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Administration and operation of the ports in Ghana

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THE ADMINISTRATION AND OPERATION OF THE
PORTS IN GHANA - A CASE STUDY

BY

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THE WORLD MARITIME UNIVERSITY
MALMÖ, SWEDEN
THE ADMINISTRATION AND OPERATION OF THE PORTS IN GHANA - A CASE STUDY

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NESTOR PERCY GALLEY

A PAPERSubmitted TO THE WORLD MARITIME UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF THE AWARD OF A MASTER OF SCIENCE (MSc) DEGREE IN GENERAL MARITIME ADMINISTRATION. THE CONTENTS OF THIS PAPER REFLECT THE AUTHOR'S PERSONAL VIEWS AND ARE NOT NECESSARILY ENDORSED BY THE WORLD MARITIME UNIVERSITY OR THE INTERNATIONAL MARITIME ORGANIZATION

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INTRODUCTION

Ghana has two main deep water ports, the port of Takoradi and the port of Tema which also includes a fishing harbour.

The management of the ports is entrusted to the Ghana Ports Authority which was established in 1977 following the promulgation of the Ghana Ports Authority Decree 1977 (SMCD 96).

Previously, the ports had been administered together with the railways by the Ghana Railway and Ports Corporation which came into existence with the enactment of the Railway and Ports Act, 1971 (Act 358). Prior to 1971 the ports and railways were administered together by the Railway and Ports Administration as a department under the Ministry of Transport and Communications. The Ghana Ports Authority like the Ghana Railway Corporation, the State Shipping Corporation (Black Star Line) the Tema Shipyard and Drydock Corporation and departments like Civil Aviation, Meteorological Services etc. come under the jurisdiction of the Ministry of Transport and Communications.

The purpose of this study is to examine the administration and operation of the ports in Ghana as is currently carried out under the auspices of the Ghana Ports Authority, examine the shortcomings in the present structure and how they can be remedied for the ports to contribute more effectively to economic progress and development of Ghana.
It is recognised that efficient ports play a very vital role in the economic development and progress of maritime countries. Inefficient ports however are a big drain on the economies of countries especially developing countries where foreign exchange problems are already acute and Ghana is no exception to this latter problem.

The study will look at how the existing ports are operated, equipment and facility utilization and how these could be improved to increase efficiency in the ports.

The problem of rehabilitation and maintenance of the ports and improvements and modernization of the ports will also be discussed.

Rehabilitation and modernization involve money. The possible sources of finance for such projects will also be discussed.

It is also recognised that the provision of adequate infrastructure and equipment in the ports are not the end of the road. There should be men to operate the machinery and equipment in the ports and work cargo. These men in order to handle the machinery and equipment efficiently need to be trained. There must also be a policy of updating the knowledge of the staff and operators in the ever changing world of technology and methods of port operations and cargo handling. A system of manpower planning and development for the ports to achieve the objective of making Ghanaian ports efficient will be treated.
The problems of containerization especially for the port of Tema will be discussed with the recommended solutions.

A very big problem faced by the ports in Ghana is port safety. Closely linked to this is the problem of port security. Ghana has not ratified most of the international conventions and codes relating to safety and protection of the marine environment. The ports do not have any equipment to combat pollution except a small stock of chemical dispersants. Should there be any casualty in the ports therefore, the consequences will be disastrous. The study therefore tackles these problems and proposes solutions to them.

Another problem resulting from the international conventions especially the International Convention for the Prevention of Pollution from Ships, 1973 and the Protocol of 1978 relating thereto (MARPOL 1973/78) is the provision of reception facilities in the ports especially Tema where there is a big ship repair yard. This problem will be discussed and proposals made for interim solution as well as long-term solution.

The study did not go into detailed port operations which is cargo working in the ports. However some general recommendations have been made to rationalise these operations to increase productivity and efficiency of these operations in the ports.

The study did not make any financial analysis based on actual accounts figures of the Ghana Ports Authority.
firstly because of the confidentiality the Authority attaches to its final accounts and as a serving official of the Authority under the Oath of Secrecy this confidentiality has to be respected.

Secondly there is a problem of adequate financial data and data from other cost centres of the ports. It is therefore almost impossible to make any financial analysis based on facts and figures. The costs of repairs and modernization programmes given are therefore rough estimates. Productivity figures per berth or person in the ports are also not available. What is available is in the form of port statistics is grossly inadequate and the study recommends an improvement in the collection and compilation of statistical data for the ports.

The work itself could be divided into three major parts with Chapters 1-3 dealing with concepts and theories about the economic importance of ports and the problems of port development especially for developing countries.

The second part of Chapters 4-10 deal with various aspects of the existing situation in the ports starting with a brief history of the ports' development to training and manpower development for the ports.

Part three comprising Chapters 10-12 deal with port modernization and future developments to conclusions and recommendations.
Most of the data used come from the unpublished records of the Ghana Ports Authority and Ghana Shippers Council. Some of the data also come from published international sources such as UN Statistical Year Book, FAO Production Yearbook, IMF International Financial Statistics, Fair Play International and others.

This outline for the paper was discussed with the Course Professor, Professor Gunnar Stubberud who gave some very useful advise on how to proceed with the work and I am very grateful to him.

I thank my wife Petrina sincerely for the great sacrifices she made, her loving kindness, the pieces of advice she gave on the outline of the final work as well as the time and efforts she put into typing the manuscript and the final work.

The number of people I owe gratitude for their assistance in writing this Paper is so numerous that it would be better not to mention any names. I wish to thank them all especially my colleagues at the Ghana Ports Authority and the World Maritime University.

N.P. GALLEY
(1) To increase the efficiency of the ports in Ghana, modern facilities and cargo handling equipment should be provided for the handling of break-bulk, general cargo and containers to speed up cargo operations and the turn-round time of vessels in Ghanaian ports.

(2) The administration of the ports under the Ghana Ports Authority should be re-organized and geared towards the autonomy of each port.

(3) A Port Department should be created in the controlling Ministry i.e. the Ministry of Transport and Communications, staffed with experts who should be responsible for the formulation of port development policies for the country taking into consideration the overall economic needs of the country.

(4) A National Transportation Council comprising shipping executives, business and commercial concerns, representatives of the other modes of transportation, technologists and researchers should be established to advise Government on the development of all modes of transportation in the country.

(5) To ensure port safety and prevent pollution of the ports, the country's internal and territorial waters and Exclusive Economic Zone, it is recommended that the country should adopt and implement the international pollution prevention and safety conventions such as MARPOL 1973/78, SOLAS 74 and its Protocol of
1978, STCW 1978, COLREG 72, Load Lines 1966, the 1982 Law of the Sea etc. and the codes developed by the IMO such as the IMDG code etc.

(6) An administrative machinery should be established in the country to enforce the regulations and enforce Port State Control.

(7) Reception facilities should be provided in the ports especially in the port of Tema because of the location of a ship repair yard and drydock in the port. The Ghana Ports Authority and the Tema Shipyard and Drydock Corporation should co-operate to provide the facilities. In the interim vacuum trucks should be acquired for the reception of oil and oily wastes in the ports.

(8) An organization has to be designated to be in charge of pollution control and abatement. As an interim measure the Authority should establish a unit and train and equip the personnel for pollution control and port safety.

(9) A national contingency plan should be drawn up which should include the ports where crude oil and refined products are handled.

(10) The ports should be dredged to enable bigger vessels to come into port to load exports and bring in imports.

(11) In order to facilitate container operations in the port of Tema, the main import port of the country, Berths Nos 8-12 should be developed into multi-
purpose terminals and the area behind the sheds should be developed into a container terminal and provided with container handling equipment.

(12) Labour in the ports should be trained in modern techniques of port and cargo handling operations, computer technology and other developments in the port industry.

(13) Cargo handling operations in the ports should be mechanized and unitised cargo handling methods such as pre-slinging and palletization should be used in the ports.

(14) To avoid congestion in the ports the internal transportation network should be improved upon to ensure rapid evacuation of goods from the ports.

