fishermen in distress. The State Secretariat has the duty to see that the fishing boats are applying and in conformity with the international and national rules and regulations which none is ratified by the country.

In fact the general difficulties of the office which must deal with this matter, is suffering from the lack of means.

#### D. THE MINISTRY OF ECONOMICS AND FINANCE.

The customs office is under the Ministry of Economics and Finance. The customs matters within the port will be dealt with in the analysis of the port organization.

### II. THE MARITIME AFFAIRS ORGANISMS.

Three organisms share the maritime transport affairs and the the operation of ports in the Islamic Federal Republic of the Comoros (RFIC):

- The National Maritime Transport Company (SONATRAM).
- The Chamber of Trade.
- The National Port Office, (ONP).

#### A. THE NATIONAL MARITIME TRANSPORT COMPANY.

Created in July 1982, the SONATRAM is a state owned company with a the property stock of 250 million Comoran francs (5 million French francs) under the authority of the State Secretariat in charge of Transport and Tourism.

It is managed by a Board of Directors appointed by the State Secretariat. They are representatives of the State. The General Director is nominated by a Decree.

Its aim is to improve and organize the maritime transport in the RFIC, to charter and to fit out vessel, to insure lighterage operations (vessel at quay) and to consign vessel calling to the Comoran ports.

Actually this company control all the movement of goods in the RFIC since it represents seagoing ships and inter-area ships and their handling.

#### B. THE CHAMBER OF TRADE.

This is an institution of public laws whose statute was modified in June 1984 but not enforced. This is under the authority of the Ministry of Economics and Finance.

Its agencies at Moroni and Mutsamudu own handling materials (fork-lift, self-propelling cranes) which can be hired by the users through the SONATRAM. The agencies also own warehouses and they directly administrate the utilization of them.

### C. THE NATIONAL PORT OFFICE.

It is administrated by a Board of Directors composed of state representatives. The General Director is nominated by Decree.

The ONP is in charge, according to the texts, of the technical and commercial improvements of ports to assure transit operations of goods and lighterage (quay-warehouse).

In fact the ONP has not existed and has not played any roll in the exploitation of ports and the transit of goods since its creation.

The ONP did not prevail over any resources to maintain its operation budget. Therefore it was not functional in the organisation of the shipping lines. Thus a number of important evidences, detrimental to the State and to the importers have been permitted.

### III. BASIC PROBLEMS AND SOLUTIONS(\*5).

The Head of the "Food Agriculture Organisation" (FAO - United Nations System) says that "THE FUTURE IS TRADE. YOU CAN DOUBLE, TRIPLE OR QUADRUPLE THE AID; IT WILL NOT DO. TRADE BRINGS IN 50 TIMES MORE THAN AIDS".

An important factor determining the pace of economic and social development in my country is the participation in  
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*(\*5) Establishment/Administration of Maritime Affairs  
in Developing Countries - Vol. I - PS Vanchiswar.  
(World Maritime University - 1984)*

the trade. However, such participation in the trade is dependent on the developing country's infrastructure, human capabilities and administrative structure for handling the transport of that trade.

Since the major commodities involved in the trade are transported by sea, there is a strong interdependence relation between trade and maritime transport.

A well informed, guided, and properly motivated Maritime Administration is quite capable of improving itself to the level of its perceived needs. Recent maritime countries which have achieved substantial maritime administrative growth have done so by the Government taking the lead in this sphere.

The objective of a Maritime Administration of the country's overall maritime activities is to provide the Government with the machinery which will enable it to satisfactorily and efficiently undertake the functions which are defined within the country's Merchant Shipping Legislation. Therefore, the appropriate Government Authorities need to have an efficient administrative machinery to advise them on the adaptation and implementation of the National Legislation and other Regulations required for developing and operating the maritime program of the country and for discharging the obligation of the Government under International Conventions which may be applicable. Such an administration will also be responsible, under the general direction of the Ministry of Transport, for providing and organising the appropriate facilities for the Survey and Certification of ships and the training of maritime personnel.

As a whole, the areas affected within the circuit of Maritime Administration activities are: the ownership, registration, management, operations, upkeep and maintenance of national shipping fleets, and also other related maritime activities such as shipbuilding, ship-repairing, dry-docking, port operations and maritime training.

The problems my country is facing to organise the maritime administration are:

- Inadequate awareness of the basic problems themselves.
- Non-involvement in the evolution of international standards and the consequential problem of having to deal with them in isolation.
- Inexistence of Maritime Legislation (primary and subsidiary).
- Inadequate infrastructure, as regards organisation and personnel.
- Acute shortage of marine officers.
- Lack of training.

As you can see in this chapter the actual organisation structure is not designed to be required for a Maritime Administration Organisation with expected development to be substantial in order to carry out all the necessary functions.

Having defined the basic problems, the necessary guidelines, proposals, suggestions and informations have to be provided in order to overcome the problems and then lead to an appropriate maritime administration.



A. BEING A MEMBER OF IMO, AND PARTICIPATION IN THE VARIOUS SESSIONS OF SUB-COMMITTEES, COMMITTEES AND CONFERENCES OF IMO.

Such active participation would promote the following:

- The relevant standards are the "highest practicable" and not the "highest conceivable".
- Whenever possible alternative to sophistication, skills and systems are also provided for.
- The relevant standards do not tend to prolong indefinitely the dependence on external sources, except by choice, if so desired.
- The relevant standards are justifiable on the grounds of safety and/or pollution prevention and not motivated by other considerations.
- The needs of the country as regards technical assistance and the attendant funding assistance will not only be made known but recognised by the developed countries.
- Personnel contacts are established with colleagues from other countries, leading to better understanding and co-operation.

B. MERCHANT SHIPPING LEGISLATION.

A Merchant Shipping Legislation is a condition to maritime development and the effective enforcement of appropriate maritime safety standards. The lack of such legislation is a deficiency that needs to be rectified as a matter of urgency. Accordingly the elaboration of the Merchant Shipping Legislation has to be done.

The primary objectives of the Merchant Shipping Act must be DEVELOPMENTAL, REGULATORY, and in CONFORMITY with

relevant International conventions. Besides, the Act needs to be clearly and precisely worded, with effective sanctions and capable of promoting a helpful law-abiding atmosphere.

Having dealt with the importance of the primary Merchant Shipping Legislation, it is now necessary to turn to the various Rules/Regulations (Subsidiary Legislation) that need to be promulgated under the aforesaid Primary Legislation. In view of its very nature, shipping legislation not complemented and integrated by legislation cannot in practice amount, to more than simple guidelines for the Maritime Administration. In this respect, there should be little doubt that until subsidiary legislation is issued and implemented, many provisions of the Merchant shipping Legislation cannot operate.

It is important to note that in addition to the Merchant Shipping Act (both Primary and Subsidiary), all of the required and appropriate documentation needs to be prepared and be available to all concerned at the same time as the Legislation enters into force.

#### C. MARITIME ADMINISTRATION INFRASTRUCTURE.

The purpose of the Merchant Shipping Legislation must be:

- To encourage and regulate the orderly development of merchant shipping and to provide for the qualifying of persons employed in service at sea.
- To regulate the terms and conditions of service of persons employed in conformity with international conventions to which the country adheres.
- To provide for the safety of passengers, crews, ships and cargo in conformity with any international conven-

tion to which the country adheres.

- Generally to replace the shipping laws of the formal colonial power applicable to the country by laws enacted by the Parliament of the country.

This Act shall receive such fair, large and liberal construction and interpretation as will best ensure the attainment of its purposes.

Accordingly, the primary functions of the Maritime Administration must be developmental and regulatory. The developmental functions contribute directly to maritime development and the regulatory functions contribute to such development and economic advantages consequentially.

The developmental functions can take the form of participation in the process of formulating the policy of the Government and decision upon the activities to be undertaken in connection with such development. Such functions are essentially contributory to the overall Economic, Trade and Planning Ministries and must include:

- The appropriate analysis/assessment of the most suitable types and numbers of ships required to meet the scale of development planned.
- Development of man-power needs of the shipping industry.
- Ship-repair capabilities.
- Development of marine ancillary industries.
- Assessment of the suitability of national ports for the intended ships and proposals for required development/improvement.
- Development of marine man-power needs for the ports.
- Development of employment opportunities for national seafarers.

The regulatory functions must ensure:

- Safety of lives, ships and property.
- Protection of the marine environment.

These in turn are expected to ensure in the context of development and economy:

- Maximum efficiency in the operation of ships, with consequential economic advantages.
- Creation, development, protection and preservation of national maritime skills.
- Conservation of national property.
- Reduction in the maintenance costs of ships.
- Conservation of foreign exchange.
- Avoidance of disasters and consequential loss (or damage to) lives, property, marine resources and heavy expenditure.
- Maintenance of marine insurance premises at an advantageous level.
- Protection of the image of the country in very favourable light in the maritime world.

#### D. THE ORGANISATION STRUCTURE.

The purpose of an organisation is to aid in making objectives meaningful and to contribute to organisational efficiency.

The first condition of organisation is that someone wants to accomplish something he cannot accomplish alone. Problems giving rise to organisations are as varied as the whole spectrum of human needs, but to explain how they give rise to organisation we must give consideration to:

- (1) Why is it felt that the problem must be solved by organized rather than individual action?

- (2) Why is a governmental organisation rather than an organized effort outside the governmental structure (a corporation or a voluntary association) selected as a means for meeting a problem?
- (3) The location of the organisation in the governmental structure, whether it is established as a local, state, or federal agency.
- (4) The particular form it is given, whether it is incorporated in an existing department, given departmental status, or established as an independent agency partially insulated from executive control.

## CHAPTER TWO

### THE MARITIME TRANSPORTATION ORGANIZATION

#### I. THE INTER-AREA TRADE.

##### A. THE GOODS TRAFFIC.

The inter-area trade traffic recovers at the same time the distribution or regroupment of international traffic. This is the case specially for the important part of traffic at destination or origin of Moheli, and the inter-area traffic of the local production.

One can examine data from the accuracy of the statistics for the inter-area traffic. In fact there is no, as should be the case, concordance between the total inward traffic and the total outward traffic. The comparison presented hereafter (in thousand tons) allows to appraise the divergences between the two series. (see table 2).

From 1974 to 1983 the inter area traffic of the RFIC has partially stagnated, oscillating between 5,000 and 7,000 tons for the inward traffic and 6,000 and 8,000 tons for the outward traffic. The higher figures of the traffic observed in 1980, respectively 16,000 tons for the inward traffic and 11,000 tons for the outward traffic are suspicious. Taking into account the weakness of the international traffic during the same year, one can not help thinking that these mistakes have been committed in

the assessment of the total traffic by categories of navigation.

TABLE: 2.  
THE INTER-AREA TRAFFIC.(Thousand tons)

Year *	Total traffic inward	* Total traffic outward	*
1974 *	6.5	* 7.7	*
1975 *	4.5	* 7.1	*
1976 *	6.2	* 6.3	*
1977 *	5.5	* 8.5	*
1978 *	5.3	* 6.5	*
1979 *	7.5	* 7.9	*
1980 *	16.4	* 11.2	*
1981 *	7.0	* 7.7	*
1982 *	6.7	* 8.1	*
1983 *	7.0	* 10.0	*

*Source: Direction General des Douanes -Moroni-*

#### B. THE PASSENGER TRAFFIC.

The passenger traffic has increased in a notable manner from 1978 to 1980, due to returning wayfarers of war, 14,000 passengers (inward + outward) to 23,000. In 1981 and 1982, because of the diminution of the offer of transports after the disappearance of most of the Comoran fleet assuring the inter-island connection, the annual passenger traffic decreased to 12,000 passengers. A recovery is observed in 1983 and 1984 at the port of Moroni, the only port which provides data for these years.

TABLE: 3.

## PASSENGER TRAFFIC EVOLUTION.

	1978:	1979:	1980:	1981:	1982:	1983:	1984
MORONI .	:	:	:	:	:	:	:
Inward .	2,110:	2,240:	3,040:	1,652:	1,565:	2,246:	3,177
Outward.	2,819:	4,647:	5,217:	692:	1,052:	2,022:	2,724
Total .	4,929:	6,887:	8,257:	2,344:	2,617:	4,269:	5,901
MUTSAMUDU	:	:	:	:	:	:	:
Inward .	963:	2,001:	2,388:	1,981:	2,215:	- :	-
Outward.	1,490:	2,334:	3,336:	1,745:	1,005:	- :	-
Total .	2,453:	4,335:	5,724:	3,726:	3,210:	- :	-
FOMBONI.	:	:	:	:	:	:	:
Inward .	3,520:	5,946:	5,916:	3,311:	3,482:	- :	-
Outward.	3,237:	5,337:	3,172:	2,919:	3,129:	- :	-
Total .	6,757:	11,283:	9,088:	6,230:	6,611:	- :	-
RFIC .	:	:	:	:	:	:	:
Inward .	6,593:	10,187:	11,344:	6,944 :	7,262:	- :	-
Outward.	7,546:	12,318:	11,725:	5,356 :	5,186:	- :	-
Total .	14,139:	22,505:	23,069:	12,300:	12,448:	- :	-

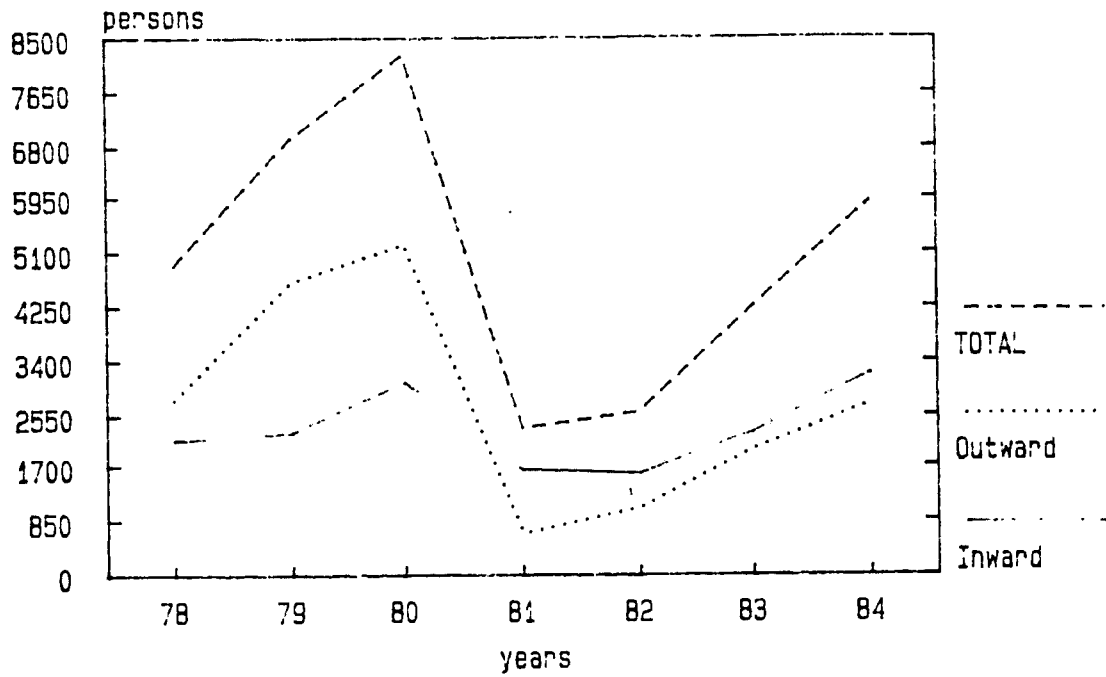
*Source: Direction General des Douanes -Moroni-*

Here again one can examine the accuracy of the statistics available. Indeed you will observe:

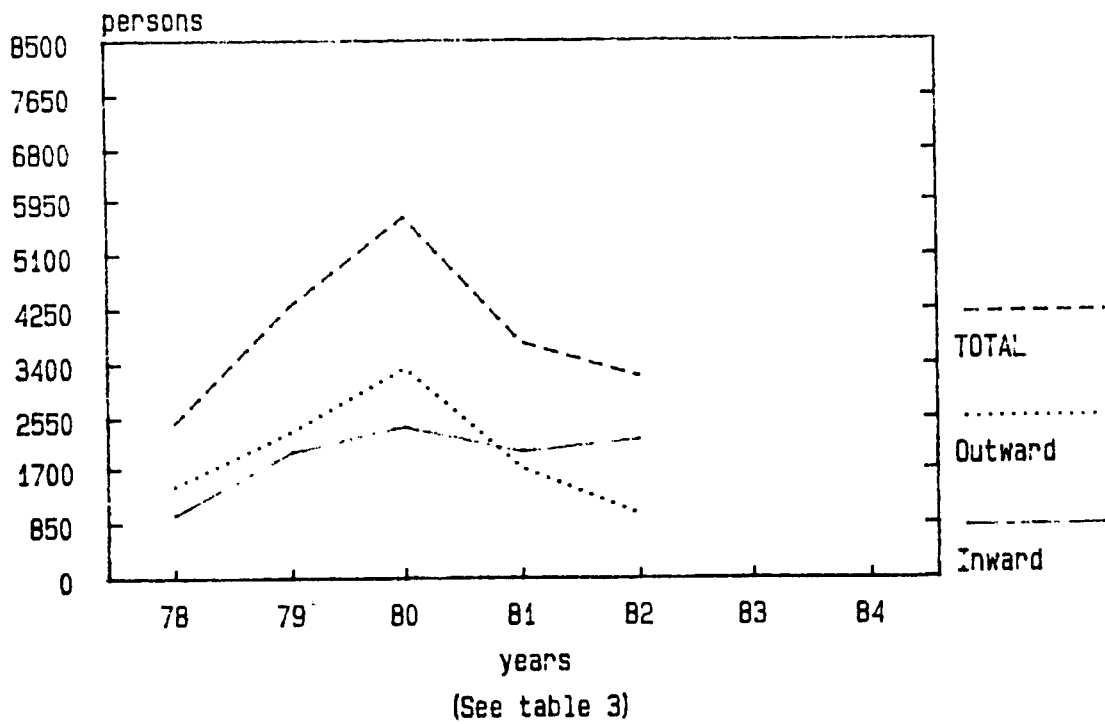
- On the one hand the very important margin observed between the inward traffic and the outward traffic for certain cities and certain years;
- On the other hand the considerable dissimilarity of the instability rate of inhabitants of different cities.



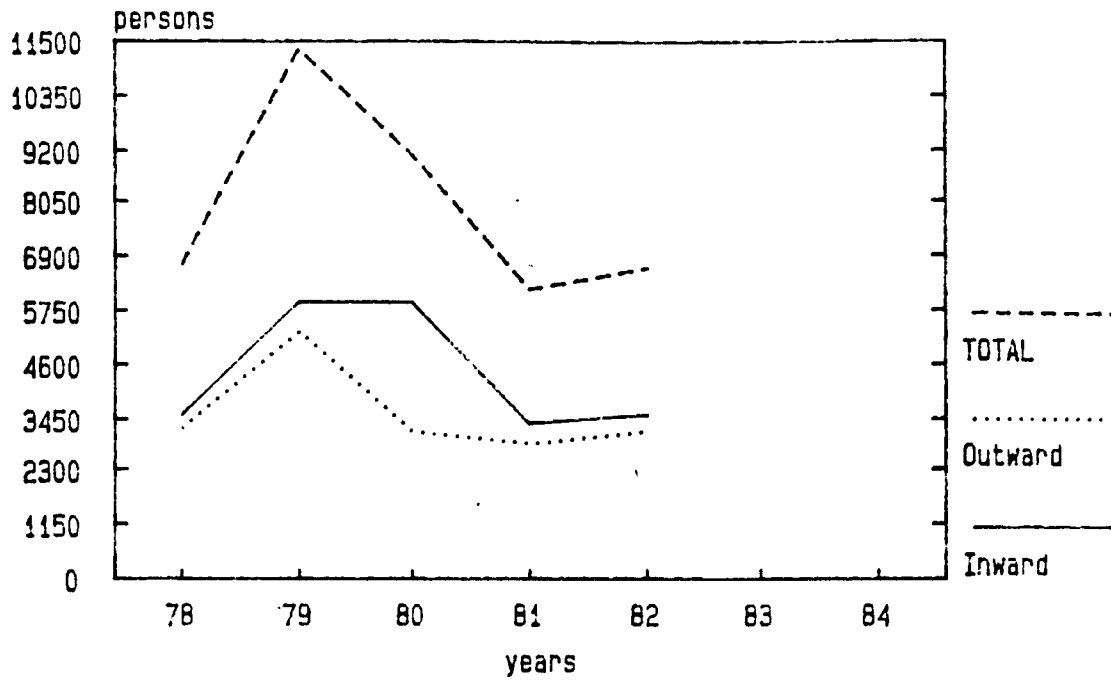
PASSENGER TRAFFIC EVOLUTION  
MORONI



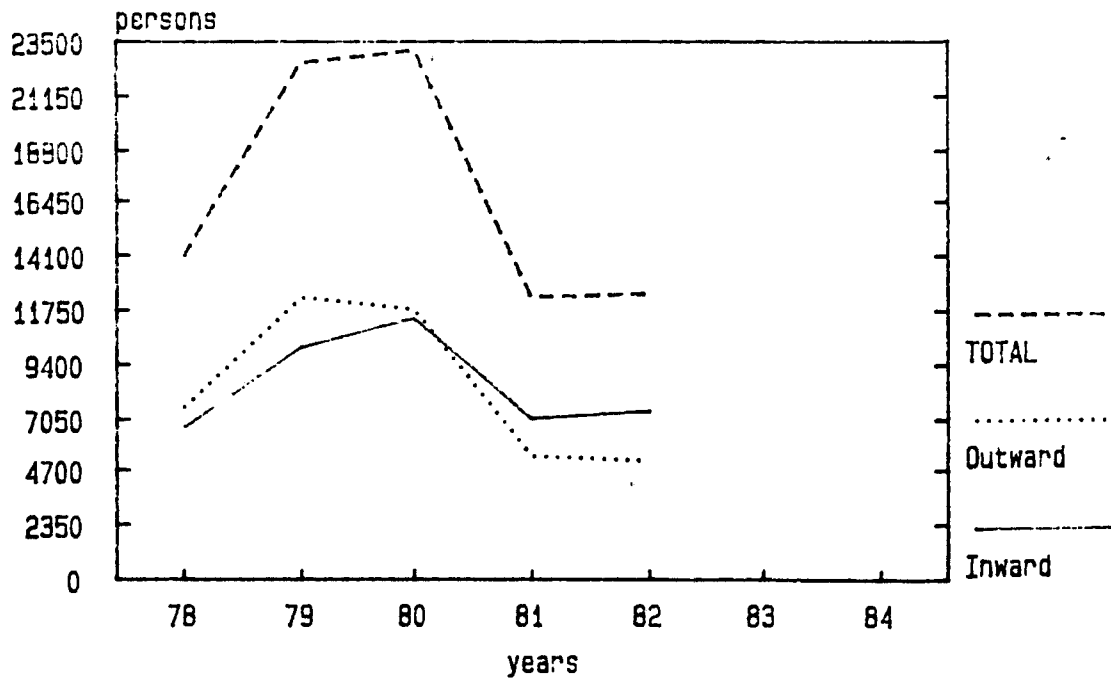
PASSENGER TRAFFIC EVOLUTION  
MUTSAMUDU



PASSENGER TRAFFIC EVOLUTION  
FOMBONI



PASSENGER TRAFFIC EVOLUTION  
RFIC



The instability rate defined as number of passengers divided by the number of inhabitants is established for the year 1980 respectively 4,3% for the Grande Comore, 4,2% for Anjouan and 52,8 for Moheli.

## II. THE INTERNATIONAL TRADE.

### A. IMPORTATION.

The evolution of importation from 1972 to 1983 is presented in table 4. The examination of this table calls for the following remarks:

- In 1983, the importation of the RFIC has reached 79,630 tons of which 26,200 tons was rice.
- There was from 1976 to 1981 in the importation of the RFIC, in spite of erratic variations, a very distinct tendency in increase. The imports of dry goods have risen from 31,088 tons in 1976 to 78,549 tons in 1981. In 1982 and 1983 a diminution of the volume of importation which concerns in particular the cement and miscellaneous products is observed
- From one year to another, there are important variations and this is more distinct particularly for rice and cement. The quantity of cement fluctuates according to the manpower engaged. The small size of the Comoran economy expresses the extent of the variations in the importation of rice. According to the years the number of vessels discharged in the RFIC varies in fact from 2 to 3. This can involve variations of orders to about 10,000 tons. For this reason, it is better to smooth out the series by calculating the mobile averages on 2 or 3 years. Calculated on a mobile average of 3 years, respectively 1976-1977-1978 and 1981-1982-1983, the annual rate of growth of the

Table: 4  
EVOLUTION OF THE IMPORTATION.

Year:	RICE	FLOUR	SUGAR	SALT	CEMENT	MICEL- LANOUS	Total dry goods	HYDRO- CARBONES	TOTAL
1972:	14,317	1,352	1,784	874	12,318	7,708	38,353	11,933	50,286
1973:	12,135	1,544	2,064	800	8,100	10,837	35,480	11,800	47,280
1974:	16,333	1,531	2,100	800	28,200	14,902	63,866	12,000	75,866
1975:	10,369	1,325	494	783	19,089	11,203	43,263	12,194	55,457
1976:	12,450	976	1,491	1,052	9,195	5,924	31,088	9,687	40,775
1977:	9,616	537	960	750	10,865	5,852	28,580	11,196	39,776
1978:	13,956	1,365	2,623	764	14,582	5,538	38,828	9,257	48,085
1979:	23,638	1,395	2,743	733	7,999	7,936	44,444	5,964	50,408
1980:	12,816	1,802	2,934	808	19,256	7,986	45,602	11,920	57,522
1981:	30,648	951	920	729	20,962	24,339	78,549	18,877	97,426
1982:	24,853	1,979	2,079	843	13,282	24,393	67,429	14,952	82,381
1983:	26,200	906	2,864	741	18,283	15,654	64,648	14,982	79,630

\* Mayotte is include from 1972 to 1975.

Source: Direction Generale des Douanes.

importation of principal products, in the RFIC is shown as follows:

- Rice.....	17.8%
- Other alimentary products in bags.....	2.6%
- Cement.....	8.7%
- Miscellaneous.....	30.1%
- Total dry goods.....	16.4%
- Hydrocarbons.....	10.4%
- Total products.....	15.1%

These rates are very high and in particular notably higher than the rate of growth of the gross interior product (GIP), but it is suitable to note that the references years have been economically difficult for political reasons.

Concerning the origin of the importation, Europe is the principal contractor of the miscellaneous and alimentary products other than rice. The cement is imported from East Africa, the rice from the Far East (usually from Pakistan).

The evolution of the inward and outward maritime traffic is presented hereafter at table 4 for the period 1974-1983, and for each port, table 5, 6, and 7.

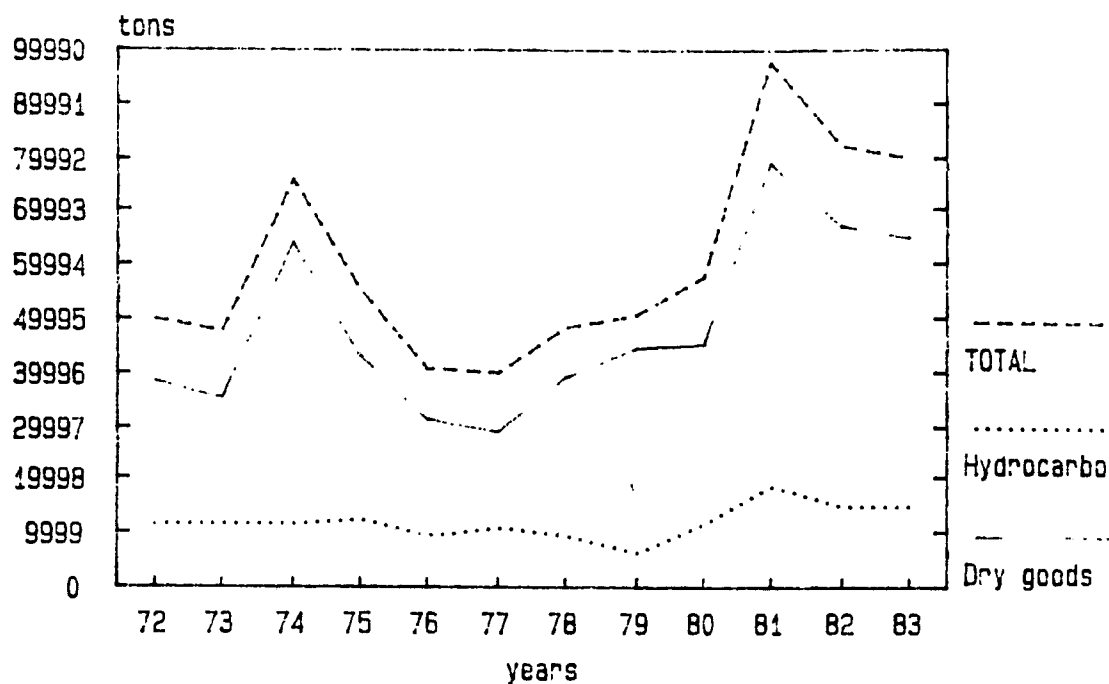
The hydrocarbons liquid traffic is included in the data thus presented

#### B. THE EXPORTATION.

The evolution of the exportation in the RFIC from 1972-1983 is presented in table 5 hereafter.

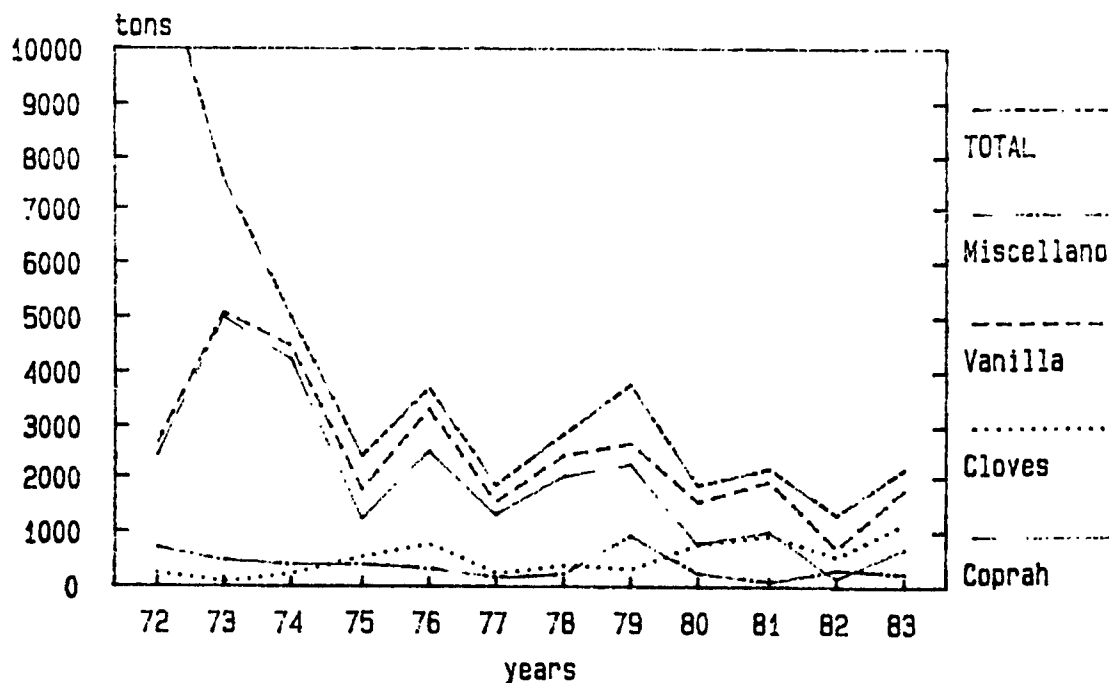
The volume of exportation is very modest. The exporta-

EVOLUTION OF THE IMPORTATIONS  
RFIC (See table 4)



Mayotte is included from 72 to 75

EVOLUTION OF THE EXPORTATIONS  
RFIC (See table 5)



Mayotte is included from 72 to 75

Table 5:  
EVOLUTION OF THE EXPOTATIONS

YEARS:	COPRAH	CLOVES	VANILLA	MISCE- LANOUS	Under Total	POUZ- ZOLANE	Total	*
1972 :	2,424	203	207	737	3,571	8,216	11,787	*
1973 :	4,975	105	139	478	5,697	1,900	7,597	*
1974 :	4,245	205	165	365	4,980	-	4,980	*
1975 :	1,260	521	211	415	2,407	-	2,407	*
1976 :	2,516	764	124	295	3,699	-	3,699	*
1977 :	1,317	212	230	137	1,896	-	1,896	*
1978 :	2,060	391	117	215	2,783	-	2,783	*
1979 :	2,291	350	167	937	3,745	-	3,745	*
1980 :	775	816	13	246	1,850	-	1,850	*
1981 :	1,021	949	160	68	2,198	-	2,198	*
1982 :	135	585	259	315	1,294	-	1,294	*
1983 :	688	1,134	177	212	2,211	-	2,211	*

\* Mayotte is included from 1972 to 1975.

Miscellaneous: essence and parfum products.

Source: Direction Generale des Douanes.

tion is based essentially on agricultural products (coprah, cloves, cinnamon, vanilla, essence of ylang-ylang) since the exportation of pouzzoulane at Mahajunga Cementary stopped off in 1974.

The exportation from the RFIC shows off a downward tendency:

- The suspension of pouzzoulane as mentioned before.
- The diminution of coprah because of the closing of the market in Madagascar and the difficulties encountered to sell the product on the European market.

The irregularity of the exportation of vanilla is caused by the fluctuation of the world flow which periodically involves the selling of this product at a loss. The irregularity of the exportation of cloves is caused by the production of this product (a good average harvest each four years).

### III. THE INTERNATIONAL MARITIME ROUTE SERVICE.

The international navigation is connected to the exterior and can take one of the following forms:

- Direct transport by the coastal and high seas vessels coming from East Africa, La Reunion, Mauritius and Madagascar.
- Direct transport by sea-going or coastal and high seas vessels with transshipments in foreign ports.

These types of transport were frequent in the beginning of the seventies and Mahajunga was playing the role of a bursting port for the Comoros Islands. Actually it has practically disappeared.



## A. THE EUROPEAN LINES.

Originally three maritime lines existed:

- Europe - East Africa
- Europe - Madagascar
- Europe - La Reunion.

The two first maritime lines have disappeared because of the collapsing of the East African and Malagasy economy.

The maritime route to the Seyshelles has been abandoned by the English ones.

Only the line: Europe - La Reunion remains with one vessel a month. This maritime line serves besides Madagascar, Comoros, Mauritius by sea-going vessels of 1,500 tons:

- 1,000 tons approximately are discharged in La reunion
- 2 to 3,000 tons in Mauritius
- 1,000 tons in Tamatave (Madagascar)
- 1,000 tons in Comoros.

The maritime line service to Comoros appears accordingly as an appendix of the Europe - La Reunion line.

This maritime route is assured by the Consortium of CAPRICORNE. Until 1983, the companies serving that route were grouped in a conference: the CIMACOREM (Conference Madagascar, Comoros, Reunion, Mauritius).

Since 1984, for rentability reasons and because of the freight crises, the conference has tightened its properties and has been transformed to a consortium.

The Capricorne group includes six companies:

- The CGM (Compagnie Generale Maritime (French)) 1 vessel.
- The NCHP (Navale et Commerciale Havraise Peninsulaire (French)) 6 vessels.
- The Societe Navale Lionnaise (French) 1 vessel.
- The DAL (Deutsche Africa Line (German)) 1 vessel.
- The DHL (Deutsche Hapag Lloyd (German)) 1 vessel.
- The SMTM (Societe Malgache de Transport Maritime (Madagascan)) 1 vessel.

This line discharges 18,000 tons per year from which 12,000 at Moroni (Comoros). This tonnage will be transhipped at the port of Mutsamudu if the necessary arrangements are operational.

## B. THE REGIONAL REGULAR LINES.

### 1. THE MASCREIGNE LINES.

The "Societe Comorienne de Navigation" (SCN) whose headquarter is at Moroni (Gde Comore), operates a coastal general cargo vessel of 1,000 tons the "BOURBONNAIS". This general cargo vessel discharges 3,600 tons per year of which 2,000 tons at Moroni. These commodities are not transhipped because of the very low freight tariff and the tonnage of the vessel.

### 2. THE SOUTH AFRICAN LINE.

The South African Company "UNICORN" has concluded a joint venture with the SCN.

This line discharges 10,000 tons per year of which 8,000

tons at Moroni. These commodities are composed above all of iron for concrete, steel sections, bitumen, wood, cement in increasing quantities. It is a question of a small quantity of freight, consequently the commodities are not transhipped.

### 3. THE TRAMPING.

This traffic concerns above all the South-East of Asia. The annual quantity is variable. It concerns essentially wood, rice, miscellaneous commodities, plates and dishes, household apparatus etc... The freight rate of being very low, these commodities are not transhipped.

## CHAPTER THREE

### PORT ORGANISATION

#### I. THE ARCHIPELAGO PORTS.

##### A. FOMBONI HARBOUR.

The coral plateau which surrounds the Moheli harbour permits only the beaching of LCT (Landig Crafts and Tank) of small draft (1.4 to 1.8 meters) or the approaches of wooden boats which stand at lower tide.

This Island has only one jetty 70 meters long and 4.8 meters wide, in bad condition and in a drained site at lower tide.

Moheli faces actually serious difficulties of supply. Indeed the only ship ("TRITONIS") capable to beach and to transport motor fuel in vat or tin is unserviceable.

##### B. MORONI HARBOUR.

Situated on the East coast of the Island, the port is squeezed, by the city and the sea and has an old infrastructure in bad conditions, each cyclonic disturbance makes it gradually worse.

Moroni has a jetty of 100 meters length and 15 meters width. The upper level is at +5.2 meters and consolidated at -1 meter, which permits the drawing alongside of

Table 6:  
EVOLUTION OF MARITIME TRADE:  
GOODS AT FOMBONI.

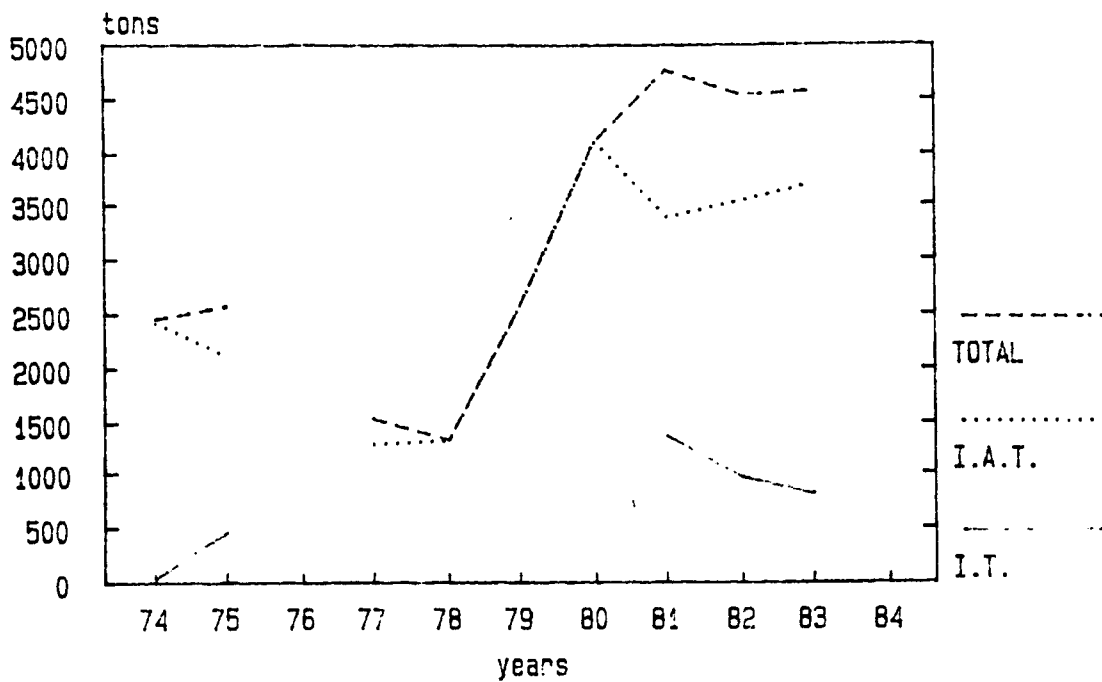
.....									
	*	INWARD			*	OUTWARD			*
YEARS	*	I.T.	I.A.T.	Total	*	I.T.	I.A.T.	Total	*
.....									
1974	*	50	2,409	2,459	*	217	1,465	1,682	*
1975	*	486	2,107	2,593	*	188	607	795	*
1976	*	-	-	-	*	-	-	-	*
1977	*	250	1,287	1,537	*	250	1,287	1,537	*
1978	*	-	1,329	1,329	*	207	1,370	1,577	*
1979	*	-	2,576	2,576	*	125	1,589	1,714	*
1980	*	-	4,098	4,098	*	-	1,309	1,309	*
1981	*	1,380	3,397	4,777	*	-	748	748	*
1982	*	981	3,539	4,520	*	199	1,065	1,264	*
1983	*	830	3,728	4,558	*	-	1,123	1,123	*
1984	*	-	-	-	*	-	-	-	*
.....									

\* I.T.: International Trade

I.A.T.: Inter-Area Trade

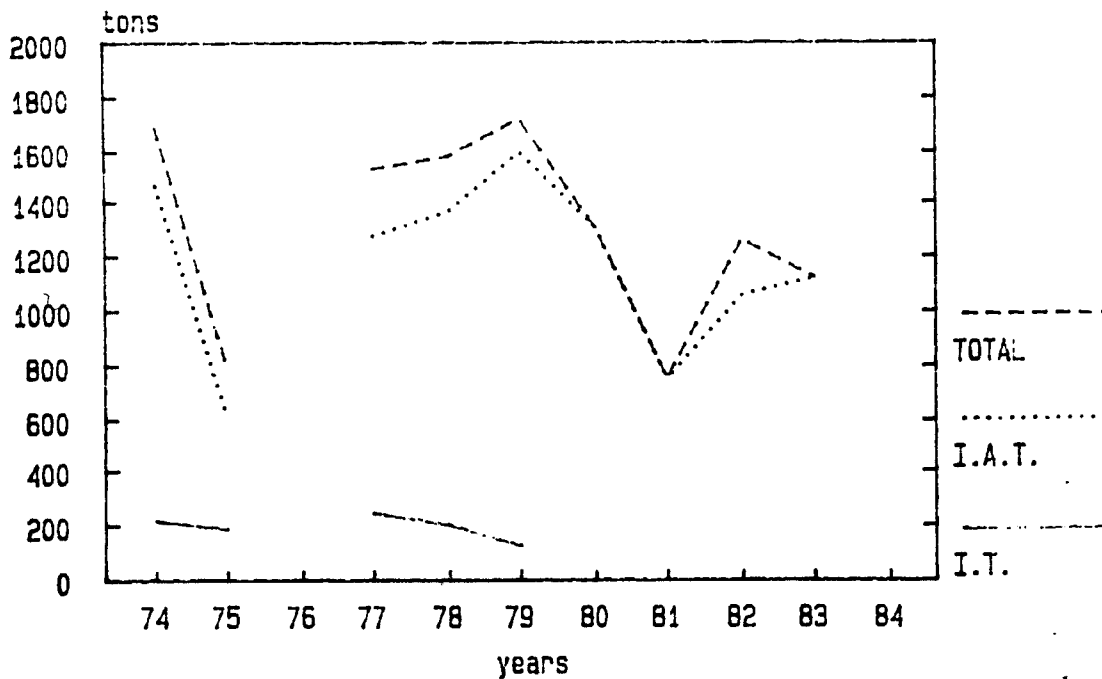
Source: Direction Generale des Douanes.

EVOLUTION OF MARITIME TRADE  
INWARD GOODS AT FOMBONI



(See table 6)

EVOLUTION OF MARITIME TRADE  
OUTWARD GOODS AT FOMBONI



(See table 6)

small ships of 3.3 meters of draft, beachers and wooden boats. The stairs made for the discharge of the wooden boats bring supplementary constraints to ships discharging at quay.

The sea-going vessels are obliged to moor roadstead about 500 meters from the quay. The difficulties to anchor and to stay in one place are such that the vessels are constantly waiting to leave. For security reasons some ships leave the mooring place in the evening to drift in open sea and come back in the morning.

The wet dock shelter for wooden boats is drained at low tide. This drained situation is advantageous for wooden boats which otherwise are prey of shipworms.

The wet dock is protected by a 150 meter long jetty which is in bad condition.

A beaching ramp 40 meters long and 7.5 meters wide permits LCT to operate by opening the lower door at high tide and calm sea.