(15) Co-operation and pooling of resources for the development and operation of modern ports in certain places in the West African zone should be encouraged among the various countries of the region.

(16) Developed countries of the north should assist the developing countries of the south to develop and operate modern and efficient terminals so that the whole world would benefit from lower transportation cost of goods transported by sea.
CHAPTER 1

CHARACTERISTICS OF SEAPORTS

1.1 DEFINITION OF SEAPORTS

In the past ports were considered as mere landing places for small ships. This concept of ports has changed greatly in modern times.

In the "Report of an Enquiry into the Current Situation in the Major Community of Seaports" drawn up by the "Port Working Group of the Commission of the European Community" in 1977 the following definition of "seaport" is given:

"A seaport may be understood to be an area of land and water made up of such improvement works and equipment as to permit, principally, the reception of ships, their loading and unloading, the storage of goods, the receipt and delivery of these goods by inland transport and can also include the activities of business linked to sea transport."¹

A seaport must necessarily have rail and road links and in certain cases even air links or easy access to an airport. It must have an administration, port operations and maintenance facilities and with various auxiliary services to cargo and to vessels. There must be steamship agents, insurance brokers, surveyors, ship chandlers, ship repair workshops. There must be warehouses, stevedoring companies and industrial complexes and a host of other

¹ Excerpts from an article by F. Suykens on European Seaport Policy in Report of a Conference on Ports - Policy and Practice Published by The Nautical Institute Cardiff - May 22-23, 1979.
services to distinguish a port from a harbour.

As pointed out in the definition above a seaport is not an end in itself. It has only a derivative economic activity. This implies that a port will only flourish as a result of the import or export oriented activity of trade and industry in its immediate or not so immediate hinterland.

1.2 FACTORS WHICH INFLUENCE SEAPORTS

Many ports stagnate or flourish not because of their own making but as a result of the economic activity in general in the hinterland immediate or otherwise which they cannot influence. Generally speaking, ports have to accept the consequences of technological and politico-economic developments just as these make themselves felt. It is very difficult for them to mount a political or economic counter-offensive which is strong enough to compensate for those developments, let alone channel them into a more desirable direction.

Seaports must therefore adapt constantly but in such a way that the cost price, that is their tariffs, remain minimal for the client, for whom the saying "the ideal port is no port at all" goes.

All ports are partly a public service and partly commercial. In his book "The Economics of Transport", Bonavia pointed out that:
"Transport is a blend of industry and service and ...... (such as street lighting, elementary education, justice and police)."²

This observation could be applied to a seaport too where the infrastructure provided in the port performs a public function, while cargo handling and all related services give rise to purely commercial activity. It is because of this public function aspect that governments influence port policies either directly or indirectly in all countries.

This governmental influence is decisive especially with regard to port infrastructure which has the characteristic of being built in piecemeal fashion and or involves a lot of funding and the money has to be provided by government or because of the environmental impact government's approval has to be sought.

In the article by Mr. F. Suykens he quoted Dr. J.A.M. Van Suuren in his book "Beschouwingen over de economic en het beheer der vechavens" (Observations about Economics and Management of Seaports).

"Many interests which are involved in the activity of a seaport with various types of cargo traffic can only be served in an impartial way by a port management organised on the basis of a public service so that the port produces the greatest profit for as large a circle of interested parties as possible, in other words so that the common interest is best served. Since, impartial service can only be expected from public bodies outside business.

² Ibid
and industry, only port management which is performed as a direct public service can be considered to be adequate for the task."^3

Mr. J. Chapon, Engineer for Bridges and Roads, Director of Seaports and Inland Waterways at the French Ministry of Equipment declared, (at the University of Trieste on 30th August, 1974):

"Whereas certain types of equipment have a very specific function so that the person who uses them naturally constructs them as well (which is the case, for example with certain quays or installations), others on the contrary have an obviously collective function; this is the case with port access, most of the water surface area and berths, as well as with the infrastructure facilitating the arrival and departure of goods.

Thus with the exception of very specialized cases, such as certain oil or ore ports, a port authority with a dual role is required, it performs those functions which have a collective character, namely the construction and running of the basic infrastructure which is used by all port users. Secondly it coordinates the activities of all the professions involved in the port both at the level of the physical exercise of their tasks (movement of ships and cargo, laying down the duty hours of ports services etc.) and at the administrative level, which even includes the financial supervision of the activity.

The port is in this respect not unlike a large city and the port authority has the same task as the municipal council with the dual role of organizing the services of collective interests and administering the whole. And like the council the port authority acts within the framework of laws and regulations laid down by the public authorities at state level."^4

Seaports do not only have a local or regional importance but also a national one. The existence of a seaport provides an enormous impulse for the economic development

^4 Ibid
of a region. Many large European cities such as Amsterdam, Antwerp, Bremen, Dunkirk, Ghent, Hamburg, Le Havre, Liverpool, London, Marseilles, Rotterdam, Zeebrugge and a host of others owe their original growth and prosperity to the presence of a seaport.

On the other hand it is also a fact that a seaport is not merely of local or regional importance but also serves all import or export oriented industry and as such is of at least national, and in some cases international importance, for example Rotterdam port serves almost the whole of Europe.

The development of seaports in Europe and many of the developed countries has been an evolution over the years of a gradual process in certain directions which were partly influenced by local, regional or national factors. Development of seaports in other parts of the world have been built from the scratch, for example the ports of Takoradi and Tema in Ghana by the colonial and national governments; the ports of Ashdod in Israel, Aqaba in Jordan, Dammam in Saudi Arabia by their respective national governments.

Seaports are the cross roads of various partial policies and consequently seaport policy is a complex business which will normally involve every aspect of economic policy. For example, it is very difficult to talk about European port policy without thereby involving industrial policy. But besides industrial policy there are many other fields which are affected by port policy.
The energy policy followed by any country especially by the European Economic Community will have a direct influence on the seaports in Europe. The sort of import, for example, natural gas, coal or oil as the principal obligatory basis for electricity production will lead to the provision of certain infrastructure in the ports and certain ports which have these facilities already will see increase in the traffic and cargo passing through their ports while others will hurriedly try to provide the facilities to benefit from the trade. Also if the construction of nuclear power stations is forbidden, for example, more raw materials for alternate source of energy have to be imported from aboard for energy purposes.

The type of agricultural policy pursued by any government will have great effects on the ports in that country. For example if a country is a net importer of grains and decides suddenly to be self-sufficient in grain production the importation of grains will decline and affect the cargo through put in the port serving the country.

The social policies adopted in the country also affect the ports. If a minimum wage is fixed for all workers in the country, the port workers cannot be paid less than this minimum wage and this may increase labour costs in the ports. Other policies such as social security and other conditions of service such as medical care or health insurance, hours of work etc. could all affect port pricing in any country.
Fiscal policies adopted in any country also affect port charges and port policy. For example if a country decides to waive custom duties on certain types of goods or increase them these will affect the type of imports which come into that country.

One of the most important policies which greatly affects seaports is the type of transport policy a country adopts. If the carrying of trailers longer than 40 feet is forbidden, forty feet containers cannot be imported into the country. If the country decides to expand its trailway facilities it will be greatly beneficial to the haulage of goods in large quantities. It should be noted that actual port costs only represent an extremely small proportion of the transport costs to and from the interior and it is the transport costs which are the main factors in the choice of a port. Special rates as a part of the railway policy can benefit certain ports. Road traffic to and from certain ports can be hindered by the size of the roads. The absence of a sufficient number of international or state transport licences especially in Europe and across the US where different states have different policies regarding road haulage can greatly affect certain ports.

Monetary policies in countries also affect their port policies. A country with a strong currency or convertible currency can attract a lot of shipping activities as opposed to economies with weak currency or currency adjustment factor. The US at present is attracting a
lot of imports because of the high rate of the dollar while her exports are declining because they are too expensive on the world market.

Finally it should be pointed out that each port is unique and no two ports in the world are alike. In one port general cargo may predominate over bulk cargo. In another port there is greater specialization in oil, natural gas or coal. In others it may be grains which are handled while others may handle containers only. Some ports have a large net work of routes at their disposal, barge, rail and road to which in the future pipelines and air will increasingly have to be added. Some ports have a purely cargo handling function, whereas in others the goods are stored for lengthy periods and possibly repacked and industrially processed.

The range of services offered also varies from port to port and so does the administration of the ports. As stated earlier no two ports even in the same country under the same authority or management is the same.
CHAPTER 2

THE ECONOMIC IMPORTANCE OF SEAPORTS

2.1 IMPORTANCE OF EFFICIENT PORTS

The importance of efficient seaports need not be over-emphasized especially for all developing countries. Without an efficient port there will be an increase in cost of living, industrial development becomes more difficult and exports of raw materials from the developing countries become more costly and therefore unprofitable and thus hampering earning of foreign exchange and economic development.

2.2 OBJECTIVES OF A PORT

Most ports have no written or specified objectives that they were supposed to be maximising, subject to certain constraints. Most of them attempt to earn sufficient revenue to cover their costs though these are generally defined as excluding any return on capital or services provided free, for example, dredging in Canada, the US and ports of Europe and represented accounting costs only. In the United States, for example, most ports are able to issue bonds the interest on which is free of Federal and State income taxes, even when the investor lives in quite a different state. Such bonds are very attractive to those liable for high rates of tax and the rates of interest can be correspondingly low.

In some US ports the objectives of maximising jobs in the locality has been formally established and quite
elaborate "economic impact studies" are carried out in order to attempt the degree of success.

"Infact, the creation of jobs or the expansion of economic activity is a function of the central rather than of local public bodies because this macro-economic policy is affected by more numerous other issues.\[1\]

There are certain ports in Europe and other parts of the developed world where port activities are carried on without any intention of achieving a return on capital so that in some municipal ports there are no published accounts for the port.

In Ghana, however, even though there are no stipulated objectives the Ghana Ports Authority which controls the two ports in the country is expected to operate at a profit and pay its surplus profits into the Consolidated Fund at the end of each financial year to be used for other development programmes in the country.

Most ports have no written objectives too but they maximise cargo throughput subject to the financial constraint of covering their costs and complying with the law in other respects such as control of pollution and port safety.

The Israel Ports Authority, for example, pays very close attention to the definition of costs. Their first

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objective like most ports, is to cover their cash operating costs of wages, fuel, maintenance etc. They then aim to recover full replacement costs and depreciation on all their fixed assets plus the interest they have to pay on the investment.

"In developed countries, ports play an essential role in economic development. They serve as the gates for international trade — for importation of raw materials such as timber, mineral ores and oil for their industries and for export of the manufactured products for export. Without Hamburg, Bremen, Rotterdam or Antwerp, Western Europe could never have achieved such a spectacular and rapid progress." 2

2.3 IMPORTANCE OF PORTS IN DEVELOPING COUNTRIES

The ports in developing countries assume even greater importance in their efforts for rapid economic development for a variety of reasons.

Firstly, the developed western economies have very strong and developed domestic economies while most developing countries have to import some basic commodities for consumption as well as machinery, equipment and spare parts for the industries they have tried to establish. Moreover, they need to export their raw materials to come by the foreign exchange needed for their imports. Without the ports therefore they would find it extremely difficult to bring in the imports

2 Port Problems In Developing Countries - Principles of Port Planning and Organization by B. Rogorski - p.11 pars. 2.
cheaply and to export their raw materials for the needed foreign exchange.

For the export of raw materials from the developing countries the biggest costs are incurred during the land transportation from the hinterland to the ports and their handling in the ports for export. These costs form a much larger proportion of the sale price than for manufactured goods exported by the developed countries. If the developing countries therefore want to gain more from their exports the land transportation and handling costs in their ports must be reduced to the minimum.

The third factor that makes ports in developing countries very important is the general low level of overland trade with neighbouring nations. The economies of most individual regions are similar rather than complementary. For example, Ghana and Ivory Coast compete for number one position as the world's exporter of cocoa. Almost all the countries in the region of West Africa export cocoa, coffee, timber, and a host of similar raw materials.

The same type of manufactured goods are imported. It is therefore almost impossible for trade between these nations. Each coastal nation has also built a port for her exports and imports which must come from overseas.

There is also the problem of some developing countries, even though independent which are still tied to the apron strings of their former colonial overlords and carry on.
most of their trade with their former masters instead of carrying on trade between themselves in the same region. A good example is West Africa where trade is virtually non-existent between the countries in the area.

The situation however is slightly changing now in West Africa with the establishment of the Economic Community of West Africa (ECOWAS) which was formed in 1979 to foster closer economic co-operation and trade between the countries in the region.

Regional trade will certainly develop in other parts of the developing world when these countries begin to industrialise and with it will emerge economic integration between neighbouring countries into larger markets. It is going to be a long and arduous process when the people in these areas would realise that it will be in their interest and to their mutual benefit to co-operate as is being done in the Scandinavian, Eastern Asia and other European countries with common services etc. than to engage in cut-throat competition with each other or among themselves.

The need for efficient ports is so very important especially for third world countries because they cannot afford the huge financial losses due to inflated port costs and to congestions and the resultant demurrage to be paid if their ports are neglected and not operated efficiently.
There are other reasons for a major national port in countries whether developed or developing. Firstly it ensures that country political independence because she can import or export her commodities directly without any hindrance in times of political crisis. For example, economic sanctions have been imposed on South Africa and yet she continues to import and export to countries which are prepared to trade with her. Land locked countries do not have this advantage.

Closely linked to the above reason is that a port provides a direct access to world markets and an opportunity to trade directly with a wide range of countries without intermediaries. The country could also have direct access to the foreign markets and buy foreign goods at source from suppliers at better terms and also sell exports to countries of one's choice without any inhibitions. Many industrial and agricultural development projects depend on the availability and proximity of ports for their success.

Ports also serve as source for employment for citizens of that country such as port administrators, port operations and maintenance staff, stevedores, for those engaged in activities such as banking, warehousing, freight forwarders, customs house agents, chandlers, underwater engineers and surveyors and all the other auxiliary services to cargo and to vessels. Expertise and qualified personnel are gradually built up in these countries and with the import and export of goods local
businessmen get a much deeper insight into the complexities of world trade.

Ports also serve as an additional source of earning foreign exchange apart from the revenue from exports. Port dues on vessels, pilotage dues, light dues, towage or hiring of tugs, stevedoring charges, repairs, ship supplies, agency fees serve as a good source of foreign exchange for the countries. In addition, crew members and passengers, if any, come ashore and spend money buying gifts, on meals, transportation and entertainment. With a busy port or where the tourist industry is developed with passenger vessels calling regularly the money to be made in this respect could be substantial.

It is very important to note the words of Nagorski in this respect that:

"Efficient ports in developing countries are of considerable benefit to international shipping interests, to merchant marines of affluent nations and to the global commerce. Losses incurred by vessels in congested and poorly equipped ports are usually much higher than any penalties collected in the form of demurrage or surcharges on freights. Opportunities for trade, for selling industrial equipment and for import of much needed minerals and various specific products are greatly increased if reliable services can be obtained in all remote ports.

In common interest of poor and rich nations alike, co-ordinated efforts should be made therefore, for improvement of ports in developing countries. It is primarily a task and responsibility of the governments in whose land the particular port is located. But the advanced countries, in their own interest, should not hesitate to extend all possible assistance, both from state and
It must be reiterated that the many social, political and technological advances that have occurred during the last quarter century, and particularly during the last few years, have required accompanying changes in port facilities and administration all over the world. The old methods of conducting international trade where ships can afford to spend several days anchored offshore while cargo is lightered to and from the vessel are rapidly disappearing. Such methods are economically unfeasible and they must give way to modern ports and modern methods of cargo handling operations.