The covered surfaces of storage reach 2,500 M<sup>2</sup> and the stocking open areas 3,000 M<sup>2</sup> for containers and commodities which are not damaged by the inclemency of the weather.

The quay and platform are generally in bad condition and obstructed by abandoned commodities.

Behind the port, the stocking tanks of the "COMPAGNIE COMORES-HYDROCARBURES" are connected to the port by a pipeline which is connected at sea to a mooring buoy by

Table 7:  
EVOLUTION OF MARITIME TRADE:  
GOODS AT MORONI.

.....									
	*	INWARD			*	OUTWARD			*
YEARS	*	I.T.	I.A.T.	Total	*	I.T.	I.A.T.	Total	*
.....*									
1974	*	37,583	771	38,354	*	2,550	2,736	5,286	*
1975	*	32,579	1,225	33,804	*	1,095	2,579	3,674	*
1976	*	-	-	-	*	-	-	-	*
1977	*	37,171	2,147	39,318	*	1,225	2,833	4,058	*
1978	*	30,364	2,548	32,912	*	1,864	2,133	3,997	*
1979	*	37,548	2,706	40,254	*	2,098	3,145	5,243	*
1980	*	43,872	4,959	48,831	*	822	5,265	6,087	*
1981	*	48,251	2,105	50,356	*	1,644	3,696	5,340	*
1982	*	54,716	1,769	56,485	*	1,313	4,115	5,428	*
1983	*	59,742	1,818	61,560	*	1,829	5,809	7,638	*
1984	*	71,212	4,806	76,018	*	1,698	6,126	7,824	*

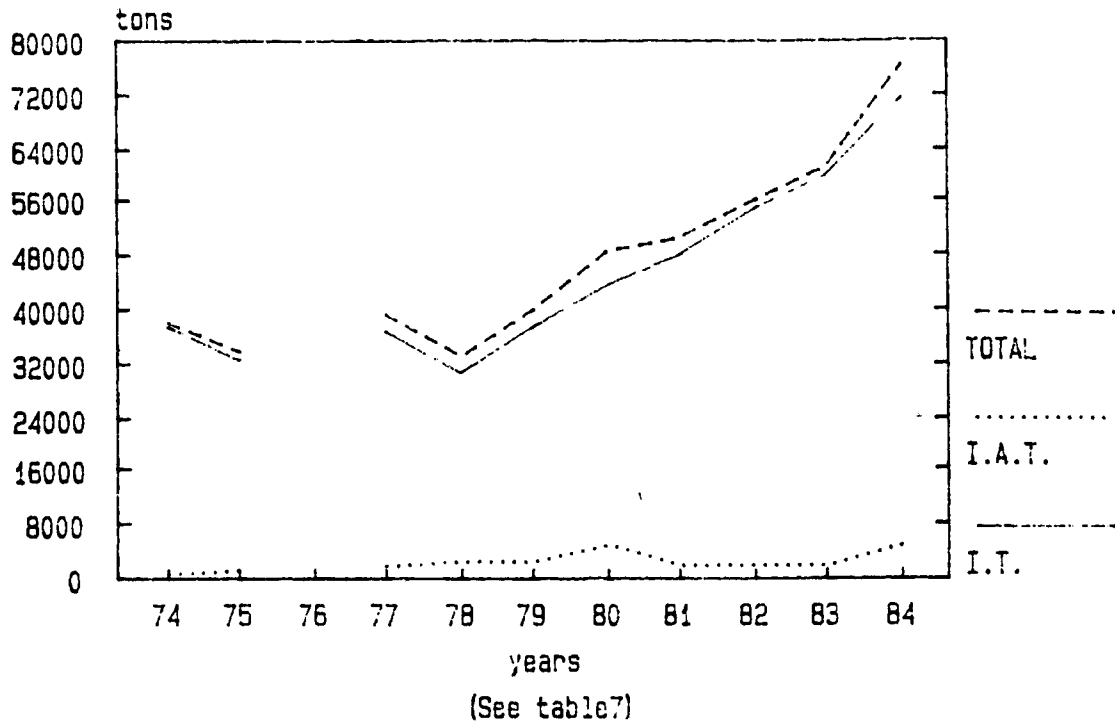
.....  
\* I.T.: International Trade

I.A.T.: Inter-Area Trade

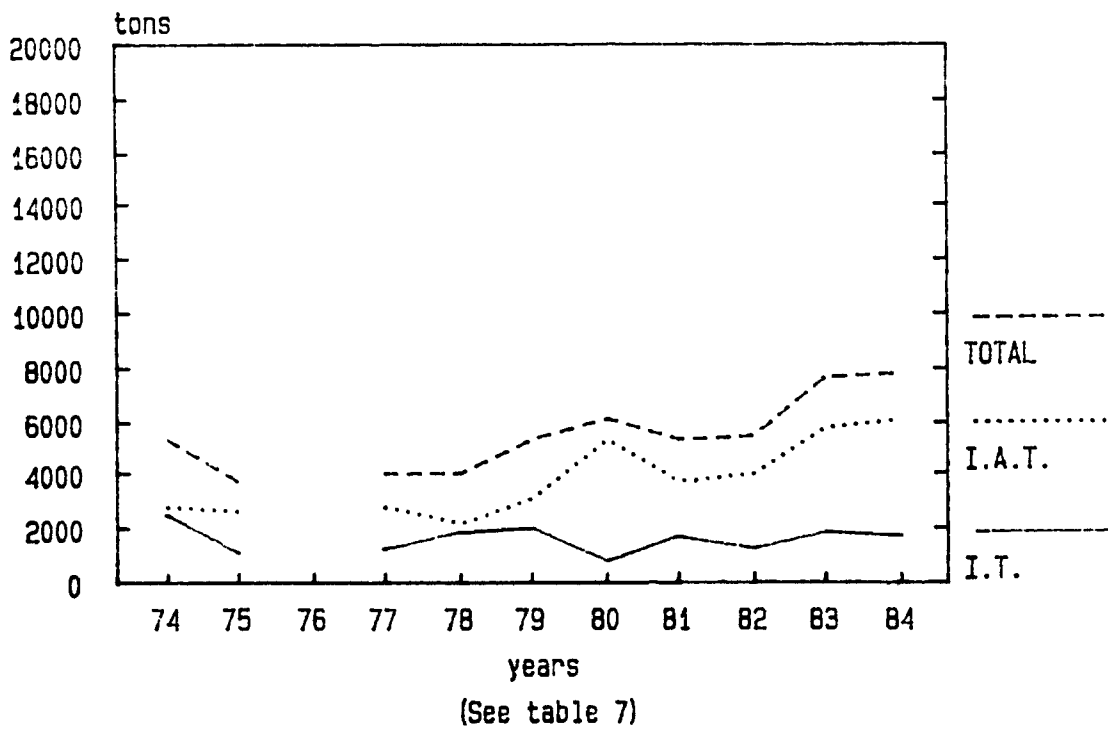
Source: Direction Generale des Douanes.



EVOLUTION OF MARITIME TRADE  
INWARD GOODS AT MORONI.



EVOLUTION OF MARITIME TRADE  
OUTWARD GOODS AT MORONI



a floating line. The capacity of the tanks is 2,700 m<sup>3</sup>.

The majority of commodities discharged at Moroni, are transported by wooden row boats, from which the sea-going ships tranship the commodities. This evidently limit the size of packages at the transhipment. In the case where the commodities exceed the possibilities of using wooden row boats these commodities are transhipped by one of the LCT of SONATRAM (Societe National des Transports Maritimes) and discharged by rolling them on to the beach of Itsandra.

Some studies are being made for the lengthening of the jetty to reach the depth of 4.5 meters which will permit access, at any tide of the coastal vessels.

In spite of all these difficulties, Moroni receives 63% of the Comoran imports due to the luck of being the capital and with a large population.

#### C. MUTSAMUDU HARBOUR.

It is the only more or less real port of the archipelago. It has obtained a new infrastructure since December 1985 which offers ships:

- One quay of 171 meters length and 9 meters width.
- One quay of 80 meters length and 3.5 meters width.
- One quay of 110 meters length and 3.5 meters width.
- 4.5 to 12 metres depth.
- One beaching.
- 6,400 m<sup>2</sup> of stocking areas under shed.
- One tug-boat and handling equipment.

It is intended to be the port of transhipment of commodities destined for the archipelago.

Table 8:  
EVOLUTION OF MARITIME TRADE:  
GOODS AT MUTSAMUDU.

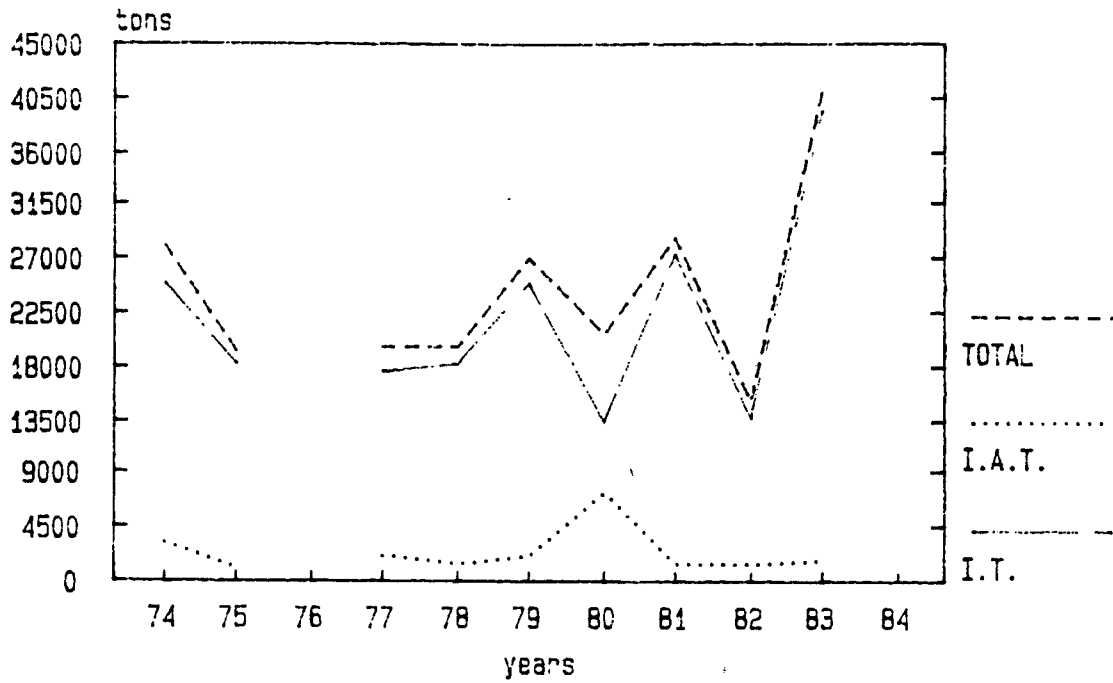
YEARS	INWARD			OUTWARD		
	I.T.	I.A.T.	Total	I.T.	I.A.T.	Total
1974	24,789	3,336	28,125	4,472	3,506	7,978
1975	18,193	1,128	19,321	1,309	3,937	5,246
1976	-	-	-	-	-	-
1977	17,635	2,056	19,691	1,334	4,403	5,737
1978	18,392	1,443	19,835	1,042	2,998	4,040
1979	24,817	2,213	27,030	1,116	3,153	4,269
1980	13,501	7,353	20,854	2,349	4,646	6,995
1981	27,498	1,483	28,981	2,562	3,213	5,775
1982	13,815	1,435	15,250	872	2,896	3,768
1983	39,334	1,624	40,958	1,886	3,106	4,992
1984	-	-	-	-	-	-

\* I.T.: International Trade

I.A.T.: Inter-Area Trade.

Source: Direction Generale des Douanes.

EVOLUTION OF MARITIME TRADE  
INWARD GOODS AT MUTSAMUDU



EVOLUTION OF MARITIME TRADE  
OUTWARD GOODS AT MUTSAMUDU

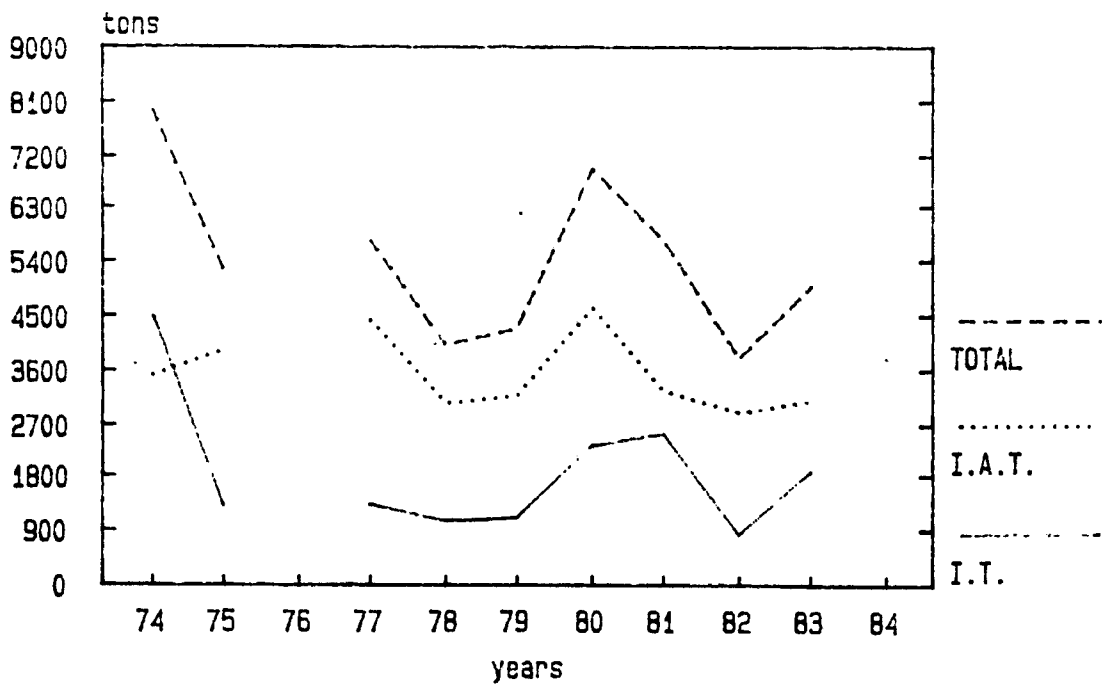


Table 9:  
EVOLUTION OF MARITIME TRADE:  
GOODS IN THE RFIC. (in tonnage)

.....									
	*	INWARD			*	OUTWARD			*
YEARS	*	I.T.	I.A.T.	Total	*	I.T.	I.A.T.	Total	*
.....*									
1974	*	62,422	6,516	68,938	*	7,239	7,704	14,946	*
1975	*	51,258	4,460	55,718	*	2,592	7,123	9,715	*
1976	*	46,500	6,200	52,700	*	3,800	6,300	10,100	*
1977	*	55,056	5,490	60,546	*	2,809	8,523	11,332	*
1978	*	48,756	5,320	54,076	*	3,114	6,481	9,595	*
1979	*	62,365	7,495	69,860	*	3,339	7,887	11,226	*
1980	*	57,373	16,410	73,783	*	3,171	11,220	14,391	*
1981	*	77,129	6,985	84,114	*	4,206	7,667	11,873	*
1982	*	79,512	6,743	86,255	*	2,384	8,076	10,460	*
1983	*	99,906	7,110	107,016	*	3,515	10,037	13,552	*

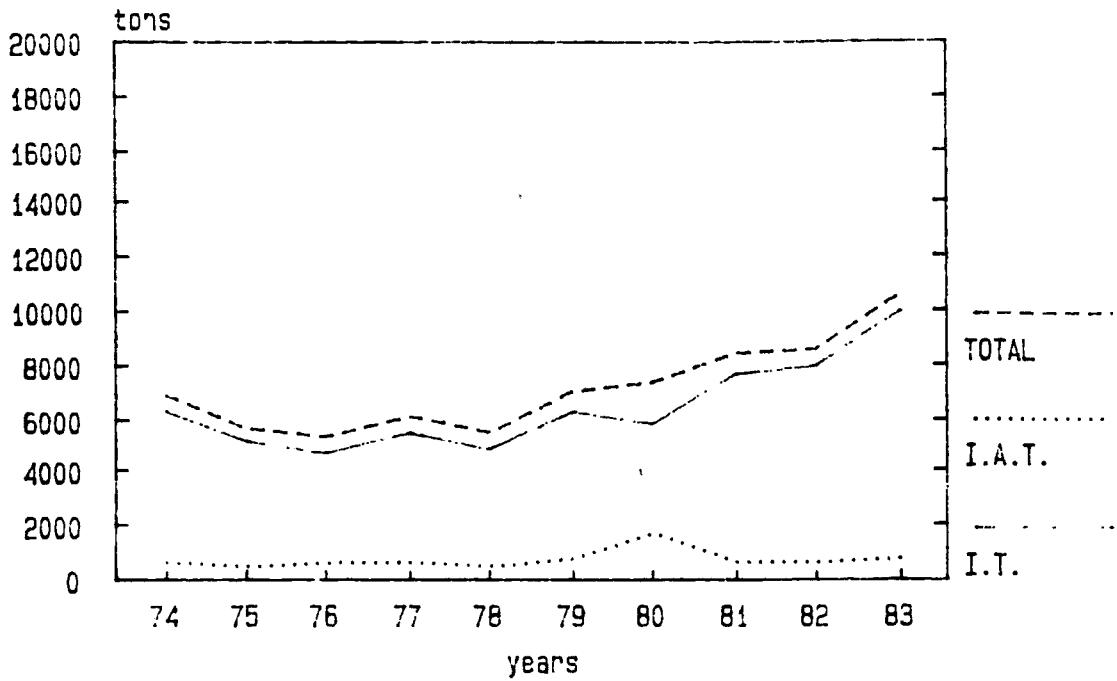
.....

\* I.T.: International Trade

I.A.T.: Inter-Area Trade.

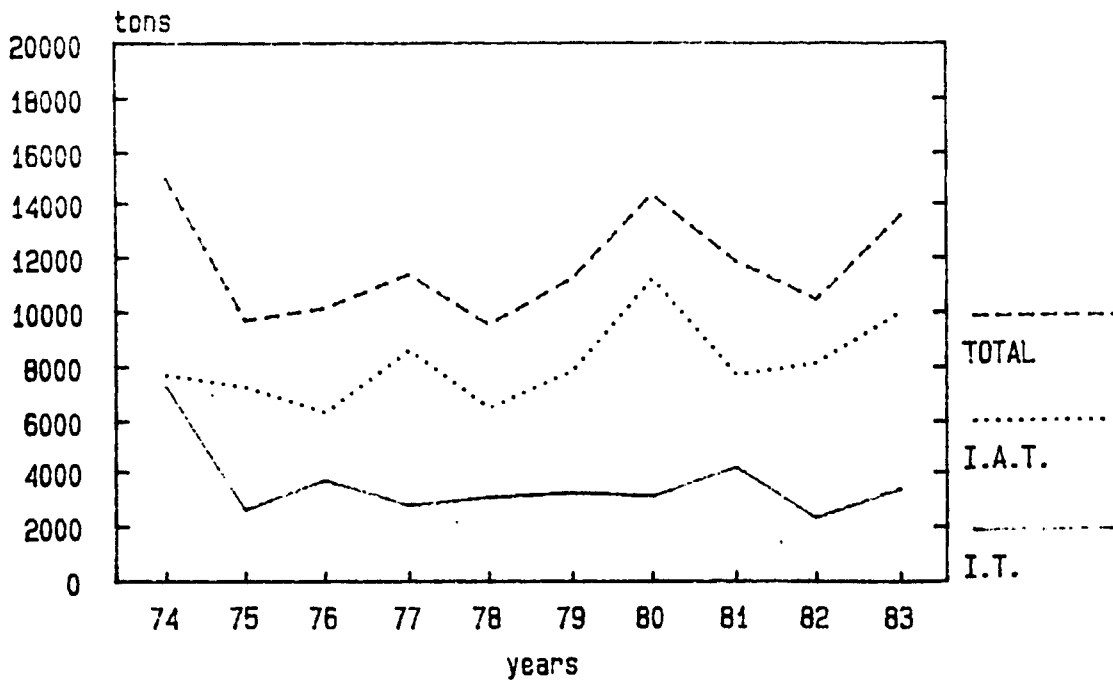
Source: Direction Generale des Douanes.

EVOLUTION OF MARITIME TRADE  
INWARD GOODS RFIC.



(See table 9)

EVOLUTION OF MARITIME TRADE  
OUTWARD GOODS RFIC.



(See table 9)

## II. EVOLUTION OF THE VESSEL TRAFFIC.

The evolution of the number of calls vessels in different ports of the RFIC has is presented as follows in table 10 for the period 1973-1982 or 1973-1984 according to the ports.

### A. THE SEA-GOING VESSELS

The figures presented in table 10 are for the number of calls concerning vessels supplying the international traffic together with other vessels including tankers supplying hydrocarbon liquid

In spite of some erratic domestic movements, the number of calls of vessels, supplying the international traffic in the port of the RFIC, shows a decreasing tendency . From 1973-1974 to 1980-1982, the number of calls at the three ports has decreased about 30%. In a parallel way the traffic has increased, this decreasing tendency in a number of port of calls conveys a sensible increase of an average tonnage discharge and embarked.

At Moroni and Mutsamudu ports the annual number of calls of vessels supplying the international traffic is actually set up between 75 to 80.