Ships are being built larger, faster and more sophisticated. The costs of construction and operating such vessels are enormous and make it imperative that they spend as little time in port as possible, for a freight carrier earns income only when it is transporting freight and not sitting idly in ports. Ports must provide modern piers or quay facilities, extensive upland areas, adequate channels and properly trained workers if they hope to keep down the transportation costs for their country's exports or imports. Inefficient ports lead to payment of demurrage and surcharges but as pointed out by Nagorski in the quote above, losses incurred by vessels in congested and poorly equipped ports are usually much

\(^3\) Ibid
higher than any penalties collected either in the form of demurrage or surcharges and this will adversely affect the operations of the steam line company.

As developing countries emerge from the period of colonialism to independence, their economic progress greatly depends upon their international trade which is carried on through their ports. Without efficient ports, the export of their commodities normally raw materials and the import of machinery for industrialization, food to feed their populace and other essential items is retarded with a consequent stifling effect on national prosperity. There is urgent need therefore in all developing countries including Ghana to improve upon the efficiency in the administration and operation of their ports.
CHAPTER 3

THE PROBLEMS OF PORTS IN DEVELOPING COUNTRIES

3.1 NATURE OF PROBLEMS

Most developing countries face a formidable array of economic and social problems in order to raise the level of their economies, to improve the standard of living of their people and to narrow the gap between them and the developed countries.

Reliable and efficient means of transportation coupled with maritime connections with the outside world especially its trading partners are very essential prerequisites for economic progress and development of any developing country. One of the important things most developing countries tried to do after independence was improving their ports, a most important link in overseas transport and trade. Port improvement and development are not easy tasks. They require a lot of planning; men, materials and money are needed to achieve the objectives of port improvement and development.

"Ports in advanced countries have been enlarged and improved in a process of gradual evolution, over a long span of years. They had at their disposal a centuries long experience, well trained personnel and labor and unparalleled wealth of financial and human resources within their immediate hinterlands.

None of these precious advantages was available to a great majority of developing nations. They were obliged to radically modernize, within a very short period of time, the primitive port facilities of the colonial epoch and to adapt
them to a deeply changed pattern of foreign trade.

After independence the need for accelerated economic development of developing countries resulted in a substantial increase in imports such as trucks, tractors, agricultural and road building equipment and heavy industrial installations. Improvement in living standards in certain countries, the creation of new tastes raised considerably the demand for general cargo of foreign origin and for basic foods as grain and sugar. Discoveries and exploitation rich mineral deposits made it necessary for the provision of high capacity terminals for loading big quantities of bulk materials.

This led to extension work to existing ports and cargo handling methods improved to meet modern requirements of the modified traffic. In many countries, new ports had to be constructed such as was in Latakia in Syria, Aqaba in Jordan, Ashdod in Israel, Dammam in Saudi Arabia, Assab in Ethiopia and Tema in Ghana.

New port administrations had to be organized or in other areas re-organization of the old administrations had to be undertaken to meet the demands of independent governmental machinery. Other allied activities both commercial and technical have to be provided to the expanded maritime trade.

1 Port problems in Developing Countries - Principles of Port Planning and Organization by Bohdan Nagorski page 1 para. 3 & 4.
2 Ibid page 2 para. 1
All above difficult tasks were to be performed urgently, under serious handicaps of lack of funds, lack of experience and shortage of personnel and often under unsettled political and social conditions. On top of it, the developing countries have to face at present a new challenge of revolutionary changes in the field of sea transport caused by the spectacular expansion of the container traffic and roll-on/roll-off vessels. The need is gradually arising for construction, at least in some major ports, of highly specialised and costly container terminals.

Because of the complex nature of port management and port planning and to make operations more efficient the ports of developed countries have introduced computers into their operations. As already stated port planning and operations are becoming more complex and the ports of developing countries have to start thinking seriously about mechanization and doing something in the direction of application of computer technology to their operations. The personnel have to be equipped with the skills in computer operations by training. Economic planning has to be taken seriously to analyse the cost of effectiveness of new or proposed investments; modern methods of forecasting the growth of economic activities due to port operations have to be undertaken. In short scientific approach to port management, planning and operations have to be applied. However, caution must be exercised especially in the developing countries when applying these sophisticated procedures if costly mistakes are to be avoided.

3 Ibid page 2 para. 2.
3.2 HOW TO SOLVE THE PROBLEMS

To overcome the above difficulties the developing countries could ask for technical advice and financial assistance from international sources such as the United Nations, World Bank, European Development Fund, United States Agencies, British, French, West Germany, Scandinavian as well as Japanese and Dutch governments and others to give assistance to developing countries in port development.

In developing countries land is available and easy to get for development into large modern ports while this is not the case in the developed countries.

The developing countries also have the advantage of starting their port development programmes from the scratch and therefore could be free from bureaucratic routines and old habits which plagued most of the ports of the developed countries.

Ports are basically established

"to provide a fast and efficient dispatch of vessels and a rapid, safe and economical flow of cargo through the port."\textsuperscript{4}

To achieve rapid economic development it is absolutely necessary for developing countries to improve their ports to facilitate fast and efficient working of cargo. This will reduce the cost of their imports and make their exports cheaper on the world market and the net result will be more

\textsuperscript{4} Ibid
revenue in foreign exchange which could be used on importing the necessary machinery and equipment for industrialization and other imports for development and improving the living standards of their citizens.
CHAPTER 4

A BRIEF HISTORY OF THE DEVELOPMENT OF THE PORTS IN GHANA

4.1 FACTS AND FIGURES ABOUT GHANA

The Republic of Ghana lies on the west coast of Africa. It is bounded to the west by the Ivory Coast; to the north by Burkina Faso (formerly Upper Volta); and to the east by the Republic of Togo. The Gulf of Guinea lies to its south.

The southernmost tip of Ghana reaches latitude 4.5° north while the northernmost to 11° north. The Greenwich meridian passes through the sea port of Tema, near Accra, the capital of Ghana. The most westerly point is 3° west and the most easterly, 1.5° east. Ghana covers an area of 239,450 sq kms (92,461 sq. miles). From north to south the longest distance is 872 kilometres (417.5 miles) and from east to west 526 kilometres (327 miles).

Ghana is a tropical country but there are differences in climate between the north and the south. In the north the vegetation is predominantly savanna whilst the rest of the country is tropical rainforest.

Ghana has a population of 12,205,574 according to the results of a census organised in 1983. In 1960 the country’s population was 6,726,815, in 1970 it was 8,559,313 and 1983 figures represent an increase of almost 100% over the 1960 figures.
For administrative purposes, Ghana is divided into ten regions namely Ashanti, Northern, Upper East, Upper West, Brong Ahafo, Western, Central, Greater Accra, Eastern and Volta. Accra in the Greater Accra Region is the capital of Ghana.

4.2 DEVELOPMENT OF FOREIGN TRADE AND THE PORTS

The first contact with Europe was made in 1471 when Portuguese navigators visited in search of gold, ivory and spices. They built a permanent trading post, which is still known as Elmina Castle. The Portuguese acquired so much gold in the country that they named it "mina" or the "mine", while the French called it "cote de l'or". The British were later to call the whole country the Gold Coast.

When, in 1872, the Danish and Dutch governments withdrew from the country, the Colonial Office in Britain decided to turn it into a crown colony. As a result, the southern section of the country became a British Crown Colony. From this base, the British administration extended its influence. Ashanti was annexed in 1901 after a series of wars. A protectorate was declared over the North in 1898 and in 1919 after World War I, part of the German protectorate of Togoland became a British mandated territory. Later, after World War II, the protectorate was administered as part of the Gold Coast and in 1956 the local population decided by plebiscite to join the country on the attainment of independence on 6th March, 1957 and the country was renamed Ghana.
Centuries before the Portuguese merchants first made contact with Ghana, a trade pattern across the Sahara flourished mostly in gold, ivory, slaves, and other commodities. In 1482, the first European trading post was built by the Portuguese in Elmina. Within a century, the Gold Coast became a bustling centre of European trading activities with several forts, trading posts, and surf ports. The forts and trading posts were built by the Portuguese, the English, the Dutch, the Danes, where they carried out their trading activities with the interior in gold, slaves, ivory, spices, etc.