The international traffic, Europe-Asia, to or from the RFIC is supplied by conventional vessels of tonnage varying from 5,000 to 17,000 tons. The important part of the relations with Europe is carried out by vessels of the Consotium Capricorn which supplies a regular service to the ports of the RFIC. The actual number of times

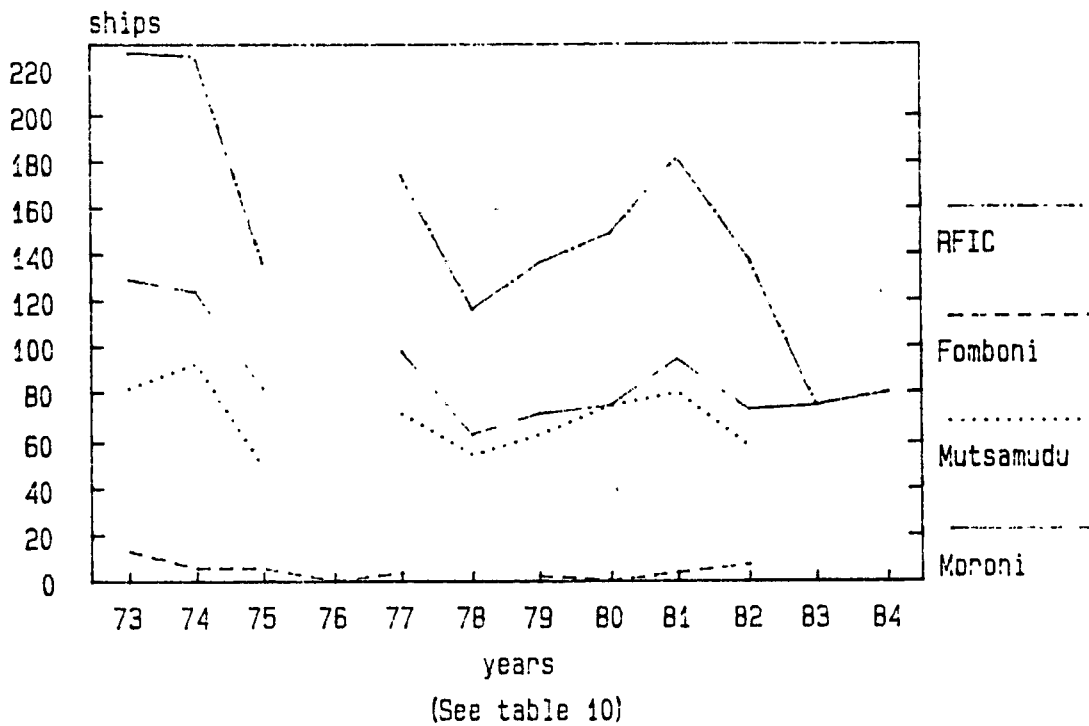
Table 10  
EVOLUTION OF SHIPS' CALLS

.....									
INTERNATIONAL					*	INTER-AREA			
SHIPS					*	SHIPS			
	Moroni	Mutsamudu	Fomboni	Total	*	Moroni	Mutsamudu	Fomboni	Total
.....									
1973:	130	83	13	226	*	191	243	234	668
1974:	124	93	5	225	*	102	280	253	635
1975:	83	49	5	137	*	83	201	208	492
1976:	-	-	-	-	*	-	-	-	-
1977:	99	72	3	174	*	103	171	208	482
1978:	63	54	-	117	*	76	98	152	326
1979:	72	62	2	136	*	118	199	234	551
1980:	75	75	-	150	*	133	191	195	519
1981:	96	81	4	181	*	105	190	188	483
1982:	74	58	7	139	*	134	201	234	569
1983:	76	-	-	76	*	148	-	-	148
1984:	81	-	-	81	*	165	-	-	165
.....									

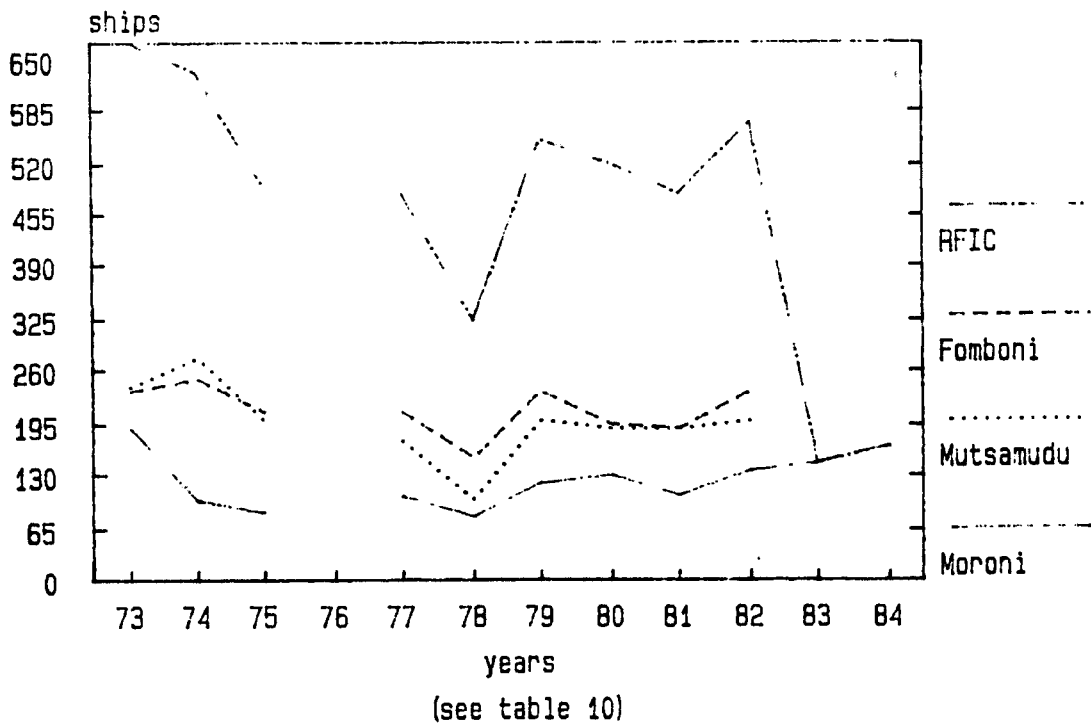
Source: Direction Generale des Douanes.



EVOLUTION OF SHIP'S CALLS  
INTERNATIONAL SHIPS



EVOLUTION OF SHIP'S CALLS  
INTER-AREA SHIPS



that ships call on a port is 11 to 12. The vessels utilise by the consortium were the following during the year of 1984:

- Ville de Genes (16,255 tons).
- Ville de Nantes (16,400 tons).
- Ville de Marseille (16,526 tons).
- Ville de Strasbourg (16,836 tons).

These vessels are polyvalent transporting bulk, bags, various commodities as well as containers.

The rice from Asia, Pakistan or Thailand is carried by vessels chartered conjointly by Comoros or Mauritius and the tonnage varies from 12,000 to 25,000 tons. Among the vessels received in the RFIC in 1983 or 1984 one can quote:

- Toros-Bay (15,139 tons).
- Hira II (24,344 tons).
- Orion Star (19,103 tons).

Some tramp-ships supply the traffic from Europe or Asia.

The various commodities for the regional traffic from the South-West of the Indian Ocean are carried out by coastal vessels of lower capacity with the DWT varying between 1,000 to 2,000. Among those which supply regular services one can quote:

- Ville de Manankara (1,820 DWT).
- Kartala (1,550 DWT).
- Bourbonnais (1,042 DWT).

#### B. THE INTER-AREA VESSELS

Actually the inter-area trade is carried out only by coastal vessels:

- Ville de Nioumachoua (620 DWT).
- Kamar-Al-Koweit (500 DWT).
- 5 motorised and wooden sail boats.

### III. THE ROLE OF PORTS IN THE THROUGH TRANSPORT CONCEPT.

Many are not aware that the role of today's ports is changing rapidly. The port formerly being a terminal not concerned with hinterland activities, has now to be aware that it is a vital part in the chain of transport and distribution. The port, instead of being merely ship-oriented, has now for the sake of its survival to be sea and land oriented, or in other words, transport-conscious. The new port is no longer an obstacle in the world wide distribution but a transport mediator, a transitor. This adds a new dimension to the tasks of the Port Authority, namely the need of getting involved the in cargo's destiny after arrival in the port. At the same time the Port Manager has to be more involved in cargo's happenings before arrival, in the pre-planning of the handling of cargo which still has to arrive. The modern Port Manager is not only the cost-conscious dynamic operator, he also has to be the market-conscious transport planner. This will, to an increasing extent, not only require his active cooperation with ships and clients, as has been the case in the old days, but also with townships and governments.

#### A. PORT AND THE WORLD-WIDE DISTRIBUTION(\*6).

In spite, of the rapid growth of transportation by air,

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(\*6) *Transport Modes and Technologies for Development.*

*(UN Report ST/ECA/127, 1970)*

most of the goods moving from continent to another will go by sea for many years to come. Ocean freighted goods will mainly include low-cost/low-speed wares. At the same time one has to be aware of the fact that since the 1960's also a definite trend of transporting high cost goods with high-speed vessels is developing in order to cut down on costs of ocean transportation and to reduce total distribution time of those goods. Another trend is also visible showing an increasing tendency of continents and communities to become self-supporting in order to save currency and to be able to cope with the staggering inflation, and also again to achieve savings in terms of time in the total distribution of commodities.

What remain for the port to be aware of is firstly, that there are indispensable links in the world-wide distribution. Secondly that ocean-going cargo volumes will increase for many years to come. Thirdly that although port activities may only contribute with 10% to the total costs of transportation for a commodity, the port itself is an element of equal importance in the trinity sea-port-land, mainly because of the time factor in the distribution of that commodity. Finally that in order to meet the high speed vessels for quick loading and discharging, operation in the ports also have to be speeded up, keeping in mind that also in a port the motto should be "time is money", as lost time in reality is a national impediment which inevitably will result in higher costs of living.

The old concept of the port being a warehouse of ships and goods is no longer valid. It has to operate as a dynamic link in the long chain of transportation. It also has to be the link of communication between ocean

and hinterland, between ships and forwarders and road. The port has to chase its clients, their documents, carriers and cargoes, from origin to destination. Its attitude should no longer be concentrated on how to get rid of it.

Another important aspect of the port's activities is the quality of handling the goods. Speeding up operations is only meaningful if the quality of handling is not lowered. Safety and security are the main attributes of proper handling, damage and pilferage are signs of bad performance. Of course the experienced Port Manager is fully aware that requirements as regarding speed, safety and security may lead to opposing considerations. He has then to find the golden middle way. The empty port may, to the layman, seem to be discouraging, the congested port is certainly not a sign of good performance.

#### B. OBSTACLE IN PORTS AND THE WORLD WIDE DISTRIBUTION.

The international trade in goods consists of the transportation of goods from exporters to importers and the payment of it by importers to exporters (\*7). Obstacle in this trade will chiefly lead to two related situations to be described as congestion and delay.

General causes of congestion in ports are:

- (1) Low productivity resulting from poor planning and poor labour relations.
- (2) Lack of cooperation and coordination between port and carriers.

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(\*7) *Trade Practice and Shipping. (UNCTAD Report TD/B/C.4/102, 10 November, 1972).*

- (3) Failure to simplify documentation requirements and its processing.
- (4) Seasonal concentration of ships and cargo arrivals, and of cargo tak-off, including concentration of ships and export cargoes at the beginning of each month.

Other causes of delay and congestion in ports are:

- (5) Trade practice which influence the scheduling of vessels.
- (6) Conditions of weather, wind and tide, influencing the ships' arrivals dates.
- (7) Various barriers to smooth out the operation of cargo handling.

When considering hinterland the following factors which also will have an impact on port performance, may be added:

- (8) Low productivity and poor planning in the field of forwarding and road transportation.
- (9) Lack of transporter capacity because of poor infrastructure and lack of carriers.
- (10) Lack of cooperation and coordination between port and hinterland.

Some of these factors may be explained in detail. Firstly it should be clearly understood what is meant by "productivity" in (1). One should recall the generally accepted importance of the following performance indicators:

- (a) The primary indicators: tons/unit of labour/unit of time, which mainly depend on the variables of cargo type, cargo mix and also size of the gang if the measurement is given per gang hour or gang shift.
- (b) The second indicators: ton/ship/day, and also costs/ton showing more variables.

With regard to (4) it should be recalled that the scheduling of vessels is closely related to the time of shipment of goods. This is usually stipulated in the sales contract on the basis of months, which explains the tendency of having shipments moved towards the expiring date at the end of the contracted month. This tendency will be reinforced when expiring dates for letters of credit and insurance policies coincide with the latest date of shipment, and also when on-board bills of lading which are prevalent in international trade, are required. As known the general interpretation is that the date of despatch or shipment of goods shall be taken to be the date of the bill of lading.

With regard to (5) tendency to delays and concentration may be explained by such factors as:

- (a) Grace period system for the time of shipment and tendency of shippers to delay shipments because of expected benefits from out-of-market fluctuations.
- (b) Delays and concentration because of latest date of shipment being determined by the date of auction.
- (c) Expected fluctuation of export duties.
- (d) Fluctuations concerning the allotted quotas of export commodities.
- (e) Problems in connection with return cargo.

When studying other barriers (g) the following factors may be summed up:

- (a) Lack of cargo receiving capacity in the port in terms of space and facilities resulting in ships waiting, slow handling and late delivery of cargo by shippers.
- (b) Practice of lighterage, although this does not necessarily cause delay.

- (c) Weighing of cargo on deck or at apron of quay with old fashioned scales.
- (d) Practices of tallying on deck or at apron.
- (e) Direct delivery of cargo from ships to consignee's vehicles.
- (f) Delays in take-off of discharged cargo from sheds and yards.
- (g) Problems of cargo mix and segregation of cargo by submarks of bills of lading. This regards consignees who import a number of small lots of one commodity or a variety of commodities, destined to a multiplicity of receivers under one bill of lading.

#### C. REMOVING THE BARRIERS.

When trying to remove the barriers one should firstly realize the complexity of today's distribution system and find out ways of simplifying the functional and organisational pattern. There are chiefly the following partners in the chain of distribution:

- (a) Producer, exporter or consignor.
- (b) Shipping agents, banks, insurance company.
- (c) Ship with master and crew.
- (d) Port authority.
- (e) Municipality, government, customs.
- (f) Forwarders and hinterland transporters.
- (g) Receiver, importer or consignee.

Recalling the old-time relationship client-port-ship--port-client the simplified functional pattern today would be consignor-transporter land-port-transporter sea-port-transporter land-consignee. In this pattern the port function would comprise both Port Authority, Township, Government and Customs. A further simplification



would lead to the ideal pattern of exporter-transporter-importer where the transporter or transport operator should liaise with a coordinator of all transport functions (transport coordinator) and a coordinator of all port functions (port coordinator). It is obvious that this pattern would require that the ports be positively and dynamically involved in coordinated activities related to transport, traffic and port functions with the ultimate goal of obtaining a smooth flow of cargo and of inflation on cargo.

Having looked into the organisational and functional pattern the next step would be a streamlining of the functions of information and communication by simplifying the paper work, this also includes customs and processing of documents. The tendencies have rather been the opposite, papers and regulations mushrooming beyond limits, resulting in confusion and delay. It should be a standing order that documents and storage plans arrive before the cargo concerned so port operations planning could start before the ships arrive.

Documents should also be related to a sound system of tariffs and statistics so as to provide an optimum of information with a minimum of paper. Therefore tariffs and dues systems as well should be simplified by using only a few classes and categories. Tariffs should also be directly related to costs of operation and to priorities for cargo that is not allowed to wait.

Furthermore related to documents is a fourth area where improvements can be made, namely the area of traffic planning. Keeping in mind the obstacles discussed under "B" one should work out a proper scheduling of vessels

and shipments in order to avoid systematic or seasonal traffic concentrations. This will also be required for hinterland transportation in order to avoid undesirable concentrations on road.

Fifthly another area of improvement has to be highlighted, regarding the suitability and interdependence of port and vessel. Development of port, vessels and hinterland vehicles should be the result of intergrated planning. There is no sense in sending old ship designed for general cargo to a port for loading unitized cargo. Nor is it proper to send a high-speed container carrier to a port where suitable facilities for the handling of containers are not available.

In the context of this intergrated plannig one has to emphasize the need of specializing, unitizing and mechanizing covering the sixth area of technical improvements(\*8). This regards ships as well as ports and vehicles. Specializing is only profitable when cargo volumes are sufficiently large and may lead to vessels and facilities only dealing with bulk oil, dry bulk such as ores, cement, grain, or other commodities. When cargo volumes do not justify specializing another solution may be considered: the multi-purpose carrier or berth. This is particularly of interest when introducing another form of specializing, namely unitizing. The objective of unitization is through uniformizing (packaging) and unit-enlarging (bundles, pallets, containers) to obtain better flow and handling of cargo. This will result in the following main types of transport by specialized

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(\*8) *Unitization of Cargo.*

*(UNCTAD Report TD/B/C.4/75, 1974)*

ships:

- (1) Palletized (no cramage needed, only a ramp).
- (2) Containerized (no sheds needed except when stuffing is required)
- (3) Roll-On, Roll-Off (no cramage needed, only a ramp).
- (4) LASH or Barges-on-board (no deep water berth needed).

Modernizing, mechanizing and unitizing are to serve the seventh area of operations. Modernizing facilities and surfaces of transport will contribute to a smooth and steady flow of the goods. So will the mechanizing of equipment for handling and transport. A very important aspect in this context is the maintenance of facilities and equipment, and also the utilization of it. Studies on berth throughput, capacity of cramage, transport, storage sheds and yards will have to result in proper, fast and economic handling.

A further area of improvement is the labour force dealing with the cargo, industrial relations and between Port Authorities, Ship Masters and Stevedoring companies. By training and teaching, job enrichment, motivation improvement and welfare development the clients may be assured of an optimal performance resulting in transportation and handling of high quality. It should never be forgotten that only a high morale combined with good skill safeguard a satisfactory performance and high productivity.

The above observations will also apply for all hinterland functions. Poor organization and performance of forwarders and road transporters, lack of vehicles, infrastructure and terminals will inevitably have its

impact on the port's operations. Congestion in ports is very often due to poor take-off and late delivery, and the development of hinterland functions and facilities is a must if the port of today will have to play its role properly in the context of world-wide distribution.

#### D. ELEMENTS OF THROUGH TRANSPORT.

##### 1. THROUGH TRANSPORT CONCEPT.

In the world of trade the generally accepted definition of Through Transport concept seems to be the transportation of cargo organized and administrated by means of one Bill of Lading, the Trough Bill of Lading. The simplest and ideal form of Through Transport in this respect is the transportation of one consignment in one unit from one consigner to one consignee. In addition to this comes the speed factor as through transport also includes requirements regarding a fast transportation in all stages, by ship and by road, and also a fast handling of cargo by using the proper equipment, and a smooth system of documentation and information. Trough Transport is therefore, keeping in mind the necessity of maximising speed and safety, based on a system of streamlined and simplified documentation and of unitized and uniformized cargo.

##### 2. UNIT LOAD CONCEPT.

This concept envisages the systematic development of uniformizing, unit-enlarging, mechanizing, standardizing and even mobilizing (as is the case with RO-RO, using wheeled cargo units). Experience has shown that although considerable savings in terms of time, costs

and space may be obtained by the development of unit--load transport.

When introducing the Unit-load concept one has to be aware that direct improvements are feasible by palletizing measures. But this will require adjustments for ships and road vehicles. Palletships have the advantage that no cranes will be needed on the apron and that the handling is much faster than of general cargo by crane.

Another development which would not be for the port is the introduction of RO-RO cargo, which neither needs cranes nor forklifts, being self-contained wheeled cargo. An interesting point is that RO-RO units could either continue on highways or in absence of main roads.

The introduction of LASH transport has also been considered, although this might not directly solve the problem of port congestion as it will still require a kind of lighterage and facilities such as quays, cranes and sheds.

Having decided on standards with regard to unit loads, specialization will have to follow unitization. This will concern all areas of transport and handling, by ship, rail and road, and even by the producer and the receiver. Unitization will never be successful unless manufacturers and customers are directly involved, as they are the main interested parties. This will particularly regard containerization, which, being capital intensive, will require a strong and expensive highways, railroads and terminals(\*9).

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(\*9) See note (\*8)

### 3. TCM AND CTO.

The proposed convention on Combined or Multimodal Transport of Freight and the Combined Transport Operator (being the legal transport organizer although not necessarily the carrier) must be seen in relationship with unitization, and particularly containerization. This may explain why, because of economic, social and legal implications, it was decided at the UN/IMO conference in Geneva, November/December 1972 to observe caution with regard to a fast proceeding and they recommended that first of all further studies should be carried out, especially on standards of size and weight (ISO). The results were to be discussed and assessed at a plenary conference on International Intermodal Transport by the end of 1975 before real support should be given to the container revolution.

Of course, if applied properly, the role of the CTO may considerably simplify the organisational pattern of the world-wide trade, the Operator being directly in touch with the consignor, and consignee, carriers and agents, ports and hinterland, being in fact the transport coordinator. However, there is no doubt that the context in which the TCM-convention presents itself is that of containerization, and this is, in particular for developing countries, working like a two-edged sword. Of course the TCM and CTO should not be with the container revolution itself. Containerization has proceeded and would, if necessary proceed without the benefit of a TCM convention(\*10).

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(\*10) *Economic Implications for the proposed Convention on International Combined Transport of Goods.*  
(UN Report ST/ECA/160, 8 May 1972.

#### 4. CENTRAL FREIGHT BOOKING.

Recalling development in the field of rail, road and air transportation, one wonders why more attention has not been given to the establishing of a central freight booking system. The main functions and objectives are the rationalisation of shipping services, aggregation of cargo and improvement of port performance. It is clear that such a Bureau could not be an overall transport operator, but from the point of coordination it should have a potential value with regard to the promotion of the through transport concept.

#### 5. PORTS: FREE PORT, MUNICIPAL PORT OR ASSOCIATED PORT.

The port's own position in relation to township, government or other ports should also be studied. Free ports may have advantages when thinking of delays caused by customs practices. Municipal ports may have advantages because of direct links with the township, so port planning could be integrated in town planning and other master plans. Another aspect to be watched is the port's relationship with other ports. It seems in this respect that the role and existence of the International Association of Ports and Harbours has not been fully utilized. Is there at present sufficient coordination of traffic matters between port authorities or are the ports isolated and depending only on the ship agents?

#### 6. OTHER SECTOR SOLUTIONS.

It may suffice to mention briefly the following possibilities:

- (1) Ports to be involved in warehousing.

- (2) Floating warehouses as an alternative to LASH.
- (3) Increased use of the ship's own gear.
- (4) Direct delivery on apron (but not to vehicle).
- (5) Delegating and decentralizing customs procedures.
- (6) Design of multi-purpose ships and berths as a first step towards containerization.

#### IV. ADAPTATION OF PORTS(\*11).

Modernisation is a permanent process. It is by nature a slow process: an adaptation from the past to better serve the future. In this way, merchant ships have become progressively larger and faster. The larger ships demand bigger port facilities, the faster ships require speedy turn round in port. To the extent that these changes were gradual, problems were posed to the port.

The type of ship to be handled is a decisive factor in planning the proper port installations. Therefore, the port authority needs to keep in close touch with the main liner operators in order to gain early indications about changes in the type of vessels used and detailed technical specifications. It is in the interest of all parties concerned that the port authority and ship operators work closely together. However, where the port investment is concerned, a ship operator may be very cautious to make a commitment to use a particular type of vessel. Then the port authority, just like the ship operator, has to remain as flexible as possible in its choice of investment.

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(\*11) *Modernization of Maritime Transport and its Implication for Ports of Third World Countries* by M. DAUNT, Shipping Division - UNCTAD.



For container lines a direct call at the the port with their main deep sea vessels may depend on the following conditions:

- (1) Berth priority on the sailing day of the shipping line.
- (2) Crane and gang guarantees,
- (3) Guarantee of productivity which makes it possible to exactly calculate the time between ETA (Estimate Time Arrival) and ETD (Estimate Time Departure).

All these conditions are necessary to rationalize the ship's overall movement and are the basis of the decision of a shipping line or shipping consortium to use the port as a main port or a feederport.

The requirement of the shipping line and the anticipated cargo quantities determine which technical handling system is the most appropriate.

#### V. LOCAL ASSESSMENT(\*12).

I think two questions were considered by my Government on developing the port of Mutsumudu:

- What developments are taking place or likely to take place in shipping services to our ports?
- How should the port facilities be adapted to satisfy present and future traffic requirements?

It is not feasible for this paper to respond to either question, in this paper only to provide some relevant background information. I believe the appropriate res-

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(\*12) *Journal pour le Transport International;*  
14 May 1982: Viewpoint.

ponses have depended on information specific to the needs of our ports or ports of the region; and this is the level at which studies must be done and ideas exchanged.

The foregoing sections have indicated some of the maritime developments and choices facing port management. Various conclusions can be drawn, such as:

- (1) I think containerisation will continue to grow everywhere and the trend cannot be stopped without damaging to foreign trade prospects.
- (2) Semi-container vessels are numerous and will continue for some time to ply the routes, visiting ports with low container throughputs. Such vessels do not require or justify special equipment unless total container flow is appreciable. However, a special control and information system will always be required.
- (3) As traffic grows, specialized vessel will be introduced. They may involve LO/LO or RO/RO handling and both require special facilities. A requirement common to both is a large uncluttered stacking area. The nature of the best system is a function of the traffic. The special control and information system will be required by both.
- (4) Choice of ship type will be made by the ship operators. Evidently they will be influenced by the existence of particular port facilities, but their choice will depend on wider considerations and the port cannot dictate the choice. In consequence, the port has its own choice whether:

- To invest speculatively for the future, with a risk of wasted expenditure;
- To await and only follow shipping development, with risk of delaying ship modernization and causing inefficiency when it arises.
- To collaborate with the key ship operators to find a compromise which serves the trade and avoids waste.

(5) In order to justify direct calls by specialized vessels, ports will be obliged to provide prompt and reliable service to ships. This depends not only on facilities, but also on organization and attitudes. Staff and labour training have an important part to play in achieving success.

(6) Ports which do not adapt sufficiently to container requirements may be obliged to receive either residual break bulk services, or feeder services to and from a transshipment port. Either could eventually be of general interest, but each is costly for national trade, every bit as tangible as increased port charges to support new development.

#### VI. RESSOURCE LIMITATIONS.

The role of a port is to efficiently handle all cargoes presented at the port. This is an over-riding responsibility towards national economic development and should take precedence over all other considerations, for instance stockholding, creating employment, profit making, direct cost minimizing or even explicitly encouraging traffic growth. Once this is accepted, then the obligation to provide adequate infrastructure and hand-

ling facilities is evident.

Facilities are unlikely to be considered adequate unless they permit the ship to work close to its rate capacity. That is to say cargo should come and go from the ship side as fast as the ship can handle it. The basic question is what is the minimum cost system which can satisfy this requirement?

The nature of adequate facilities depends on the traffic, as outlined in section II. Local ingenuity may enable the port authority to reduce costs appreciably below those of establishing a standard system, in particular, existing quays, yards and facilities will be used, wherever possible without hinderance to cargo flow. Some technological inovations may also permit system modification and cost reduction. Those questions are to be resolved, but one way or another, the minimum port facilities must be provided.

The next matter to be resolved is how to acquire the necessary facilities. The evident answer is by self-financing. The facilities justified by the traffic and it is most logical to make the traffic pay. Whatever the historical experience with tariff making, the port authority should aim to cover all costs in the long run (for the depreciation period). In accordance with the liner terms in most ports of the world, the handling costs of the commodities at port are part of the sea-freight. But the seafreight is based on the commercial ideas of the conferences or shpping lines (what the traffic can bear). Therefore, port handling rates below the break-even point of the terminal will subsidize the shipowners and will not benefit the national economy.

Such a policy requires the acquiescence of port users and, often, the Government. This ought not to be a problem with regard to users who operate in a commercial environment, and extreme efforts must be made to convince the Government likewise. The alternative can only be higher costs for the national trade and ultimately slow the economy development down. In the event that adequate tariffs cannot be assured, and direct aid is not forthcoming, the alternative is the provision of facilities by the users themselves. Lines or local agents may be prevailed upon to provide at least mechanical equipment necessary to operate a terminal efficiently. This is a good alternative because it diminishes the management's control over development and operations, and it has worked in some ports of developing countries.

## VII. FACILITATION MEASURES.

The facilitation measures pertaining to shipping comprise the two following areas, which are closely inter-related and could lead to reduction of unproductive delays and expenses of vessels in port:

- Facilitation of shipping documentation;
- Facilitation of trade documentation.

### A. FACILITATION OF SHIPPING DOCUMENTATION.

During the two last centuries, the shipping industry has had to live with the dilemma of the necessity of complying with a multitude of national practices and requirements, and the necessity of avoiding delays.

The situation has been exacerbated by the requirements of the statisticians and the ever increasing sophistica-

tion of the industry itself, which in many cases have resulted in an increasing number of national authorities taking an interest in, and stipulating their requirements pertaining to, the call of ships and personnel at port. The compliance with documentation requirements on the one hand and the lack of internationally standardized procedures on the other have imposed a heavy and increasing burden on the shipping industry's personnel both ship-borne and ashore, and caused delays which would appear to be unnecessary.

A great variety of documents were used at ports. They satisfied the port authority of the country, but were contrary to the interests of shipowners and masters of ships of foreign flags. This is caused by the fact that port authorities were free to choose the form of documents necessary to register the arrival and departure of vessels. The analysis of documents and required information revealed a great deal of forms produced by the custom authorities, immigration and health services, veterinary and plants' production bodies, port authorities, police etc. It is evident that international shipping required a much greater number of documents to be filled in and there are many more formalities than any other model of transport.

A great number of documents hamper to a considerable extent the development of international maritime traffic and leads to unproductive delays and expenditures of vessels at port. This produces a negative effect on the country's economy as a whole and complicates the work of authorities and operators.

This is a great opportunity for my country to introduce

a new system of procedures and documentation which will streamline, standardize and simplify the process, since we really just began to deal with international shipping matters by having the port of Mutsumudu which has been developed recently. The simplification process should fall into the following objectives(\*13):

- (a) To adopt all appropriate measures to facilitate and expedite international maritime traffic, and to prevent unnecessary delays to ships, persons and property on board;
- (b) To co-operate in the formulation and application of measures for the facilitation of the arrival, stay and departure of ships;
- (c) To co-operate in securing the highest practicable degree of uniformity in formalities, documentary requirements and procedures in all matters in which such uniformity will facilitate and improve international maritime traffic and keep to a minimum any alterations in formalities, documentary requirements and procedures necessary to meet special requirements of a domestic nature;
- (d) To co-operate with each other or through the International Maritime Organization in matters relating to formalities, documentary requirements and procedures, as well as their application to the international maritime traffic.

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(\*13) *Convention on Facilitation of International Maritime Traffic (CFIMT) adopted by the London Diplomatic Conference under the auspices of IMO in 1965 and entered into force on March 5, 1967.*

## B. FACILITATION OF TRADE DOCUMENTATION.

International trade operators are more and more concerned with the complexity of procedures and the volume of paperwork associated with the movement of goods. It has become obvious that unwieldy procedures contribute to port congestion or insufficient productivity.

Although ports and customs authorities are not always directly responsible for the proliferation of procedures and related documents, ports constitute compulsory convergence points where those procedures operate in connexion with the physical transfer of the cargo from one mode of transport to another and the consequential transfer of responsibility between operators.

Such transfers are inevitably complex in view of the number and variety of interests which gravitate towards goods under transport. Taking export as an exemple, the following parties can be identified:

(1) The EXPORTER:

whose primary interest is to have his goods loaded on board without delay so that he can obtain the Bill of Lading he needs for getting paid;

(2) The INLAND CARRIER:

or pre-carrier, who strives for a speedy turn round of his vehicles and needs a cargo receipt certifying that he has executed the transport contract;

(3) The FREIGHT FORWARDER:

an "architect" and co-ordinator of cargo movement, who books the space, supervises the delivery of goods, complies with customs formalities, prepares the documents required by the exporter;

(4) The STEVEDORE:



who plans and arranges the loading and stowing of cargo on board the ship;

(5) The SHIPOWNER:

who is anxious to speed up the ship's turn round and to receive all information required for the issue of Bills of Lading as soon as possible;

(6) The PORT AUTHORITY:

who is responsible for the movement and docking of ships, the warehousing of goods before loading, the collection of port charges etc.;

(7) The CUSTOM AUTHORITY:

who controls exports and imports, sees to the accomplishment of various administrative formalities, collects imports and exports taxes and duties;

(8) The OTHER PUBLIC AUTHORITIES:

responsible for the quality of packaging control, sanitary or phytosanitary control etc..

Outside the port precincts, other parties also have a direct interest, although differed in time, in the movement of the goods, e.g. foreign trade control authorities, exchange control authorities, statistical departments, banks, insurance companies, etc..

The physical movement of goods is therefore accompanied by a parallel flow of information related to the goods and their means of transport.

If one of the interested parties does not receive in due time the information needed (e.g. if the original B/L has not been received by the importer, if the exporter licence is not attached to the export customs entry, etc.), the cargo movement stops, parking and staking areas or warehouses become congested, ship's loading or

unloading is slowed down and the ship's movement is delayed.

Such inconveniences become more obvious, as advances in transport technology permits a faster flow, whereas methods of transferring information remain unchanged. Moreover, even if the cost element is not always clearly appreciated, the preparation, transmission and processing of documents required in import or export transactions are costly; due to the lack of co-ordination, in most cases each party has designed its own need, which means that paper size, format and presentation might vary from one party to another; as a consequence, the "data providers", as well as the users are compelled to separately fill in, or to recopy several times, the great number of forms required in the course of the procedures.

Trade facilitation is aimed to look for solution to these problems. It involves the rationalization and co-ordination of the information flow with a view not to impend the flow of goods and to reduce the ancillary costs associated with it. All parties involved, shippers, freight forwarders, port and custom authorities, road transport operators, etc., have to co-operate in the trade facilitation effort.

#### VIII. ROLE OF THE CUSTOMS AND PORT AUTHORITIES(\*14).

In addition to a number of interested parties, both the port and customs authorities are involved in the flow of

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(\*14) *UNCTAD Special Programme on Trade Facilitation (FALPRO) paper (1982-11-23).*

goods; each entity has its own functions. These are well distinct in practically all the ports of the world. In some cases however some duplications arise.

In general terms, the customs essential function is to ensure a proper application of the customs tariff in order to protect the national economy and to procure budgetary resources to the Government. Additional tasks entrusted to customs arise from the fact that its agents are permanently located at the country's boundaries: these tasks concern the protection of "public order" and include all control measures applied to goods, capital and persons moving across the border.

As far as the movement of goods is concerned, the main responsibility of the customs is to ensure that goods do not enter into circulation in the country without customs clearance and payment of duties and taxes. The customs administration generally performs this function through:

- (1) The supervision of the ships' movements, in order to avoid any illegal unloading of cargo outside specific designated places;
- (2) The supervision of unloading of the ships, to ensure that import duties and taxes are collected for all discharged goods;
- (3) The supervision of the transit sheds or open areas where goods are temporarily stored pending customs clearances. This includes not only the inventory control of packages but also a general surveillance aimed at avoiding any illegal tampering with the goods, substitution, etc.
- (4) The physical inspection of the goods in order to check the exactitude and completeness of the particulars entered on the custom entries by the clearing

agents, with a view to determine the dutiable value of the goods and to assess the exact amount of duties and taxes to be paid;

- (5) The supervision of the deliveries, to ensure that all goods leaving the port have been cleared and that applicable duties and taxes have been paid;

As regards the port authority, apart from its role in the construction, maintenance and operation of the port installations in order to ensure the safety of ships and an efficient movement of the cargo, he is in most cases responsible for receiving, handling, storing and delivering the goods. This responsibility has a twofold aspect: first the port authority is normally responsible vis-a-vis the customs for the payment of the duties and taxes due for any goods which have been taken to the transit sheds and later cannot be presented for clearance (whether they were stolen, destroyed or otherwise disappeared); secondly the port authority is responsible vis-a-vis the consignee who is entitled to take possession of the goods on evidence of his ownership upon them.

It should be borne in mind, however, that since the basic functions performed and the objectives aimed at by the two entities differ by nature: the method of work, the specialized training required etc.. Should customs agent be entrusted with sheds management function? A solution which existed in our countries in former colonial times but has long been abandoned in most countries. This would not discharge the port authority from its responsibilities vis-a-vis the consignee, which means that the port authority is also responsible for improving the services rendered, increasing the produc-

tivity and reducing the cost for port operations. The port authority therefore has to keep full control of the operations, to set up norms specifying in which way the various tasks should be performed, to supervise the day-to-day routine operations in the sheds, etc.. How could such supervision be compatible if a reduction in the duplication of work is not evident?

## CHAPTER FOUR

### POLICIES ON MARITIME ASSISTANCE PROGRAMS.

#### I. GOVERNMENT ASSISTANCE.

Whatever the form legal organisation of shipping companies is, whether state-owned or privately-owned, a greater or lesser amount of government regulation goes along with each company. The degree of such a regulation varies from nation to nation and so does the competent public authority. Safeguarding the public interest is the major justification for public regulation of shipping companies. The public interest changes both within and among nations, hence regulations arising from it must change along with it in order to be and remain effective. Shipping company goals and national policies are not always clearly defined because they are often perceived differently by different groups. Yet this does not violate the assertion that such goals and policies exist and that they become guides to actions for the organisations concerned.

A close association does exist between governments and their national merchant fleets. The mutuality of interest prevails because of the impact each exerts upon the nation's international economic and political activities.

My government should believe, like many others, that a national merchant marine is as basic to our national

economy and defense interests as our other modes of transport. A national merchant fleet is believed to be of vital economic and importance to many government in the world and, in order to ensure that these interests are upheld, many governments have developed myriad aides and subsidies in support of their merchant fleets. It has been found that, almost without exception, that the governments of nations possessing merchant fleets, wether state-owned or privately-owned, offer some form of special assistance to their maritime industries. The thrust of such assistance varies considerably among nations in the maintenance of their merchant fleets on a viable basis.

Few of the nations that have merchant fleets, enjoy a comparative cost advantages in ocean transportation. Costs of ships construction, capital cost involved in acquiring ships, costs of wages and social services, interest charges varies tremendously from country to country. Where a nation has an advantage concerning a particular cost factor, that nation may probably suffer from disadvantages in an other cost area. For these reasons and to overcome such cost disparities as may exist, practically all of the maritime nations provide some form of direct and/or indirect assistance to their shipping and shipbuilding industries.

#### A. DIRECT AND INDIRECT GOVERNMENT AIDS.

Direct and indirect government aids to the maritime industry are in essence a macroeconomic approach. This approach has a social-order promise because it is fundamentally linked to the national economic policy. The implementation of this macroeconomic approach is normal-

ly based on the public law and enforced through government agencies. Financial considerations may be secondary to the overall national interest; national economic considerations are foremost in determining the extent and degree of maritime aids to be provided.

It is apparent that almost all maritime nations have had to grant some form of assistance, financial or otherwise, to maintain their fleets and to compete as effectively as possible in an industry as highly competitive as international shipping. These aids to shipping and ship-building industries are illustrated below, although their forms may vary:

- (1) Operating subsidies.
- (2) Construction subsidies.
- (3) Trade-in allowances.
- (4) Government loans at low interest rates.
- (5) Interest subsidies - the difference between the interest rates charged by commercial banks and incentive rates established by the government.
- (6) Official loan guarantees.
- (7) Accelerated depreciation.
- (8) Tax-free reserve funds.
- (9) Duty-free imports on materials for ship construction.
- (10) Cargo preference schemes.
- (11) Sabotage restrictions.

#### B. SOCIAL, ECONOMIC AND POLITICAL ASSISTANCE.

In addition to the previously mentioned government aids, there are a number of social, economic, and political types of assistance methods. For illustrative purposes, the following are some examples:



- (1) Schools for the training of merchant seamen.
- (2) Hospitals and medical care for merchant seamen.
- (3) Social security family payments to seamen in addition to stated holiday or vacation payments.
- (4) Laws requiring the construction of national flag ships only in domestic shipyards for operations in the nation's domestic and foreign trades.
- (5) Laws regulating the operations of national flag ships and those of foreign flags in a country's domestic and foreign trades.

The great trading nations are also the great maritime powers of the world and they consider their merchant fleets and shipbuilding facilities indispensable to their welfare. The nations, which because of limited national resources, have taken to the sea and developed huge fleets of merchant ships which serve not only their own foreign trade, but also transnational trade resulting in substantial contribution to their international balance of payments and in playing an important role in sustaining their national economics. Attempting to follow the same patterns, my country should utilize direct and indirect subsidies to establish our maritime industry so as to conserve our foreign exchange, improve our balance of payments position and assist in increasing the exports of our principal commodities in order to bolster our economy.

#### C. PROPOSALS.

The Comoros Islands are a small a country heavily dependent on ocean transportation for its subsistence because most islanders' foodstuffs and consumer goods are imported. Maritime transportation is extremely important to

the islands' economy.

The transnational ocean fleet is owned by the government and operated by a state-owned company. The purpose of this section is to introduce a model - a government owned, nongovernment-operated shipping enterprise. This kind of arrangement may be useful for my country as a maritime-developing country.

First of all the shipping company should have the four following objectives:

- (1) To enhance the social and economic welfare of the people of Comoros.
- (2) To provide a modern and efficient ocean transportation service.
- (3) To foster the development and expansion of industry and commerce of Comoros.
- (4) To operate the fleet on a self-supporting basis.

Whatever the fleet the company will own, the authority will enter into a management service with a nongovernment ship operator. The management operator books the cargo, contacts the customers and operates the ocean fleet on a day-to-day basis. Its management contract provides incentive compensation designed to increase efficiency in operations and effectiveness in management.

Direct government participation in maritime transportation is not new. Shipping service is so important that its provision has long been regarded almost everywhere as a responsibility in some degree of a nation. With respect to the merchant marine in my country, public ownership predominates over private ownership. The question of government ownership of the shipping enterprise in a com-

petitive economy has been by no means a purely academic matter even though private ownership has generally been accepted in the world.

The advantages and disadvantages of government ownership and operation are discussed below. The principal advantages are:

- (1) The advantage of government ownership subject to little qualification is that it would make an adequate supply of capital available for a company. The enterprise is said to normally need a capitalisation of hundreds of million dollars. Large sums of money could be readily obtained by the government investment and the credit guarantee. Capital can also be secured under private ownership when the prospects for earnings are bright enough, but the money supply would be more certain under government ownership. In the case of my country where the private capital accumulation is little, this would be an especially significant advantage.
- (2) It helps the government meet social, economic and developmental objectives. Under government ownership, the motive of management would probably be service rather than profit.

The common disadvantages are:

- (1) Because of red tape and strong political interference with management, public transport has theoretically offered low quality service. Almost no maritime developing country with a democratic constitution has succeeded in maintaining a permanent severance between management and direct political control.

- (2) It is also possible that the incentive toward efficiency would be weakened by government ownership and operation even if the management were free from arbitrary restraints and political influences. Under private operation, profitable results are demanded and, if they are not forthcoming, managers will not be rewarded or they may be discharged. Under government ownership, insofar as incentive is inadequately rewarded and mediocrity is inadequately penalized, public management would tend to be less efficient than privately-operated shipping enterprises.
- (3) Furthermore, the consolidation of ownership and operation by the government is unnecessary on practical grounds and is not warranted on theoretical grounds. It is not needed from a political or from an economic point of view; neither is it required from an economic point of view in many of the maritime developing countries.

The arrangement with a government-owned and privately-operated shipping enterprise should prove effective in a free competitive economy.

## II. MANAGEMENT POLICY(\*15).

Merchant shipping is a specialised and technical business. Its complexity has increased during the last ten years by the extensive new conventions developed by the International Maritime Organisation (IMO) and the International Labour Organisation (ILO), designed to improve safety and social conditions.

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(\*15) *Managing ships, JOHN DOWNARD*  
*(Fairplay Publications) 1984.*

SAFETY and EFFICIENCY are integral to good management. They can only be the result of a structured, painstaking policy and a combination of the right skills, knowledge and experience. The direct involvement of decision-taking management in these matters is vital. The attitude of an Owner and/or senior management is reflected in company policy and thus directly in the work of the company employees. The initiative must therefore come from the top.

#### A. THE COMPETITION.

There is no question that some shipowners and managers are in a more advantageous position than others. They can choose their country of operation, the country of registry of their ships, buy ships wherever they wish, take advantage of building subsidies and tax laws, and engage crew from a number of countries at relative low costs.

They may even be able to run ships at a very poor record and yet still be able to obtain full insurance at competitive rates and obtain business for the ships from reputable operators. Some even have the monopoly of carriage of their country's cargo and therefore do not have to be competitive at all. All this, while others, whether they like it or not, have to run their ships according to strict rules and other restraints and they have no subsidies or tax advantages, nor choice from where they buy their ships or engage their crews.

Thus some have to strive harder to be competitive with so many disadvantages the only way they can survive is to be more efficient than the others.

But these advantages and disadvantages aside, the ship

manager's job is to make the best of what is available to him. Thus having been given ships to manage he has to decide the best way to manage them.

## B. THE DECISION.

There are four ways one can manage a ship: safely, dangerously, efficiently and inefficiently, and as one would expect, any number of variations in between. Availability of money is often a key factor, associated with the owner's long and short term plans and policies.

Assuming the owner does want his ships to run as safely and efficiently as possible under his particular circumstances, then he would make his decision on how he wants them managed in the light of the following seven prime factors:

(1) The number of ships to be managed.

It is an important factor because if only one or two are owned it may be economical to subcontract all or part of the management functions.

(2) The type of ships.

Different ship types often require a different type of expertise, particularly technical, so that if we are taking on a new type we will again have to consider how best to provide that expertise. If we are starting with a new fleet, we will have to provide appropriate expertise for the ship types.