The British eventually edged out all the other European competitors, the last two being the Danes and the Dutch who withdrew in 1872 and thus the Gold Coast became a British Colony. The surf ports were operated in Keta, Accra, Winneba, Cape Coast, Sekondi, and Axim and these continued until the modern ports of Takoradi and Tema were built in 1923 and 1962 when they ceased to function.

After the British took complete control of the Gold Coast, slave trade had been abolished and there was need to seek other sources of trade. Cocoa was introduced in 1898 and later became an important export commodity. The exhaustion of alluvial gold which was the main source of gold production at the time led to the British mining companies exerting pressure upon the government in power at the time for the provision of transport facilities for the exploitation of the rich mineral resources of the hinterland and the
export of other raw materials such as rubber, timber and palm oil. The first surveys for projected rail lines were made during that decade. In 1898, the Sekondi-Tarkwa line was begun to the gold mining area which was completed in 1901, connecting the goldfields at Tarkwa to the surf port at Sekondi on the coast. This line was extended to Kumasi by late 1903 where cocoa and timber were produced and to enable the British move troops easily for the annexation of Ashanti.

In the east, agricultural and forest production also benefitted greatly from the railroad begun in 1907 at Accra. By 1915 it had reached Koforidua and carried no less than 40,000 tons of cocoa. The process of railway construction was interrupted by the First World War, but soon after the war it was begun again in 1918 and by 1923 Kumasi and Accra were linked. Another line was started eastward from the Sekondi-Kumasi railroad, through the Central Region, reaching its terminal, Kade in 1927, to facilitate the agricultural and other forest products exploitation of this area.

The surf ports of Sekondi and Accra were both roadsteads where surf boats operated between ship and shore to link the railroads. The other surf ports were merely import ports.

In 1923, however, work started on the first deep water port at Takoradi which was opened in 1928. This was to enable the importation of very heavy machinery for the new gold,
bauxite and manganese mines which were developed and to facilitate the easier exportation of the bulk ores and the forest products especially timber and cocoa.

Between 1953 and 1956 Tema was linked to the railway system at Achimota to complete the triangle. A short line was built from Tema to the Shai Hills in the Accra Plains to facilitate the easy conveyance of rocks for the building of the port of Tema.

In 1962 as a result of the aluminium shipments associated with the Volta River Project and also as a result of the long distance between Takoradi port and the smelter site and the costs involved in modernising that port it was decided that a new port should be built at Tema on a natural unsuitable coast. This was also possible as a result of the vast resources at the disposal of the government at the time and the co-operation of British business consortia. The port was built at the cost of 250 million pound sterling.

With the opening of the second deep water port in Tema the surf ports at Axim, Sekondi, Cape Coast, Winneba, Accra, Ada and Keta were discarded.

See Annexes 1A for the Economic Map of Ghana 1B for the Development of Ports in Ghana

CHAPTER 5

PHYSICAL FEATURES OF THE PORTS IN GHANA

5.1 THE PORT OF TAKORADI

This was the first deep water port constructed in Ghana. It was started by the British in 1923 and was opened in 1928 mainly to facilitate the export of raw materials. A major extension was made to the port in 1945 and this unfortunately has been the only attempt to modernise the port.

The port presently handles most export cargo consisting mainly of logs, sawn timber, cocoa, manganese and bauxite, which together make up approximately 70% of all cargo handled in the port. The remaining 30% comprise imports consisting mainly of general cargo and bulk cargo such as clinker, coal, wheat and refined petroleum products. The export cargo excluding the ores, that is, manganese and bauxite are ferried by lighters and barges to the shipside and loaded on board by the ship's own derricks and gear. This process of loading cargo is slow and very expensive. It served its purpose in the 1920's but presently it is archaic and has to be discarded. The port has an enclosed water area of 207 acres and comprises a main breakwater of 7,740 feet long and a lee breakwater of 5,992 feet long. Spring tides rise 5.20' while neap tides rise 0.1'.

The port has 10 berths and 9 mooring buoys with the under-listed features:
<table>
<thead>
<tr>
<th>Berthage</th>
<th>Wharf Length</th>
<th>Draft Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Manganese</td>
<td>520'</td>
<td>28'06&quot;</td>
</tr>
<tr>
<td>2. Berth (for general cargo)</td>
<td>550'</td>
<td>26'00&quot;</td>
</tr>
<tr>
<td>3. &quot; &quot;</td>
<td>500'</td>
<td>28'06&quot;</td>
</tr>
<tr>
<td>4. &quot; &quot;</td>
<td>600'</td>
<td>28'00&quot;</td>
</tr>
<tr>
<td>5. &quot; &quot;</td>
<td>270'</td>
<td>28'00&quot;</td>
</tr>
<tr>
<td>6. &quot; &quot;</td>
<td>500'</td>
<td>29'03&quot;</td>
</tr>
<tr>
<td>7. Oil Berth</td>
<td>600'</td>
<td>29'03&quot;</td>
</tr>
<tr>
<td>8. Bauxite</td>
<td>505'</td>
<td>32'06&quot;</td>
</tr>
<tr>
<td>9. Clinker</td>
<td>450'</td>
<td>24'00&quot;</td>
</tr>
<tr>
<td>10. Coal</td>
<td>250'</td>
<td>14'00&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Buoy System</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. No. 1 Buoy</td>
<td>610'</td>
<td>F.32'06&quot; A 34'00&quot;</td>
</tr>
<tr>
<td>2. &quot; 2 &quot;</td>
<td>550'</td>
<td>F.30'06&quot; A 31'00&quot;</td>
</tr>
<tr>
<td>3. &quot; 3 &quot;</td>
<td>570'</td>
<td>F.27'00&quot; A 30'00&quot;</td>
</tr>
<tr>
<td>4. &quot; 4 &quot;</td>
<td>520'</td>
<td>F.27'00&quot; A 30'00&quot;</td>
</tr>
<tr>
<td>5. &quot; 5 &quot;</td>
<td>510'</td>
<td>F.24'00&quot; A 27'00&quot;</td>
</tr>
<tr>
<td>6. &quot; 6 &quot;</td>
<td>480'</td>
<td>F.24'00&quot; A 26'00&quot;</td>
</tr>
<tr>
<td>7. &quot; 7 &quot;</td>
<td>450'</td>
<td>F.23'00&quot; A 25'00&quot;</td>
</tr>
<tr>
<td>8. &quot; 8 &quot;</td>
<td>400'</td>
<td>F.21'00&quot; A 22'00&quot;</td>
</tr>
<tr>
<td>9. &quot; 9 &quot;</td>
<td>340'</td>
<td>F.18'00&quot;</td>
</tr>
</tbody>
</table>

The port has 35 portal cranes between 3 tons and 15 tons; 20 gantry cranes between 3 and 7 tons and 5 mobile cranes between 15 tons and 17.5 tons.
There are 8 transit sheds for general cargoes with storage capacities ranging between 3,000 to 8,000 tons each for imports and other exports. There are 19 cocoa sheds with 24,000 tons to 26,000 tons capacities for storage of cocoa for export. There are 2 sawn timber sheds measuring 60,820 sq. feet each. There is a log pond for round logs meant for export. Open storage area in the port is however quite limited and this is a great handicap to the port.

Manganese ore is brought from the hinterland by railway trucks and tipped out direct at the manganese berth and discharged through an electric conveyor belt into the ship's hold. This berth has been leased out to the Manganese Mining Company and repairs are undertaken to the berth on their behalf by the Authority.

Bauxite is loaded from the bauxite berth. The ore is dumped outside the port security area by the railway trucks which bring them from the hinterland. The ore is conveyed by an aerial ropeway and loaded direct into ship's hold by two chutes. There are 174 buckets on the ropeway and each bucket carries a load of 1.6 tons. This berth has also been leased to the Ghana Bauxite Mining Company and repairs are undertaken on their behalf by the Authority.

There is an oil berth for the discharge of refined petroleum products which is situated on the outside of the lee breakwater with the protection of the port. The oil is
pumped into tank farms nearby owned by the various oil companies.