(3) The age and development of the ships.

Ships of the same age will differ in the amount of technical development, although in general it can be said that the younger the ship the more efficient it will be. Thus the age and stage of development will have a bearing on the crew choice, technical experti-

se requirement ashore, and the amount of control systems which can be installed.

(4) The number of years intended service.

It will have a bearing on any maintenance plans and the installation of control systems. The older the ship and the shorter the time in service, the less effective will any planned maintenance or control system be.

(5) The crews available.

It will depend much on whether we have a choice. If we have to use the crew from the country of registry and they are not highly trained, then it may be dangerous to put them on a sophisticated ship where they will not be able to use the equipment efficiently. Similarly we will be limited in the amount of control we will be able to maintain effectively. On the other hand a highly trained crew would be wasted on an old, unsophisticated and labour intensive ship.

(6) The funds available.

This is often a limiting factor in any management decision. The funds available are usually related to the surplus after earning and operational costs, and can therefore vary considerably with time, ship type and operation. Funds will affect the choice of the crew type, if there is one and this will influence the way in which the ship can be controlled. Lack of funds can also effect the installation of control systems, including the communications systems, although from a long term point of view they will be beneficial.

(7) The management experience available.

We may wish to operate ships with tight control and regulation, but if we do not have staff capable of installing and maintaining such systems, we will have

to lower our target or seek the expertise elsewhere.

From this it can be seen that there are a number of choices, but any decisions on how to manage a ship, or ships, should relate to the seven factors, with emphasis on the balance between the ship, the crew, the shore staff and the systems.

### C. SIMPLICITY AND SIZE.

Shipping is a **DETAIL** industry, not only in the many tasks involved, but in the amount of information essential to carrying out those tasks. It is also an industry in which **RESPONSIBILITY** plays a large part and this demands regulation. Although the basics of regulation are provided by the government and some industrial institutes, there is still a need for much self regulation in detail by the shipowner. It is also a **COMMERCIAL** industry and this demands control, not only of what is done, but of what is spent. But most important it is a **HUMAN** industry in which people on ships have an unusual and vital role. The way in which they work and live together has a large bearing on the success or failure of shipping companies. As can be imagined, there is considerable scope in all this for the overdoing or underdoing. For developing large organization and systems, or employing experts beyond their required need. Or for trying to run ships on a shoestring, in the mistaken belief that ship management is only a matter of flair, or that there is no need to bother with detail or people.

Lessons learned from other industries and the shipping industry itself, there are some things which are clear: someone has to be responsible for the ships and the basic



functions must be covered. All functions or part can be subcontracted and this should always be considered as an alternative when organizing or re-organizing a company.

But the two most important factors are simplicity and size:

Whatever the organization and its associated systems, the owner and his staff should always seek, and continue to seek, the SIMPLE way. Safeguards should be built in to prevent a system and organization from becoming larger than it needs to be. Staff should always question the need for anything that creates work but does not produce results.

In the same way that the philosophy "small is beautiful", has become popular, small management units have been found to be more effective in carrying for ships. Focus attention on the ship as the prime unit has proved beneficial and has re-emphasised to ship managers, that the ship is the most important unit of the shipping company. Without ships there would be no shipping companies. Similarly, without competent staff ships would not be run properly.

There is no one way to run a shipping company, but there are some right ways and some wrong ways. It is hoped that the good owner and manager can tell the difference.

#### D. RECOMMENDATIONS.

The purpose of these recommendations is to provide a broad framework of good practice against which management in our shipping company, SONATRAM, may change its own organization and procedures. I intended it to be used,

either as a check-list or as a framework for reviewing our company's methods. Adherence to the following recommendations will make sound commercial sense. By meeting at least the minimum standards, our company will ensure that its ships are available for trading to the maximum possible extent. Time lost through accidents, avoidable damage, correcting deficiencies, detention, or crew unrest means more expense and less business.

For the safe ship operation and good management, the recommendations are:

1. Technical aspects.

1.1. Strong commitment to safe ship operation and prevention of pollution should be a paramount principle for the management and all serving on board ships. A proper organisation is necessary, in order to ensure a consistent approach both to the care of the physical state of the ship and also to the manner in which it is operated. A department or suitably-experienced persons ashore should be made responsible for those aspects from the shore standpoint.

1.2. Management, through the responsible department or person, should ensure that the following is all in order and that they should be familiar with the technical aspect of:

- (a) The structure and stability of the ship, and the safety related equipment on board;
- (b) Specialised equipment carried, particularly cargo handling system and navigational aids;
- (c) Documentation required to be on board, either because it attests that the ship is up to recognised standard (e.g. certificate of survey, crew certificates, etc.) or because it

is necessary for the safe and proper operation of the ship (e.g. charts, guides, manuals). Care should be taken to ensure that documentation is up-to-date. Where some of these responsibilities are delegated to the Master, management should give him full support in carrying them out.

- 1.3. Safety and operational policies should be clearly defined and publicised to all employees. They should be raised as a regular item for discussion both at management meeting ashore and at safety meeting on board.

## 2. Shore-based personnel.

- 2.1. Management should ensure that the relevant shore-based personnel:

- (a) Are aware of the basic technical aspects of the ship and its operation (as in 1.2) and are prepared to respond to the technical and operational needs of the shipboard personnel at all significant decision stages, e.g. from ship design/ordering to actual day-to-day operation;
- (b) Provide for a full free exchange of information between shore and ship, particularly on any relevant navigational or operation matters, new technological developments, overall ship safety and personnel safety;
- (c) Understand fully the implications of commercial decisions, in terms of the safety of the ship and the possible effect on the marine environment; d) Make adequate provision for the crew members' well-being, e.g. proper accommodation and recreational spaces, proper

- catering arrangements, and medical care;
- (e) Regularly review procedures to ensure compliance with all the items in these recommendations.

### 3. Ship-board personnel.

3.1. There should be a clear and planned approach to "personnel" matters concerning the crews employed on ships operated by the company. It is a direct management responsibility to provide ships with qualified and reliable seafarers and to give them additional training if required.

3.2. Specifically, management should ensure that the crew members:

- (a) Are sufficient in number to perform the tasks required of them, bearing in mind the basic principles and guidance contained in IMO Resolution A. 481 (XII) and the need for proper duty/rest periods. (Allocation to specific tasks on board should remain the responsibility of the Master);
- (b) Are medically fit and have the requisite basic qualifications and experience in accordance with the Convention (STCW) and the Resolution adopted by the Conference on the Training and Certification of Seafarers in 1978;
- (c) Have a proper knowledge of the technical aspects of the ship and its operation as necessary for the performance of their duties (as in 1.2);
- (d) Receive any necessary additional training, either in company procedures, or for familiarisation with the particular ship or equip-

ment;

- (e) Continue at regular intervals to receive information, and where necessary training in order to bring them up-to-date with new technological and other developments;
  - (f) Maintain close communication with the shore-based personnel on any relevant navigational or operational matters;
  - (g) Are provided with up-to-date navigational and other documentation in a language or languages fully understood by the crew;
  - (h) Are regularly reminded of the need at all times for the safe and clean ship operations, and for personnel safety on board;
- 3.3. Where the Master finds that the points listed in 3.2 are not satisfactorily covered, for whatever reason, it is important that he take corrective action and/or raise the matter with management, as appropriate.

#### 4. Emergency procedures.

4.1. It is important that the authority of the Master to take action in the event of an emergency involving the ship should not be compromised. Proper arrangement should be established which ensure an effective response to the incident, both the crew on board and by the shore-based company organization.

4.2. Management and the Master should ensure the development of:

- (a) Proper on-board emergency procedures, including regular and realistic drills;
- (b) Proper emergency back-up system ashore, including an effective machinery for responding

to the emergency;

- (c) Proper procedures to be followed both by the ship and shore personnel concerning calls for outside assistance, including particularly the engagement of salvage services;
- (d) Reporting-back arrangements for all emergencies and near-emergencies;
- (e) A system which will enable an incident to be assessed properly and any lesson to be learned.

4.3. Management and the Master should ensure that the procedures outlined in 4.2 are fully understood and adhered to.

## 5. Communications.

- 5.1. It is important that management, including senior management, regularly communicates with sea going employees. Management representatives should visit each ship from time to time in order to review practices and procedures on the spot. Seminars and briefings for appropriate personnel might also be organised.
- 5.2. The objective should be to "motivate" seagoing employees by providing information in clear, digestible form on a regular basis, not just in a crisis. The information should cover the company's policy on safety and operating practice, and condition of employment. It is essential for a climate of mutual trust to be built and maintained.
- 5.3. Management should develop effective two-way communication between shore based and shipboard personnel; and should ensure that technical and company information passed to the ship is properly

disseminated and reactions obtained.

6. Guidance.

- 6.1. In parallel with the growing number of regulations, an ever increasing amount of guidance to companies operating ships is becoming available in one form or another. This creates considerable difficulty for companies in keeping abreast of paperwork which is published.
- 6.2. In terms of national regulation, management will need to be familiar with the relevant legislation and guidance in (1) the flag state and (2) states and ports visited by the ship.
- 6.3. Internationally, management should be familiar with the basic contents of the accepted "package" of international instruments. This includes such Conventions/Protocols as SOLAS, Load Line, MARPOL, Collision Regulation, ILO Convention 147, and STCW.
- 6.4. Also of direct importance to management is the guidance issued by national and international industrial organisations, both in regard to the general operational practice and to specific technical detail. These include technical guides concerning ship operations, navigational check--lists etc..

## CHAPTER FIVE

### FINANCIAL MANAGEMENT OF MARINE PROPERTY AND EQUIPMENT

Marine transportation is an extremely intensive capital investment industry. Ocean going ships have a substantial degree of resource mobility in a free-entreprise economy. The world capital market is a diverse subject consisting of numerous resources. Capital flows into areas where the largest returns are earned. The shipping industry must compete with other industries for capital resources. The financial activities are not static in nature and the same solution cannot necessarily be repeated. What is feasible at one time may prove to be a serious mistake when tried again. There are no infallible patterns, only general guides which may or may not be appreciable to a particular case. Financial executives of maritimes firms should be familiar with various dimensions of financing in order to better accomplish goals and objectives.

#### I. FINANCIAL STRUCTURE STRATEGY.

In the process of acquiring capital each shipping company has shown its own particular method of raising money for its operations. The resulting capital structure is an outgrowth multitudinous internal and external forces and the choices exercised by a series of managerial decisions. Companies are occasionally financed by the use of common stock; others are sufficiently risk free to use bonds. Some companies are very conservative in their



method of financing while others use the various types of debt securities as long as they can be marketed. Some shipowners avoid financial risks; others welcome them.

Through a not sweet experience, shipping companies have learned that excessive debt can be disastrous and that careful analysis is essential. Patterns of capital structure have evolved in different companies based on previous results and projected expectations. Large companies in the maritime industry have different capital structures and may react differently to same change in the economic outlook. There are eight important principles or factors in financial structure strategy. Each of the principles suggested is not equally important for every company. In some instances one or more of the suggested principles may be irrelevant. Special circumstances may bring additional principles into consideration. The various principles verbalize forces that are not necessarily harmonious. Various forces push the company toward the use of debt securities. Other forces work in the opposite direction. All of the objectives cannot be pursued at the same time. To achieve more in one direction, something usually has to be given up in another direction. The eight major principle of capital structure strategy are:

- (1) To avoid the dilution of equity and the possible loss of control.
- (2) To maintain a reasonably, but not overly, conservative capital structure.
- (3) To keep the cost of capital low.
- (4) To employ financial leverage.
- (5) To avoid possible failure in the payment of excessive fixed charges and other obligations.
- (6) To take the advantage of government influence.

- (7) To maintain a flexible capitalization and capital structure.
- (8) To manage proper marketability and timing.

The final choice of the types of financing (Common Stock, Preferred Stock and Long-Term Debt) to be included in the capital structure of a shipping company depends upon the objectives of management and the desires of investors who supply the capital. Management determines those sources which would be most favorable to financing and then attempts to obtain the money in the market. On the other hand, by affecting availability, the investors help to determine the capital structure of the company.

The preceding principles set the framework within which management on one hand and the investors on the other make the decision on the capital structure of the company. All of the objectives normally cannot be pursued at the same time. To achieve more in one direction, something must be given up in another direction. The Figure 1 shows various sources of capital in relation to these factors.

Because of various uncertainties associated with the expansion of fleet and other marine facilities, the management of a company is not likely to propose a new investment unless expected returns are somewhat higher than the cost of additional capital. An allowance of uncertainty is applied in determining the capital structure. It is not considered strategic to push leverage to the point that it may be raising the average cost of capital. Such a policy likely only in case where it is the only way to raise money for an expansion program.

FIGURE 1.  
FACTORS OF CONSIDERATION IN SELECTING  
VARIOUS SOURCES OF CAPITAL

	Common Stock	Preferred Stock	Long-Term Debt
To Avoid Dillution of Equity and the Possible Loss of Control.....		X	X
To Maintain A reasonably but not Overly Conservative Capital Structure:			
Companies Having Relatively Stable Earnings.....		X	X
Comapanies Having Relatively unstable Earnings..	X		
To Keep the Cost of Capital Low.....		X	X
To Employ Financial Leverage.....		X	X
To Avoid Possible failure in the Payment of Excessive Fixed charges and Other Obligations...	X		
To Take the Advantage of Government Influence:			
For Tax Savings.....			X
For Other Privileges.....	X	X	X
To Maintain A Flexible Capitalization and Capital Structure.....	X		
To Manage Proper Marketability and Timing.....	X	X	X

*Note: The marks are based on generalizations about the various sources of capital as most commonly used. This is not meant to imply that the relative risk, cost, control, timing and flexibility would be considered separately under any given circumstances.*

*Source: Philip C. CHENG, Ph. D., C.A.,: Financial Management in Shipping Industry (P.80).*

## II. COST OF CAPITAL.

The fact that capital, one of the factors of producing shipping services, has a cost that has been accepted by economists throughout the countries. It is a subject of great importance in financial management. The cost is a result of the supply of capital available relative to its demand. Economic rationality requires that the planned use of capital produce a rate of return sufficiently high enough to at least pay the current market cost of the capital. In the process of optimizing the earnings of a

shipping company, it is to be anticipated that the capital of the enterprise will be acquired at the most economical rate, that no more will be paid than is necessary to obtain the money. This principle applies not only to existing capital but also to any expansion that a company contemplates.

The cost of capital is essentially composed of two types: (1) Opportunity cost and (2) risk cost. The opportunity cost is based on the concept that the present value of money is greater than its future value. Giving up the opportunity to use capital to fulfill one's immediate needs involves sacrifice and, therefore, the supplier of capital deserves compensation for this sacrifice. The risk cost is under the assumption that whenever the owner of capital invests it in any kind of venture, there is always some risk of losing part or all of the capital. It is only logical, that the provider of capital be compensated for carrying the burden of risk.

The cost of capital for a company is simply the rate that it has to pay to influence the investor to let the company use this money rather than another. The investor, in general, has a wide range of choices from which he may select to invest his money.

Whenever an expansion of a fleet is contemplated, the management of a shipping firm must ascertain the cost of capital in order to determine whether the proposed expansion is warranted. Some sort of comparisons, quantitative and qualitative, must be made between the additional earning anticipated and the added costs entailed. The lower these costs the more likely that an expansion will be undertaken.

The cost of capital includes the contractual payments that must be made for debt and preferred stock. To this must be added the return expected by the common stockholders. The costs associated with different types of financing are interrelated; that is, the cost of each type depends on the proportions of others in capital structure. But there are certain characteristics unique to each method of obtaining money and a separate treatment of the individual sources of financing is needed before their interrelationship can be analyzed.

The cost of capital and the means used to measure it are significant to the shipping industry. If the measures of the cost of capital are defective, so that cut-off rates generally too high, the industry may not grow as rapidly as it might. Total investment in new ships and other marine facilities will be lower than economically justified. If some companies employ cut-off rates that are too low, they will divert resources from more productive to less productive uses.

One of main reasons why companies have such ineffective capital expenditure programs is the failure on the part of management to know what the company's cost of capital actually is. The principal types of out-of-pocket costs associated with the acquisition of capital through the financial contracts of the fixed return types of securities can be classified as follows:

- (1) Periodic payments to the holders of bonds and preferred stock in the form of interest or dividends.
- (2) Any payment, which is referred to as the spread or commission, to the underwriters of the issue as compensation for their services in marketing the security and for assuming the risks associated with a pub-

lic offering.

- (3) Other costs such as legal and printing costs incidental to the making of the contract which are paid by the issuing company.
- (4) Any payment to bondholders at the retirement of an issue in excess of the amount originally provided by the investors(\*13).

### III. CAPITAL EXPENDITURE DECISIONS.

The success or failure of the company is dependent partly upon the right decision in committing capital for the acquisition of ships and other marine property and equipment. These investment decisions deserve a special attention of top management since management is constantly faced with limited amount of resources to apply to a wide arrangement of investment proposals. Therefore, to satisfy some basic management functions - planning and control of capital expenditures - projects must be selected which will optimize profits and at the same time fit the company's overall objectives.

#### A. PLANNING CAPITAL EXPENDITURES.

Management must be concerned with the problem of how to allocate the financial resources of the company in order to achieve expansion. To attain this goal, there must be some criteria for allocating the available or potentially available resources among a multitude of possible uses and for determining the quantity or amount of the expansion and replacement.

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(\*13) According to Accounting Principle Board Opinion No 21 (USA).

## 1. STANDARDS OF COMPARISON FOR MANAGERIAL DECISIONS.

A vital part of planning for the acquisition of marine property and equipment is the examination of sources of capital. The internal source of capital is principally retained earnings. The managerial problems concerning this source are to forecast how much capital will be generated internally through profitable shipping operations and to decide how much cash to pay out in dividends. The total of capital from the internal source depends not only on the amount of earnings, but also the dividends policy and the reinvestment policy.

The sale of securities to the public and financial institutions is the primary external source of capital. This involves the estimation of the cost of capital, such as the determination of security market price, cost of flotation and the company's capital, as discussed earlier. Capital investment decisions should be analyzed in terms of cash flows directly traceable to them.

It should be noted that the value of an income producing asset is the discounted value of the projected stream of future earnings. The discounted value of the future earnings is generally stated as the total present value of each year's anticipated earnings for the life of a marine property or equipment. Alternatively, the rate of discount or the rate of interest is the rate which equates the acquisition cost of an operational asset with its anticipated future earnings.

The economics of an investment must be attractive to the decision maker. Projects earning a lower rate of return than the cost of capital will ordinarily have the effect

of reducing a company's earning per share. In order for a company to continue its growth, it is necessary that resources be diverted to those projects which produce a rate of return higher than its cost of capital. Therefore acquisition of all operational assets must be economically justified with an acceptable rate of return before any acquisition can be implemented.

## 2. EVALUATION OF ALTERNATIVE DIRECTIONS OF ACTION.

The dominante objective of any capital project is to earn a satisfactory return on its investment in marine property or equipment. The task of rating investment alternatives is normally not as difficult as the task of collecting reliable data that can be used in making an evaluation. Even with experience, it is not easy to make an accurate estimation of future returns and the rate that should be used in discounting. Each of the following steps, which are useful in the decision process, should be noted in the order presented:

- (1) Identification of alterantive courses of action (eliminate risk, better course of action).
- (2) Measurement of quantitative factors of alternatives (evaluation of technological aspects, competition performance).
- (3) Consideration of nonmonetary consequences (relevant data with respect to the investment cost, cash flow, economic environment market intelligence, unionized labor and national patriotism).
- (4) Examination of the problem of uncertainty in the judgment process (continual audit or review can be quite useful in managerial planning and control).

When faced with a decision, decision makers should



clearly identify the possible alternative future actions. Precipitate action involves the risk that one or more possible alternatives will be ignored. It is rather embarrassing to the decision makers to discover a better course of action after committing themselves to another.

### 3. INCOME TAX CONSIDERATIONS.

Income taxes are relevant to capital expenditure decisions because they represent cash payment, and they change every investment decision. There are two main impacts of income taxes:

- (1) On the amount of cash inflows or outflows and
- (2) On the timing of all cash flows.

The straightline, declining balance and sum of years' digits are the three most widely used depreciation methods. The two accelerated depreciation methods (declining balance and sum of years' digits) will normally maximize present values as compared with the straightline method. The tax savings are greater if the straightline approach is not used.

It is a common practice that a shipping company often uses the straight line depreciation method in external financial statements and the declining balance method or the sum of years' digits method in tax reports.

Tax planning is an integral part of good capital expenditures budgeting. To the extent that income taxes are reduced, the investment tax credit represents a subsidy to encourage investment in marine property and equipment. It can have a significant impact on timing of cash

flows. Sometimes, projects that are otherwise unfavorable can become attractive when tax incentive are considered. Any factor that speeds up cash inflows or slows down cash outflows of a specific investment will increase the acceptability of the investment.

#### 4. RISK AND UNCERTAINTY.

In making any managerial decision, particularly a decision that will have a long-range effect, there are always risk and uncertainty, the expectations, will be overturn by changes within the maritime industry or in the general economic environment. While it is not possible to anticipate all changes, simulative modes may be built with a computer being used as a tool to test various assumptions(\*16). Also, probabilities may be assigned to various possible changes.

Since it is very hard to evaluate the overall risk and uncertainty of a shipping company at the operating level, the evaluation of risk and uncertainty is often restricted to individual proposals. By increasing or decreasing expected cash inflows or outflows, management is able to adjust the desired minimum rate of return. When the minimum acceptable rate of return is derived, it will then be adjusted according to the outcome of the simulative probability distribution for possible, and hopefully probable, economic conditions in the future(\*17).

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(\*16) JEDRZEJOWICZ and ANDTROJNAR, *Lectures on Computer Assisted Decision making Optimization in Shipping*; (WNU - Sept. 1986).

## 5. TIME VALUE OF MONEY AND OPPORTUNITY COST.

One dollar today is worth more to an individual or a company than one dollar a year from now. It is not sufficient to estimate the amounts of money receipts and disbursements influenced by an investment decision. It is also necessary to estimate the times of the cash flows. This is the result of money having earning power which is available through alternative investments. A monetary unit at one date is not directly comparable with the same money unit in the future and will depend upon the rate of interest (return) on the invested money. It will also depend on the rate of interest at which the money will grow and the frequency at which it will be compounded.

In the capital expenditure analysis, opportunity cost should also be considered. The opportunity cost of an economic resources is the maximum amount which the resource could generate if applied to some other purpose. There are costs not actually incurred in an exchange transaction but still relevant to an economic event. Obviously the concept of opportunity cost is very important and useful to management in making decisions among alternative courses of action(\*18).

### B. INVESTMENT ANALYSIS.

Three important points must be emphasised before considering the methods commonly used. Firstly the value of

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(\*17) ROBERT SCHLAIFER, *Analysis of decision under uncertainty* (New-York: Mc Graw-Hill Book Company 1969).

any analysis can only be as good as the information used. Only in comparatively rare cases can the cash flows generated by the proposed project be forecast with reasonable certainty. In most cases the forecasts are only estimates and so any analysis can be as good as such estimates.

The second point is that financial analysis and indeed financial considerations as a whole are only one of the factors that a board of directors will take into account in making investment decisions. Thus although the methods of financial analysis form invaluable tools in assisting management to make the most advantageous investment decisions, it must not be thought that the results of these methods should be in any way the sole determinant.

Thirdly it should be born in mind when presenting the result of financial analysis to a board of directors that probably only a minority of them have had any formal financial training. It is therefore important that the results can be readily understood by those without detailed financial knowledge, which requires a simple and clear presentation of the results of the analysis.

#### 1. PAY-BACK METHOD.

The first, very simple method, is the "pay-back" which is still widely used in many businesses, and form more a measure of the liquidity (flow of cash) than of profita-

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*(\*18) Lectures on Investment Decisions, P. HOUSSIN.*

*(WMLU - 1986).*

bility. It is simply the number of years required for the cash generated by the project to equal the original outlay. Suppose a project of \$3,000,000 is expected to earn annual cash flow of \$1,000,000 (after all operating and management expenses etc.), and after which it will be sold for \$500,000. The net cash flow resulting from the project will therefore be as set out in Table 11. Note that the start of the project is denoted as year 0; the first year's trading as year 1, etc.. When the cumulative cash flow equals zero the pay-back point has been reached (See table 11).

Thus the pay-back is three years. However the net cash flows could follow a different pattern and still have the same payback period - two such examples are shown in (Table 12) which illustrate the two disadvantages of the method - its failure to consider the pattern of the cash flows within the pay-back period, and its failure to consider the cash flows following the pay-back period.

Table 11.

Year	Net Cash Flow - CASE I	Cumulative Cash Flow
0	(3,000,000)	(3,000,000)
1	1,000,000	(2,000,000)
2	1,000,000	(1,000,000)
3	1,000,000	0
4	1,000,000	1,000,000
5	1,000,000	2,500,000

Source: *Shipping Finance* by J.E. SLOGGETT. (Fairplay Publications - 1984).

TABLE 12.

:YEAR:	Net Cash Flow	Cumulative Net	Net Cash Flow	Cumulative Net
:	Case II	Cash Flow	Case III	Cash Flow
: 0 :	-3,000,000	-3,000,000	-3,000,000	-3,000,000
: 1 :	250,000	-2,750,000	1,000,000	-2,000,000
: 2 :	750,000	-2,000,000	1,000,000	1,000,000
: 3 :	2,000,000	0	1,000,000	0
: 4 :	1,000,000	1,000,000	2,000,000	2,000,000
: 5 :	1,500,000	2,500,000	2,000,000	4,500,000

Source: *Shipping Finance* by J.E. SLOGGETT  
(Fairplay Publications) 1984.

## 2. RATE OF RETURN.

This method is commonly known as the rate of return and is the ratio of the average annual income to the total investment. It is sometimes useful to compare alternative types of employment or different charter parties for a given vessel or vessels, but it is rather rough and ready method and lead to a considerable risk of not comparing like with like. There is also the risk that the rate of return calculated by this method will be confused with the rate of return calculated by more sophisticated third method below. Like the payback method it ignores the timing of cash flows and is not therefore recommended as general method of appraisal.

To illustrate the method one can use the project already described. The rate of return in each of the cases would be(\*19):

(\*19) *Shipping Finance* by J.E. SLOGGETT.  
(Fairplay Publication - 1984).

CASE I.	5,500,000	100			
	-----	X	-----	=	36.7
	5		3,000,000		
CASE II.	5,500,000	100			
	-----	X	-----	=	36.7
	5		3,000,000		
CASE III.	7,000,000	100			
	-----	X	-----	=	46.7
	5		3,000,000		

### 3. DISCOUNTED CASH FLOW (DCF).

This method can be applied in two ways but the basic of calculations is the same. The important advantage that this gives is that the timing of the cash flows are taken into account. The money received today by an investor (individual or company) is worth more than the same sum of money received at some time in the future. Money received today can be invested to earn interest whereas money received at some later date does not earn interest during the intervening period.

Suppose an investor can obtain 10% per annum on an investment. The \$1 today becomes \$1.10 after one year, \$1.21 after two years, \$1.331 after three years and so on as calculated below:

- First year:  $\$1 + (\$1 \times 10/100) = \$1 + (\$1 \times 0.1) = \$1 + \$0.1 = \$1.1$
- Second year:  $\$1.10 + (\$1.10 \times 10/100) = \$1.21$
- Third year:  $\$1.21 + (\$1.21 \times 10/100) = \$1.331$

One can also make this comparison the other way round - that is since \$1.10 in one year's time is worth \$1 today we can equally say \$1 in one year's time is worth:

$$\frac{1}{1.10} = \$0.9091 \text{ today}$$

This is known as the Present Value of \$1 one years time at 10% per annum, accumulated annually. Similarly the present value of \$1 in two years time for the same conditions is  $\$(1/1.21) = \$0.8264$ , and clearly the further away in time that the \$1 is received, so the lower is its present value. The lower the rate of interest the higher the present value and vice versa.

#### 4. NET PRESENT VALUE.

As already mentioned, there are two approaches to the analysis using DCF methods - the first is to sum the present values of the cash flows to find the Net Present Value (NPV) assuming a particular rate of interest, while the alternative is to find what rate of interest is required to give a NPV of nil, that is to find the rate of interest earned on the money invested in the project from time to time.

To use the NPV method one must first choose a rate of interest or discount rate. This is normally the minimum rate required by the investor and can be the rate of interest obtainable elsewhere, or being currently earned by the business, or expected by the shareholders. Suppose one chooses a rate of 10% and use this to calculate the NPV of the project - CASE I (Table 11).

Thus the project has a positive NPV of \$1,101,150 showing that it is now worth this sum more than an investment at 10% assuming the risk to be the same. If 10%



Table 13

Year	Net Cash Flow	P.V. Factor 10%	Present value
0	(3,000,000)	1,0000	(3,000,000)
1	1,000,000	0.9091	909,100
2	1,000,000	0.8264	826,400
3	1,000,000	0.7513	751,300
4	1,000,000	0.6830	683,000
5	1,500,000	0.6209	931,350
	2,500,000		NPV = 1,101,150

*Source: Shipping Finance by J.E. SLOGGETT (Fairplay Publication - 1984)*

represents the interest generally obtainable on investments with similar risks attached, then if the opportunity to invest in the project was sold to another company, the sale price should be \$1,101,150. If there are greater risks attached to the project then this would be a maximum figures.

One can also find the NPV's Case II and III of the project (See Table 14).

Comparison of cases I and II shows how the change in timing of receipts during the first three years is reflected in a change in the NPV which thus differentiates between Cases I and II, unlike the earlier methods of appraisal that have been described. Case III is shown to be the best project as one would expect. All three cases show a positive NPV and so if the discount rate used (10%) represent the minimum acceptable to the investor,

TABLE 14.

		CASE II		CASE III	
Year	PV Factor	Net Cash Flow	Present Value	Net Cash Flow	Present Value
	10%				
0	1.0000	-3,000,000	-3,000,000	-3,000,000	-3,000,000
1	0.9091	250,000	227,275	1,000,000	909,100
2	0.8264	750,000	619,800	1,000,000	826,400
3	0.7513	2,000,000	1,502,600	1,000,000	751,300
4	0.6830	1,000,000	683,000	2,000,000	1,366,000
5	0.6209	1,500,000	931,350	2,500,000	1,552,250

Source: *Shipping Finance* by J.E. SLOGGETT  
(Fairplay Publications) 1984

then each of the projects would be acceptable.

One point about the use of NPV method must be made:

- If it is used to compare projects with differing initial investment, the NPV's will clearly depend in part on the size of the investment.
- If earning the same rate of interest, they would be proportioned. Ranking can be therefore achieved by dividing the NPV of the cash inflows by the NPV of the outflows to obtain a profitability index. Thus for the Case I (Table I) one have:

$$\text{Profitability Index} = \frac{\text{NPV of Cash Inflows } 4,101,150}{\text{NPV of Cash Outflows } 3,000,000} = 1.36$$

and for Case II (Table 14)

$$\text{Profitability Index} = \frac{3,964,025}{3,000,000} = 1.32$$

## 5. INTERNAL RATE OF RETURN.

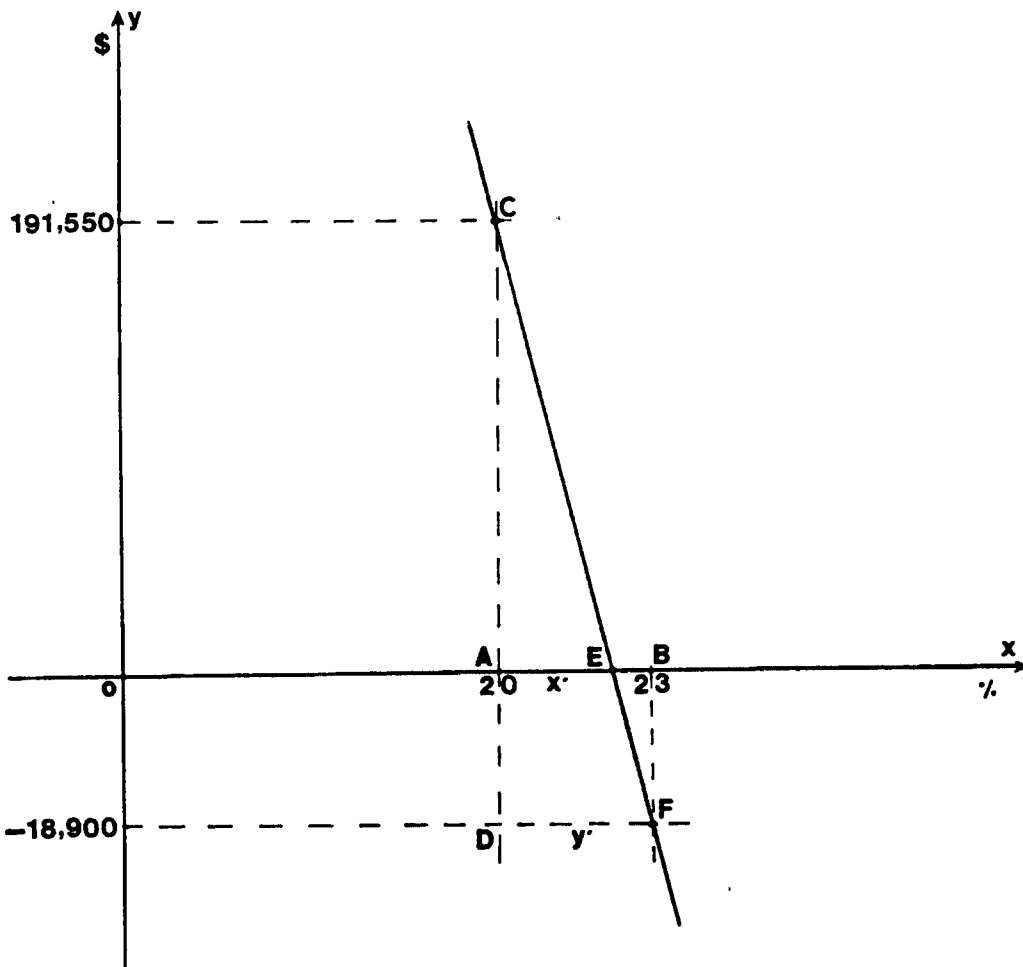
The alternative way in which DCF's can be used is to find the actual rate of interest on the money invested rather than determining whether or not this rate is above or below some standard figure. The actual rate of return earned on the money actually invested in the project from time to time is called the Internal Rate of Return (IRR) and the method is usually known as the IRR method. The advantage of this method over the NPV method is that it provides a more readily appreciated measure of the margin available in the project over the minimum return required or over a risk-free investment, the margin then being compared with the amount of risk attached to the particular project. The other advantage is that where a company wishes to use its cost of capital as the minimum acceptable rate, the problem of determining precisely what this rate is does not affect the DCF calculation whereas it must be as the basis of the NPV calculation.

The IRR is the discount rate which equates the present value of outward net cash flows with the present value of the inward cash flows. It is thus the discount rate that will produce an NPV of zero and so using Present Value tables (available showing PV over wide ranges of rates interests and periods) one can find this rate by trial calculation or interpolation. One shall demonstrate the principles by considering the project - Case I (Table 11), where one has already seen in table 13 that a 10% discount rate produces a substantial positive NPV (Table 15).

TABLE 15.

YEAR:	Net Cash Flow	PV Factor (20%)	Present value	PV Factor (23%)	Present Value
0	-3,000,000	1.0000	-3,000,000	1.0000	-3,000,000
1	1,000,000	0.8333	833,300	0.8130	813,000
2	1,000,000	0.6944	694,400	0.6610	661,000
3	1,000,000	0.5787	578,700	0.5374	537,400
4	1,000,000	0.4823	482,300	0.4369	436,900
5	1,500,000	0.4019	602,850	0.3552	532,800
	2,500,000		NPV = 191,550		NPV = -18,900

Source: *Shipping Finance* by J.E. SLOGGETT  
(Fairplay Publications) 1984.



$$OE = OA + AE$$

	AE	CA	AE	191,550	
-----					
	DF	CA+AD	20-23	(191,550+18,900	
			AE	191,550	
			-----		
			3	210,450	
			(191,550X3)	574,650	
	AE =			-----	= 2.730
			210,450	210,450	

$$OE = OA + AE = 20 + 2.730 = 22.730$$

$$IRR = 22.730\%$$

#### IV. COST-BENEFIT ANALYSIS(\*20).

When considering investments, differentiation has to be made between investment into suprastructure and investment into infrastructure. Investments into suprastructure (i.e. container bridges, straddle carriers etc.) are undertaken by port operating companies which may be private and/or governmentally controlled. The objective of these companies usually is to realize an adequate return on investment, i.e. they follow a monetary approach. Evaluation of various investment alternatives will be undertaken by means of quantitative appraisal methods.

Investment for example into port are characterized by the relevance to the regional or national economy. They mostly are undertaken by governmental bodies. The objec-

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(\*20) *Port Management Textbook, Containerization.*

*Book Series N. 10 (Institute of Shipping Economics and Logistics - Bremen 1985).*

tives of public investment are many and different, for example maintaining or increasing competitiveness of a port or of the ports of the respective country, maintaining employment for work force, creating of new jobs, improving the economic structure of the port region, reducing cost of transportation, reducing cost of cargo turnover, improving competitiveness of national industry, maintaining self-sufficient, etc.. The problem to be solved is how to quantify all these objectives and how to evaluate advantages and disadvantages. One method in use to support evaluation and selection of comprehensive project is the cost-benefit analysis. Similar to this are the cost-utility analysis and the cost-effectiveness analysis. These methods are aimed to establish ranking of various alternatives thereby supporting the selection of the optimum decision. The basic principle of the cost-benefit analysis is to determine and to compare all costs and benefits of each of the alternatives.

Characteristics of a cost-benefit analysis are :

- Comparison and evaluation of complex activities.
- Judgement of cost and benefits.
- Because of complexity of the problem analysis, may be restricted to main quantifiable and qualifiable parameters.
- The cost-benefit analysis should support political decision but cannot replace them.

The application of the cost-benefit analysis is connected with the following questions:

- Which cost and benefits arise and which of them shall be considered?
- How to appraise the parameters?

- Which is the discount rate? How the various risks are allowed for?
- Are there secondary factors or restrictions to pay regard to?

Goods and services which are spent by the investor are the so-called direct cost. As a rule their compilation is relatively simple. It is more difficult to establish the benefits resulting from the project. The problems grow in case indirect or intangible costs or benefits are to be included in the considerations.

As much as costs and benefits are measurable in monetary terms respectively are transferable into monetary terms comparison of the various investment alternatives often is done by employing the same discounted cash flow method as described in the previous sections. Another possibility exist in calculating cost-benefit ratio and comparing them.

Independent from the method applied factors also needs to be taken into consideration which cannot or should not be transferred into monetary terms. This especially is the case with intangible costs and benefits. Example for intangible effects are influences on private or public property through noises or ordures etc., response water pollution, improvement of fiscal situation through creation of jobs etc.. All non-monetary factors will be appraised qualitatively and included into the decision process. It may happen that the mathematically most beneficial alternative finally turns out to be a second best solution only.

Finally, also legal, administrative, distributive, and budgetary constraints need to be taken into consideration. With a cost-benefit analysis it is endeavoured to take into account all relevant factors and to generate an optimum solution which then will be recommended to the political decision makers.



## CHAPTER SIX

### CONCLUSIONS

#### GENERAL RECOMMENDATIONS.

Shipping can contribute to the socio-economic development of Comoros in the following areas:

- (a) Income from undertaking shipping services.
- (b) Linkage with other sectors of the economy.
- (c) Diversification of employment.
- (d) Reduction of economic dependence on other countries.
- (e) Promotion of exports.
- (f) Economic integration and co-operation among neighbouring countries.
- (g) Prevention of disruption of shipping services during emergencies.

Shipping development is a matter of finance, manpower and market access. Comoros does not have these resources and the capacity, while the neighbouring countries have a large pool of trained labour and/or management but lack of finance, others lack labour and management of the necessary quality and quantity but have access to finance or markets.

It is evident that the country, by pooling resources and entering into joint ventures and co-operative arrangements with other countries, would be able to increase its ownership in the tonnage and its participation in the carriage of its seaborne trade. Furthermore, pooling

of resources for this purpose secures profits accruing from economies of scale for the countries and provides the means of effectively exploiting their comparative advantage in the supply of shipping services.

However co-operation should be seen not as limited to the basic factor endowments but as a total combination of factors related to security of investments, access to markets, creation of linkages, reduction of economic distance and sound employment of vessels.

An inventory of the following forms of co-operation in shipping by Comoros should be compiled:

- (a) Multinational shipping companies or joint ventures between shipping companies of the neighbouring countries.
- (b) Joint investment funds.
- (c) Grouping of orders for ships.
- (d) Standardizing of equipment on an inter-country basis.
- (e) Joint management of the shipping company with other countries
- (f) Joint services/chartering or pooling of operations of the shipping with other countries.
- (g) Joint maritime training institutions.
- (h) Cargo pools.
- (i) Crew exchanges or pools.
- (j) Multicountry shipping investigation units.
- (k) Joint agency stevedoring agreements.

One can recommend that the Government not take steps towards an establishment of a deep-sea fleet under Comoran flag, even if this requires direct operating subsidies or other forms of protection, including reserving a

share of Comoran cargoes for Comoran vessels.

One can mention commonly used arguments for creation of national fleet are:

- An improvement of the balance of payments position in the trade in services.
- Creation of employment for seamen and officers.
- Expansion of employment in auxiliary industries.
- Strengthened national security.

None of these claims can be substantiated as justifying the creation of a national fleet sponsored or financed particularly or totally by the Government. They cannot be demonstrated quantitatively or qualitatively to provide an appropriate basis with respect to the creation of a deep-sea fleet.

#### BALANCE OF PAYMENT.

Comoros does not have any estimation of the cost of carrying Comoran oceanborne trade. Moreover, we do not have resources to export. Thus the share of Comoros' ocean freight bill which is presently effectively controlled by Comoros is substantially small in relation to the total freight bill because we do not have any sea-going vessel.

The use of Comoran flag vessels will not result in a complete recovery for Comoros of its effectively controlled portion of the deep-sea ocean freight bill which includes costs other than those directly related to the vessels. Port charges, pilotage fees, loading and discharging, storing and other costs will be incurred both in Comoran and foreign ports. Together, they will cons-

titute a significant part of the total bill. Despite such charges and their impact, positive or negative, our balance of payments would not be significantly affected by the creation of a Comoran flag fleet.

A Comoran flag fleet could contribute to our balance of payments only if it will be truly competitive on an international scale. Success in foreign trade, be it of goods or services, comes from concentrating on what we do particularly well relative to other countries and relative to the national economy. Unfortunately, deep-sea shipping under Comoran flag will do not enjoy a competitive edge over foreign flag ocean shipping, nor can it be demonstrated to constitute an attractive use of domestic resources.

For a Comoran flag deep-sea fleet to operate without substantial subsidies, it would be necessary to set freight rates at levels above international market rates. This means that it would be necessary to reserve cargoes for Comoran vessels. Such compulsory use of Comoran flag vessels would detrimentally affect the Comoran exporters' ability to compete in foreign markets (if we have resources to be exported).

In general, the balance of payments argument in favor of the creation of the Comoran flag fleet is spurious unless it can be shown that such a fleet would be fully competitive on commercial terms without any form of subsidies or cargo reservation.

#### EMPLOYMENT CREATION.

Deep-sea shipping is no longer a labour intensive indus-

try. Increased vessel size and productivity mean fewer vessels and reduction in the total number of men onboard. Vessel automation could further reduce manpower requirements. Because of the capital intensive nature of shipping, the amount of capital for each new position created per job would be high and significantly higher than in the economy at large.

More important, is the fact that Comoran wage levels are not considerably lower than prevailing wage levels in the majority of the shipping nations presently serving in our trades. Again, Comoran crewed vessels would require significant operating subsidies in order to survive in international services. This does not preclude the possibility that high cost vessels can operate successfully in certain specialized market niches.

It is of paramount important to recognize the fundamental significance of the availability of low cost shipping to our exporters in the future. Any attempt to finance job creation in the merchant marine through higher freight rates and cargo reservation would undoubtedly lead to job lost in our export industries in the future. Finally, it is a fact that job creation through subsidies gives rise to distortions in the allocation of society's scarce resources.

#### EMPLOYMENT IN AUXILIARY SERVICES.

It is often argued that for every job created in industry, additional jobs will be created in auxiliary industries supplying the sector directly affected by the employment generation programs. This "multiplier" argument, although having both an intuitive appeal and a basis in economic theory, often gives rise to exaggera-

ted claims that tend not to be materialized in practice. In the case of ocean transportation, it is important to recognize that the required auxiliary services are not in place and economic and regulatory factors have essentially eliminated Comoran flag vessels from our deep-sea trades and the related activities.