A cement clinker jetty has been constructed to the seaward side of the main wharf as part of a cement factory project. This jetty was constructed on a reclaimed area and it started operations in July, 1968. This has been the most modern addition to the port and it was financed by the cement factory.

The jetty measuring 1,195 feet is located 800 feet to the north of the Main Wharf. It can berth ships drawing 23 feet of water for the discharge of cement clinker by a conveyor system to the Ghana Cement Factory (GHACEM), a joint venture between the Government of Ghana and Norway.

The port has a slipway for vessel repairs and can take vessels up to 500 tons dead weight. There is a small drydock for vessels up to 100 feet in length between perpendiculars and 24 feet 6 inches beam.

The slipway and drydock are used mostly for the repair and docking of the Authority's floating crafts and for the repair of lighters, barges and fishing vessels. As already pointed out the port was constructed in 1928 and the major extension done to it was undertaken in 1945. The layout of the port is very old in concept and design. The old method of vessels anchored at the buoys and cargo lightered to the vessel is outdated and economically unfeasible because it is very slow.
The situation is worsened by the age and condition of the lighters which deteriorated over the years and have caused some of them to sink in various parts of the port area. The lighters still in operation are in various stages of deterioration and most of them do not have adequate waterproof covering or tarpaulin for protecting cargo during rainfall.

The lighterage services in the port were formerly performed by a pool of expatriate shipping agencies. In 1973, however the lighterage services were taken over by Ghanaians and later in 1978 the Ghana Lighterage Company was formed with shares held between Ghana Cargo Handling Company and the State Shipping Corporation (Black Star Line).

As stated above, the lighters, barges and launches operated by the Ghana Lighterage Company are old and many of them have sunk or have been scrapped. At present there are only 15 lighters and 3 barges in service. This makes service in the port very slow and several ships leave port without taking their full cargo because they have to meet other schedules. Because of the slow rate of loading demurrage has to be paid and this hurts the country's export trade and therefore her foreign exchange position.

See Annex 2A for Drawings of the Port of Takoradi.

5.2 THE PORT OF TEMAN

The port of Tema was built in 1962 and has an entrance 800 feet wide with a depth of at least 35 feet. The area of
enclosed water in the main port is 410 acres with a Fishing Harbour adjacent to the port in the eastern end.

The main breakwater is 8,250 feet long and the lee breakwater is 3,650 feet long. There are two main quays of which Quay No. 1 is 4,300 feet long and Quay No. 2 is 2,900 feet long. Spring tides rise to 8'2" and neap tides rise 3'0".

Berthage at the port is as follows:

<table>
<thead>
<tr>
<th>Berth</th>
<th>Wharf Length</th>
<th>Draft Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berth No. 1</td>
<td>600 feet</td>
<td>31'6&quot;</td>
</tr>
<tr>
<td>&quot; &quot; 2</td>
<td>600 &quot;</td>
<td>28'0&quot;</td>
</tr>
<tr>
<td>&quot; &quot; 3</td>
<td>485 &quot;</td>
<td>25'0&quot;</td>
</tr>
<tr>
<td>&quot; &quot; 4</td>
<td>600 &quot;</td>
<td>25'9&quot;</td>
</tr>
<tr>
<td>&quot; &quot; 5</td>
<td>600 &quot;</td>
<td>25'6&quot;</td>
</tr>
<tr>
<td>&quot; &quot; 6</td>
<td>600 &quot;</td>
<td>24'0&quot;</td>
</tr>
<tr>
<td>&quot; &quot; 7</td>
<td>600 &quot;</td>
<td>26'0&quot;</td>
</tr>
<tr>
<td>&quot; &quot; 8</td>
<td>600 &quot;</td>
<td>25'0&quot;</td>
</tr>
<tr>
<td>&quot; &quot; 9</td>
<td>600 &quot;</td>
<td>25'0&quot;</td>
</tr>
<tr>
<td>&quot; &quot; 10</td>
<td>600 &quot;</td>
<td>25'0&quot;</td>
</tr>
<tr>
<td>&quot; &quot; 11</td>
<td>600 &quot;</td>
<td>25'6&quot;</td>
</tr>
<tr>
<td>&quot; &quot; 12</td>
<td>600 &quot;</td>
<td>25'0&quot;</td>
</tr>
<tr>
<td>Oil Berth</td>
<td>Ships up to 650</td>
<td>32'0&quot;</td>
</tr>
<tr>
<td>Valco Berth (Private berth)</td>
<td>Ships up to 600</td>
<td>32'0&quot;</td>
</tr>
</tbody>
</table>

Moorings

<table>
<thead>
<tr>
<th>Moorings</th>
<th>Length of Ship</th>
<th>Draught</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 South Buoys</td>
<td>430 feet</td>
<td>32'00&quot;</td>
</tr>
<tr>
<td>4 South Buoys</td>
<td>500 &quot;</td>
<td>32'00&quot;</td>
</tr>
<tr>
<td>1 Buoy</td>
<td>150 &quot;</td>
<td>14'00&quot;</td>
</tr>
<tr>
<td>2 Buoys</td>
<td>300 &quot;</td>
<td>21'00&quot;</td>
</tr>
</tbody>
</table>
These moorings are for vessels which are crippled and are awaiting repairs or which want to go into the drydock for drydocking and repairs.

The port of Tema has a large storage area comprising the following:

9 transit sheds with sheds 1, 4 and 5 each having an area of 39,100 sq. feet and storage capacity of 3,500 tons each. Shed No. 2 is a two storey building with a passenger terminal and lounge on the top floor as well as offices for customs and shipping companies and the down floor has an area of 42,500 sq. feet and storage capacity of 4,500 tons. Transit sheds Nos. 6, 7, 9, 11 and 12 have an area of 48,000 sq. feet each with each having a capacity of 4,000 tons. Shed No. 8 was razed down by fire in 1979 and has since been demolished and the area of 48,000 sq. feet is used for stacking containers.

Shed No. 10 is an export shed with an area of 4,200 sq. feet and capacity of 1,000 tons. There are 4 cocoa sheds for storage of cocoa for export which can hold 15,000 tons each.

There are 2 state warehouses used by the Customs and Excise Department each with 17,000 sq. feet and a Port Back Shed of 10,400 sq. feet and 4 hazardous cargo sheds for storage of dangerous goods such as matches, acids, carbide and some types of explosives. These sheds are far removed from the main working area of the port.
The port has a large open storage area of approximately 1,080,000 sq. feet. Immediately outside the port is a large area of warehouses belonging to private companies. In addition to these there is a large back up area of approximately 60,000 acres undeveloped belonging to the Ports Authority.

As regards port equipment, the Port Authority has 20 portal cranes with cargo handling capacities ranging between 3 and 10 tons. There are also 4 mobile cranes with capacities ranging between 5 tons and 45 tons. There are two conveyor systems in the public port for loading cocoa and for the discharge of grains. The cocoa conveyor system has 4 out loaders working 30-35 tons per hour when all the 4 outloaders are working or 2 outloaders working on high speed at 70 tons per hour serving berths 6 and 7. The grains conveyor serves berth No.11 and has 1 fixed pneumatic suction unloader which can be operated at 500 tons per hour.

Ship repair facilities are available in the port but come under the jurisdiction of another public organization, the Tema Shipyard and Drydock Corporation for the repair of vessels. The marine drydock is 44 feet wide at the gate, 336 feet long and has a depth of 17 feet on the sill mostly used for the Ghana Ports Authority’s floating crafts and for the repair and drydocking of fishing vessels.

For the repair of ocean going vessels the large drydock is used which is 910 feet long, 150 feet wide at the gate and has 27 feet of water on the sill. The approach channel to
the drydock is dredged to 17.5 feet but could take a vessel of 21.5 feet draft at high tide.

The Volta Aluminium Company (Valco) a subsidiary of Kaiser Aluminium Company of the United States has a private berth in the port which can take vessels up to 600 feet in length and drawing 32 feet of water. This berth has a conveyor system for the discharging of alumina into silos outside the port security area outside the main port. The Ghana Ports Authority has no say in the operations at this berth except bringing the vessels to berth. All repairs on the wharf are undertaken by the company itself. The Authority however dredges the berth as part of the dredging of the whole port for which the company is charged an annual fee.