Whatever multiplier effects might come from the expansion of auxiliary industries, the creation of a Comoran flag fleet will be expected to be small and cannot be used to justify the creation of a Comoran flag fleet, unless such a fleet can be demonstrated to be competitive on commercial terms.

#### STRATEGIC CONSIDERATIONS.

It has been stated that a merchant marine represents a significant element in a nation's total defence system. Merchant vessels contribute in various ways to strengthening national security. They can carry troops and their equipment and serve as auxiliary naval vessels. They can serve as supply vessels for forces stationed overseas, and in times of national emergency they may also play a role in supporting the national economy by insuring the supply from overseas sources of materials and goods critical to major industries.

Such considerations, however will be of limited relevance to the question of free access to competitive shipping services for Comoran shippers. Our greatest need in ocean transport are in bulk trades. Vessels appropriate for such trade are unsuitable for the transportation of troops and their equipment.

Although Comoran flag bulk carriers could serve to a limited extent as military supply vessels, it would be an expensive and unwarranted undertaking to establish a merchant marine on the basis of its potential military usefulness.

#### PROBLEM IDENTIFICATION.

One can recommend that Comoros, as an importing and non exporting nation with reliance on ocean transportation should establish and encourage its expertise and interests in international shipping.

An efficient ocean transportation system requires expert and practical knowledge of the related activities. Comoros does not benefit from any important reservoir of knowledge in all the areas. It does not benefit from a transportation infrastructure. Comoros' global transportation system must be developed and adjusted to ongoing changes in international shipping markets.

One can recommend that the Government create a fiscal environment conducive to the establishment and maintenance of international ship management activities in Comoros in the future.

One can recommend that an Advisory Board consisting of representatives from industry, labour and Government be created to monitor the shipping environment on an ongoing basis. This Advisory Board should be created by and report to a Committee of Ministers responsible for transport, trade, external affairs, and industry.

It should be recognized that the Government's present

approach in dealing with shipping problems is fragmented and not sufficiently coordinated. As a result the Government is often unable to respond quickly to protect Comoran interests in specific instances. It should be hoped that the Advisory Board could alleviate this problem by serving as a focal point for policy initiatives and coordination. It should be believed that the creation of such a board will foster an improved mutual understanding among those actively interested in ocean shipping, thereby providing a stronger basis for coordinated and effective responses to changing circumstances in shipping markets.

#### PROPOSAL OF ORGANISATIONAL CHARTS.

Regarding the organisation, one can mention the views of eminent writers on organisations, and the following are three quotations taken from:

"The primary functions of any organisation whether religious, political or industrial, should be to impliment the needs of man to enjoy a meannigful existance".

FREDERICK HERZBERG

"The entire organisation must consist of a multiple overlaping group structure with every work group using group decision-making processes skilfully".

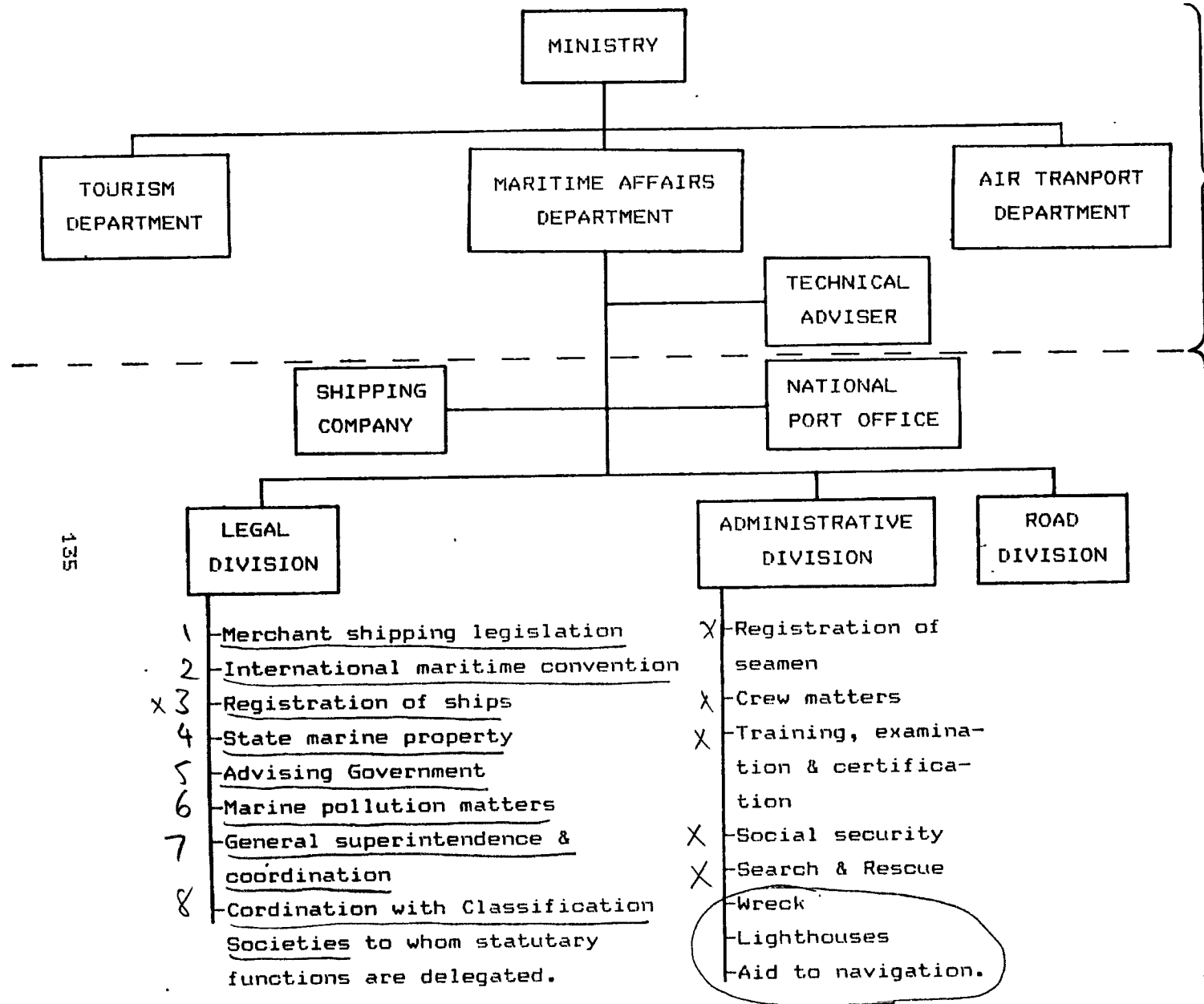
RENSIS LIKERT

"The average human being learns, under proper conditions, not only to accept but to seek responsibility".

DOUGLAS MACGREGOR

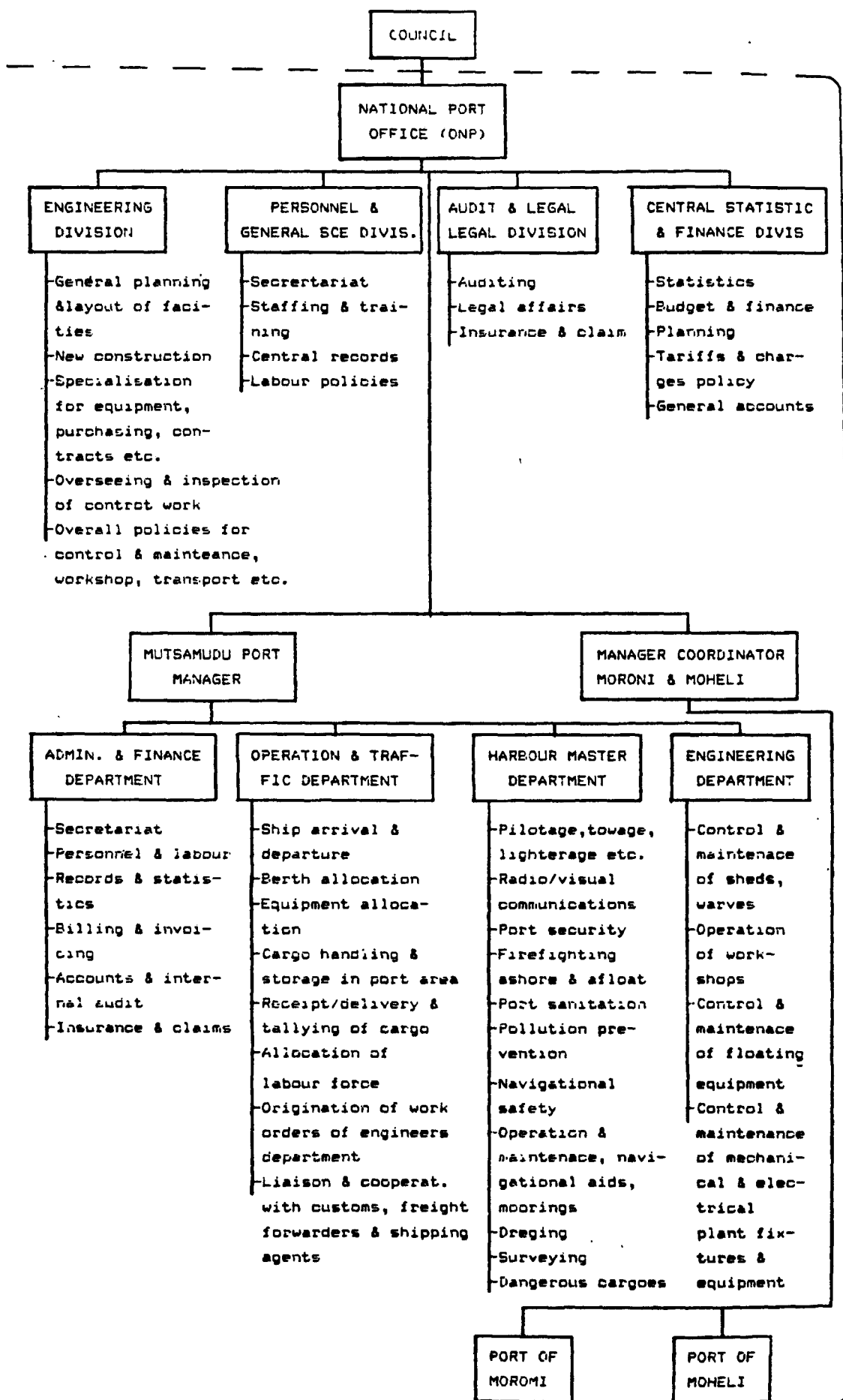
The organisational structures of the Maritime Affairs Department in the Secretariat in Charge of Transport and Tourism, and the National Port Office as follows translate the previous mentioned views.





Existing  
organisation chart.

Proposed organization chart compiled from:  
 - A. OS, Introduction to the Norwegian Maritime Administration (WML, 04-06-65).  
 - Dr. W. H. Lampe, Maritime Administration (Marine Personnel), (WML, June 65).



Proposed organization chart compiled from:  
 J. BATHURST, *Planning of Port Development*,  
 Annex: chart 3 & 4; in *Manual on Port Management*  
 Part one, (UNCTAD, March 1976).

As state owned port, the council shall be composed by:

- Chairman: Minister of Transport and Tourism;
- Members: Director of Marine Affairs; Director General of ONP; Port Managers; Director of Customs; Representatives of: Comor-Hydrocarbures; Chamber of Trade; Ministry of Finance; National Shipping.

In the administrative form of a port, the public interest is of special importance: it exist mutual relations between the port and the public interest on many levels.

In the case of my country:

- The water and land are owned by public authorities;
- Infrastructural measures are within the competent of the government authorities;
- Ownership and operation of the ports are public affairs;
- The governmental authorities are providing extensive superstructure facilities (sheds, cranes, storing areas.);
- The exercise of governmental powers occurring in ports requires a high degree of harmonization between the government and the port.

This short listing which is by no means complete already makes clear why the public interest is exercising considerable influence on the ports in practice. However, strong governmental influence brings for the port administration the danger of political entanglements and of bureaucracy and too many regulations which leads to inflexibility of the port management, inhibition of private initiative, creation of confused responsibilities and so on. These disadvantages may have effects if also the port operation, i.e. handling and storing, is accompli-

shed by governmental management.

Therefore port facilities for common use should fall within the central competence of the port authority. This principle of ECONOMIC ENTITY has the purpose:

- To facilitate an effective utilization of the existing facilities;
- To counteract the creation of excess capacity in the economic sense;
- To ease port planning;
- To warrant an efficient operation;
- To tighten communications;
- To fix port charges by superior aspects;
- To create uniform working conditions, wages, social conditions, and forms of training; and
- To react more rapidly to structural changes as e.g. by new transport technologies.

The management autonomy of the ports can only be maintained on the basis of reaching financial independence of the ports. Therefore the competence of the port administration should cover the port relevant income and expenditures. Compared to governmental financial management this self-financing has the following advantages:

- The economic development of the port can be analysed more accurately on the basis of special accounting;
- It is easier to find out weak points within the complex range of the port;
- The pricing policy of the ports can rest up exact data;
- It is easier to evaluate the economic effect of investments and particular transactions;
- It is possible to clearly identify the cause of deficits;

- It is easier to rate the quality of management.

A port is exposed to a constant change. The less it is restricted in its freedom of decision by bureaucratic regulations, the easier will be the adaptation to the changes. Thus a COMMERCIALY CONDUCTED PORT ADMINISTRATION should be envisaged which, however, cannot be effected under the direct responsibility of the government in line of the foregoing views:

- Reorganization of the administrative structure on the basis of changed conditions or new experiences are made much easier;
- The administrative expences are distinctly reduced as compared to the bureaucratic system;
- The responsibilities of all members of the ports administration can be defined more clearly;
- Tighter communication lines within the administration are accomplished;
- Preparation and realization of measures, especially in the field of investments are effected more speedily;
- Decisions are reached more quickly.

Therefore, increased flexibility and adaptability as well as increased efficiency are the characteristics of a commercially efficient port administration.

All employees of a port, especially when being considered for managerial position, should judged and chosen by the principle of efficiency and not by the principle of seniority prevailing in the civil service. This requires the PERSONNEL AUTONOMY for the port. The promotions, payments etc. can be effected individually and are no longer subject to the regulations of the civil service. Also the exchange of managers of all levels who do not or no longer fulfil their functions satisfactorily, as

well as inter-company restructurings with reallocation of competences and changes within the hierarchy are facilitated considerably. The incentives created hereby have positive effects on the port in a multitude of ways (e.g. sense of responsibility, job satisfaction, readiness for service) and should not be underestimated. Therefore, the personnel matters should fall within the competence of ports administration.

Many arguments are in favour of direct governmental competence. In this case it has to be checked whether a DELEGATION TO THE PORT ADMINISTRATION should be affected or not, whereby the governmental interest could be safeguarded by special voting and participation regulations. Hereby it is prevented that the port administration as an institution is more or less excluded from functions concerning the port as whole. The governmental administration, however, should be confined to increased control as far as governmental functions are concerned or reserve for themselves the right of judging without appeals in fundamental affairs of a special public interest. Thus the governmental administration would not be burdened by routine work but could increasingly exercise control functions or devote themselves more intensively to the fundamental problems. The port administration, on the other hand, would gain an increased possibility for co-operation and could contribute their close-to-the-market-experience to the consultations. The risk of an inappropriate decision would be avoided at an early stage.

As far as EMPLOYMENT OF ANCILLARY SERVICES is concerned, it is not possible to give a general answer in this context here: economic considerations (e.g. promotion of

middle size companies) may influence the decision, also the quality and prices of the firms at disposal. But it always has to be checked whether the extent of these activities will justify the additional investments, the higher pay-roll and the expansion of the port administration. Sometimes it may be useful not to operate the tug service by the port administration, but by shipping companies which already provide tugs for their own purposes. In some ports the line handling services are carried out by private firms and prove their flexibility. The maintenance and repair of cranes, fork lifts, containers, air conditioning plants in warehouses etc. may be achieved more efficiently by outside firms. therefore the employment of ancillary services should principally be considered as an alternative.

Finally, modern traffic systems and increasing handling quantities are demanding certain standards of import and customs clearance with regard to reliability and speed of the delivery. A quick circulation of IMPORT DOCUMENTATION is needed. Bureaucratic behaviour must lead to an excess stay of good in port. Hereby the capacity of the shed and storing area is reduced, the danger of damages and theft increases, the operational process is hampered and getting difficult. Thus it is understandable that settlements were introduced in order to effect a speedier and less complicated traffic operation. The establishment of so called "Free Ports" is probably the best known system, but there are quite a few other similar devices (free-trade-zones; foreign-trade-zones; export-processing-zones; entrpots; etc.). Therefore another principle for the administrative structure of a port should be the provision of customs facilities.

## ANNEX I

### THE MAJOR INTERNATIONAL SHIPPING CONVENTIONS TO BE RATIFIED BY THE COMOROS.

#### 1. DEALING WITH THE SHIP.

- a) SOLAS (Convention for the Safety of Life at Sea 1974 and 1978 Protocol lay down a comprehensive range of minimum standards for the safe construction of ships and for the basic safety equipment (fire-prevention, navigational, life-saving and radio) to be carried on board. SOLAS also contains operational instructions, particularly on emergency procedures, and provides for regular surveys and certificates of compliance. Supplementary requirements, primarily concerning inert gas systems and steering gear, are laid down in the 1978 Protocol. As a complement to enforcement by the flag state, the convention renders ships of a contracting party liable to specific control by authorities in the ports of other ratifying states. This may include detention of the ship.
- b) MARPOL (Convention for the Prevention of Pollution on Ships) 1973 and 1978 Protocol contain measures designed to prevent pollution caused both accidentally and in the course of routine tanker operation by oil and oily mixtures, noxious or harmful cargoes, swage and garbage. It sets out requirements for storing, treating and discharging



these substances (including provisions related to segregated ballast tanks and crude oil washing systems) and for the reporting of spillages.

- c) COLREG (Convention on International Regulations for Preventing Collisions at Sea) 1972 lays down the basic "rules of the road" governing traffic at sea, including rights of way, safe speed, action to avoid collision, procedures to observe in narrow channels and restricted visibility, and signals to be used to warn of manoeuvres.
- d) LOAD LINE CONVENTION 1966 sets the minimum permissible free-board, according to the season of the year and the trading area of the ship; special ship construction standards are laid down in regard to the watertightness.

## 2. DEALING WITH THE SEAFERER AND THE SHIP.

ILO Convention 147 (Merchant Shipping (Minimum Standards) Convention) 1976 requires Administrations to have effective legislation on safe manning standards, hours of work, seafere's competency, and social security; and sets employment standards equivalent to those contained in a range of ILO instruments (covering e.g. minimum age, medical care and examination, accident prevention, crew accommodation, repatriation, social security, training). Parties also have to ratify SOLAS, the Load Line Convention, and COLREG. It allows an administration to apply its provisions (including the power of detention) to any ship which calls at its ports whether or not the flag state has ratified the Convention.

### 3. DEALING WITH THE SEAFERER.

STCW (Convention on Standards of training, Certification and Watchkeeping for Seafarers) 1978 lays down extensive certification and qualification requirements (including syllabuses and sea time) for senior officers; all officers in charge of watches in the deck, engine and radio departments; and rating forming part of a watch. All such seafarers will be required to have a certificate, endorsed in a uniform manner. It also specifies basic principles to be observed in keeping deck and engine watches and special qualification requirements for personnel on oil, chemical and liquified gas tankers.

IMO Resolution A. 481 (XII) (on Principle of Safe Manning) 1981 recommends all administrations to issue their registered ships with a document specifying the minimum number and grades of qualified seafaring personnel required to be carried from a safety standpoint. It gives basic principles and detailed guidance to be observed by administrations when assessing the safe manning of ships.

In addition to the instruments described above, IMO has published other conventions, recommendations and codes, dealing with such matters as search and rescue, safety in container operations, and the characteristics and handling of different types of cargoes (e.g. bulk chemicals, dry bulk cargoes, liquified gases, packaged goods etc.). The ILO has issued codes of practice on safety and health at work, including accident prevention on board ship, at sea and in port; and also advice on medical treatment of seafarers (with the World Health Organisation).

Guides and check-lists are also published by various industrial bodies, particularly the International Chamber of Shipping (ICS) and the Oil Companies International Marine Forum (OCIMF), list available on request. They cover primarily specialised ship operations (e.g. tanker safety, safe handling of specialised cargoes, bridge procedures, etc.).

## BIBLIOGRAPHY.

- First International Solidarity Conference for the Development of the Comoròs - Office of the President of the Republic (General Planning Department), (Moroni, August 1983).
- Study Report Concerning the Transportation Infrastructure in the Islamic Federal Republic of Comoros - International Engineering Consultants Association (Japan), (Moroni, January 1984).
- Plan Sectoriel sur les Transports Maritimes - State Secretariat in Charge of Transport and Tourism, (Moroni, Jun 1982).
- Port of Mutsumudu, Planning and Extending Project - Report, B.C.E.O.M., May 1982.
- Lecture on the Establishment/Administration of Maritime Affairs in Developing Countries. Vol. I - Professor PS VANCHISWAR (WMU, 1984).
- Lecture on the Introduction to the Norwegian Maritime Administration - A. OS, Course Professor (WMU, June 1985).
- Lecture on the Maritime Administration (Marine Personnel) - Dr. W. H. Lampe, Federal Ministry of Transport, F. R. of Germany (WMU, June 1985).
- Manual on Port Management, Part One, (UNCTAD, March 1976).
- The Simplification of Procedures and Documentation for an Efficient Clearing of Cargo in Ports - UNCTAD Special Programme on Trade Facilitation (FALPRO) 1982-11-23.
- Facilitation Measures Pertaining to Shipping and Trade in the Eastern and Southern African States by A. KOVALEV, Transport and Communications Division of the

E.C.A. and L. M. GOLL, Head, Cargoes Section of the IMO 10th Council Meeting of the Port Management Association 26 to 30 November 1982, Moroni (Comoros).

- Modernization of Maritime Transport and its Implications for Ports of Third World Countries - M. DAUNT, Shipping Division - UNCTAD.
- Port Management Textbook - Containerization, Book Series N. 10 - institute of Shipping Economics and Logistics. (Bremen 1985).
- Managing Ships by John M. DOWNARD - Fairplay Publications (1984).
- Shipping Finance - Financing Ships and Mobile Offshore Installations by J.E. SLOGGETT - Fairplay Publications (1984).
- Financial Management in the Shipping Industry - Philip C. CHENG, Ph. D., C.A. (1979).
- Lectures on Management - Pierre HOUSSIN, Professor WMU.
- Analysis of Decision under Uncertainty - ROBERT SCHLAIFER (New-York: Mc Graw-Hill Book Company 1969).