The oil berth has a draft of 32 feet and normally takes ships up to 650 feet long. However in 1983 a vessel up to 700 feet in length was accommodated at the berth. Two more bollards were acquired and erected at the berth to enable larger vessels to be berthed. The pipeline from the berth to the refinery 10 kilometres away are owned by the Ports Authority.

See Annex 2B for Drawings of the Port of Tema.

5.3 FACILITIES PROVIDED IN THE PORTS

Both ports have fresh water for ships. In Tema fresh water is supplied from the berths while in Takoradi it is normally supplied by two water barges belonging to the
Ports Authority. The Takoradi Port of late has got problems with the supply of water because of severe drought which has hit the area and the sources of water dried up. The port has therefore temporarily suspended the supply of fresh water to ships.

Bunkering facilities are also available at both ports. Bunkers could be taken in the port of Tema at the Oil Berth or supplied at the berths from tanker vehicles. In Takoradi port, diesel and fuel oil are available at 4 main berths and at the Oil Wharf. These are provided by the oil companies notably Shell Company (W.A.) Ltd. and Mobil Oil (Ghana) Ltd.

Pilotage in both ports is compulsory for vessels over 10 tons gross tonnage and it is provided by locally trained pilots of the Ghana Ports Authority. Vessels exempted from compulsory pilotage are naval ships belonging to the Republic of Ghana; ships owned or operated by the Ports Authority, pleasure yachts; ships under ten tons gross tonnage; and tugs, dredgers, barges or similar vessels whose ordinary course of navigation does not extend beyond the limits of any port.

Towage and tug service is also provided by the Ports Authority. The Authority has three tugs in each port and normally two tugs are used in movement of vessels and the third is normally on stand-by. With very small vessels one tug is normally used.
Vessel traffic service is also provided in both ports. There is a VHF system in both ports and vessels three miles out of the ports have to call the Signal Station to give their names, call sign, their flag or nationality, the type of cargo they are carrying and the tonnage and the name of their agent. With these information the ship is registered and will be allocated berth which is normally done on first come first served basis with very few exceptions.

Mooring of vessels is also undertaken by the Authority. The Authority provides mooring men and mooring crafts to take the ship's ropes and see to the safe mooring of vessels at the wharves. The vessels however have to provide their own mooring ropes and have to ensure that these mooring ropes are in good condition and strong enough to hold the vessels at the berth. Fenders at the berths, wharves and jetties are all provided by the Ports Authority.

Dredging of the ports is also undertaken by the Authority. The Authority had two dredgers a self propelled grab dredger with two barges capable of holding 30,000 cu. ft of dredged material each in Tema and a bucket dredger without engines but towed with tugs was used in Takoradi Port. This barge has since 1981 been out of service and has been dumped. Both ports have railway links to all the sheds and storage areas in the ports.
5.4 TEMA FISHING HARBOUR

The port of Tema has a fishing harbour attached to it. The fishing harbour has two main basins:
1. the Inner Fishing Harbour which caters for small crafts and
2. the Outer Fishing Harbour with a depth of 21 feet for larger fishing vessels
3. there is also a smaller canoe basin for the indigenous fishermen who still use the canoes fitted with outboard motors.

INNER FISHING HARBOUR

This has a North/South Quay with the following features:

<table>
<thead>
<tr>
<th>Berth</th>
<th>Length of Ship</th>
<th>Draught</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1</td>
<td>190 feet</td>
<td>11'00&quot;</td>
</tr>
<tr>
<td>&quot; 2</td>
<td>180 &quot;</td>
<td>12'00&quot;</td>
</tr>
<tr>
<td>&quot; 3</td>
<td>170 &quot;</td>
<td>17'00&quot;</td>
</tr>
<tr>
<td>&quot; 4</td>
<td>240 &quot;</td>
<td>15'00&quot;</td>
</tr>
<tr>
<td>&quot; 5</td>
<td>240 &quot;</td>
<td>14'00&quot;</td>
</tr>
</tbody>
</table>

OUTER FISHING HARBOUR

<table>
<thead>
<tr>
<th>Berth</th>
<th>Length of Ship</th>
<th>Draught</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1</td>
<td>200 feet</td>
<td>15'06&quot;</td>
</tr>
<tr>
<td>&quot; 2</td>
<td>240 &quot;</td>
<td>16'03&quot;</td>
</tr>
<tr>
<td>&quot; 3</td>
<td>240 &quot;</td>
<td>18'00&quot;</td>
</tr>
<tr>
<td>2 Buoy Moorings</td>
<td>250 &quot;</td>
<td>16'00&quot;</td>
</tr>
<tr>
<td>1 &quot; Mooring</td>
<td>350 &quot;</td>
<td>20'00&quot;</td>
</tr>
</tbody>
</table>

The depth of water in the approaches to the outer
Fishing Harbour is 25 feet. However there is a 16 foot rocky path at the entrance. Vessels drawing more than 18 feet therefore have to navigate with the rise of the tide.

The depth of water in the entrance of the Inner Fishing Harbour is about 16 feet but a rocky patch with only 15 feet near the entrance is marked with a conical BWVS Buoy. The three mooring buoys are meant for crippled vessels which are awaiting parts for repairs or which are waiting to be taken on the mechanical slipway for repairs.

The fishing harbour is overcrowded and several broken down vessels simply remain there because there is nowhere else to keep them while awaiting repairs. The Ghana Boatyards and Tema Shipyard and Drydock Corporation are not able to cope with the volume of work. The fishing harbour which was built in 1962/63 has not been extended or modified and has become too small for the traffic.

There is need to modernise the harbour and extensions made to it to cope up with the increase in fishing activities in Ghana. There is also the need for more fishing harbours to be built along the coast and also more repair facilities provided for the fishing industry.

To ensure the safety of the lives of the fishermen as well as their investment in the fishing vessels it is recommended that Ghana ratifies and implement the Torremolinos International Convention for the Safety of Fishing Vessels, 1977. The FAO/ILO/IMO Voluntary Guidelines for the Design Construction and Equipment of Small Fishing Vessels and
the FAO/ILO/IMO Code of Safety for Fishermen and Fishing Vessels, Part A, Safety and Health Practice for Skippers and crews have to be adopted into national regulations by the Ministry of Agriculture.

The country will also have to ratify and adopt the new Law of the Sea Convention in order to claim 200 nautical miles Exclusive Economic Zone for fishing and other activities.

5.5 MAINTENANCE OF THE PORTS

Maintenance of the two ports, the facilities and equipment such as wharves, jetties, transit sheds, tugs, launches, cranes, navigational aids and beacons, is the responsibility of the Ghana Ports Authority. These jobs are all undertaken by the staff and employees of the Ghana Ports Authority. No maintenance job is given out on contract to outside organisations.

In the port of Tema the civil engineering structures are sound except for a problem of suspected settlement of the main breakwater. The original designers, Sir William Halcrow and Partners were contacted in 1980 to find the cause and suggest remedial measures which they did. The Authority casts concrete cubes-in-situ at the area of the settlement to maintain the original height of the breakwater and to prevent the waves from coming into the main basin of the port.

In the port of Takoradi, on the other hand, the main
structure is old and needs constant attention and maintenance. As stated earlier, the main port was built in 1928 and 2 more quays were added in 1945 so that special efforts are needed to deal with strengthening of the wharves and quays.

The floating crafts and shore equipment of the Authority vary in age in both ports. Two tugs are fairly new having been bought in 1978. The four others were acquired much earlier in 1970 but are in fairly good shape. The pilot launches were bought in 1982. The dredgers are however old. The dredger in Tema was acquired in 1965 while that at Takoradi port was acquired in the 1950s and has been scrapped and dumped. The water barges at the port of Takoradi and the shore cranes are old too. The problem here is procurement of spare parts to rehabilitate some of these equipment which have life span of 10-15 years. There is a question of foreign exchange to get the spare parts and replacements for some of the equipment which have become obsolete. This has not been very easy.

As stated earlier the repair and maintenance of the crafts equipment and the infrastructure are done by the engineering departments of the Authority. Modern workshops are necessary which must be well-equipped for the purpose. This is not the case but the officers use their ingenuity to get the jobs done. The Authority does not have its own slipway and drydock in Tema because two slipways and one drydock belonging to the Authority were taken over by the Tema Shipyards and Drydock Corporation
(TSDC) in 1967 with the understanding that the TSDC will give preference to the crafts of the Authority when they are due for drydocking or for repairs. In practice however this has not worked satisfactorily and sometimes the Authority's craft had to wait in the queue to go for drydocking in Tema.

In the port of Takoradi, the Authority has its own dry dock and slipway for the repair of the floating crafts. Here however the slipway has developed some mechanical faults with the rails and slipway toes. The main handling cradle and side transfer cradles needed rehabilitation too.

In addition to spare parts, marine paints, steel plates, welding equipment and materials were in the past very difficult to acquire because of the foreign exchange restrictions imposed by the Government. This position was alleviated from 1961 when under British Government loans to Ghana, the Ghana Ports Authority was granted 1.5 million pounds sterling which was used to order spares to rehabilitate the quayside cranes and equipment of UK origin in both ports. In addition DM 270,000 was allocated to the Authority under a West German loan to Ghana to order spare parts from that country for the Authority's equipment of West German origin. Under Title II of the UK loans to Ghana in 1982 a further 1.7 million pounds sterling was granted to Ghana Ports Authority which was used to buy pilot launches, dumpers, trucks etc. for the Ghana Ports Authority.

In September, 1983 the Government approved the collection
of all port dues and rates in foreign exchange and allowed
the Ghana Ports Authority to operate a foreign account of
$0.5 million for the acquisition of spare parts and paints
for the maintenance of the port equipment and crafts.

The Authority spent $36 million, about $1.01 million
($35 = $1.00) on the Port of Tema in 1983 for the mainte-
nance of infrastructure equipment, crafts, dredging,
resurfacing of roads and quays and $10 million i.e. about
$300,000 on the port of Takoradi during the same period.
The port of Takoradi is less in use now due to the decline
in economic activities in the country and therefore needed
less maintenance.

It is the writer's opinion that it is not necessary for
the Authority to undertake all the maintenance jobs by it-
self and thus maintaining a large staff of artisans techni-
cians and labourers. Apart from their salaries, the
Authority also pays their social security, medicare,
housing allowance, meal subsidy, protective clothing and
other facilities have to be provided which greatly increases
the administrative and operating costs.

Most of the civil engineering work could be given on
contract to very competent engineering companies in the
country instead of the Authority doing it all by itself.
A small staff of engineers and technical officers could be
kept for designing and planning purposes and for minor repair
works only to be taken care of by the Authority.

One big workshop should also be established to take care of
the electrical, mechanical and marine equipment of the Authority such as the tugs, dredgers and floating crafts. Here all the repairs of both ashore mechanical equipment as well as the crafts could be undertaken and this could lead to a drastic reduction in the staff position. It would also lead to a reduction in idle time and economies of scale of production will be achieved. This should replace the present system of small workshops scattered all over the place by the different units of the Authority.

With the maintenance of equipment, infrastructure and crafts, a planned maintenance programme must be drawn by the engineers and followed. This is not done at the moment and sometimes equipment and infrastructure are left to breakdown completely before repairs are carried out which increase costs. The old adage of "a stitch in time saves nine" must be followed not only in the Authority but in all areas of the economy to plug the holes through which the economy is drained.

The problem of proper maintenance of equipment and infrastructure has been noted by the various Governments and is being given due attention in all sectors of the economy as contained in the passage quoted from the Five Year Development Plan of the Supreme Military Council.

"There is one major problem that faces all existing modes of transportation and that is lack of adequate periodic maintenance to keep the basic infrastructure in the country intact. Due to lack of maintenance and repair there is a real danger that investment in the sector may seriously
It is of utmost importance that all the port equipment and infrastructure are always in top gear to accept, accommodate and work vessels in port so that imported cargo is quickly discharged and the vessel despatched especially vessels on charter so that despatch money could be earned and the cost of imports is cut down to the minimum and demurrage is not incurred nor any surcharges imposed which are a drain on the economy of the country.

It is also absolutely important for exports have to be loaded in the ports quickly and sent out so that the country earns the foreign exchange needed for investment in the industrial sector.

Maintenance of the ports to keep them in shape to meet the purpose for which they were built need not be over emphasised. All the reasons for building the ports in the first instance are still relevant today and considering that a lot of money has been invested in building the ports, men are employed and owe their livelihood to the continued operation of the ports, the Ghanaian economy as a whole is linked to the ports and therefore no effort should be spared to maintain and improve the ports and ensure that they are operated efficiently.

Footnote:

CHAPTER 6

THE ADMINISTRATION OF THE PORTS IN GHANA

6.1 (a) ESTABLISHMENT OF THE AUTHORITY

The responsibility for administering the two ports of Takoradi and Tema is entrusted to the Ghana Ports Authority which was established in 1977 as a statutory organisation following the enactment of the Ghana Ports Authority Decree, 1977 (SMCD 96).

Previously, the ports were administered together with the railways by the Ghana Railway and Ports Authority which came into existence in 1973. Before then the railways and the ports were administered by the Ghana Railway and Ports Administration as a Civil Service Department under the Ministry of Transport and Communications. With the enactment of the Ghana Railway Corporation Decree 1977 (SMCD 95) and the Ghana Ports Authority Decree, 1977 (SMCD 96) the railways and the ports became two autonomous state corporations.

The decision to decentralise was taken in 1977 by the Supreme Military Council, (SMC) the government of the day, to facilitate the technical development of the ports and the railways as two separate viable entities. It was believed that this would lead to the rapid development of the transport sector of the economy which will in turn facilitate faster economic development of the country. It was also believed that with the decentralisation both organisations would be able to attract men of foresight
and sound judgement as administrators and technical experts to undertake the developments necessary.

It was also felt that the ports could function better and be more prosperous on their own than a large organisation as the Railway and Ports Authority with a large bureaucratic machinery under the General Manager of Railway and Ports which tended to stifle developments. With the separation, the administrative pattern of the ports were drastically changed and this change is still in progress and a bit difficult to carry out because of the relatively long existence of the Railway and Ports Administration which officially started in 1928 with the opening of the port of Takoradi in that year. Long established habits, vested interests and authority exercised by officers through control over some port activities have not been easily relinquished.

The headquarters of the Authority is at Tema instead of the former headquarters at Takoradi which was maintained by the Ghana Railway Corporation. The port of Takoradi is therefore now controlled from the new headquarters at Tema. Apart from the two ports at Takoradi and Tema, the Authority is also responsible for all light houses and navigational needs of the country along Ghana's coasts.

6.1 (b) DUTIES OF THE AUTHORITY

The duties of the Authority are all clearly stipulated in the statute setting it up and include, inter alia, the provision of the necessary facilities, equipment and
infrastructure for the efficient and proper operation of the two ports which includes the responsibility for the provision, management and maintenance of wharves, jetties, transit sheds, tugs, cranes, launches, slipways and workshops for repairs etc. The Authority is also charged with the responsibility for the provision of light houses, beacons and other navigational aids to ensure safe navigation of ships in the country's coastal waters. The Authority is empowered to license and supervise stevedores and master carters as well as cargo handling and lightering services in the ports.

The Authority is also responsible for the development of the ports within the framework of the national economic policy. This is stipulated in Section 5 of the Ghana Ports Authority Decree, 1977 (SMCD 95) which reads:

5 (1) It shall be the duty of the Authority
   (a) to provide in a port such port facilities as appear to it to be necessary for the efficient and proper operation of the port;
   (b) to maintain any port and port facilities and to extend and enlarge any such facilities as to it shall seem fit;
   (c) to regulate the use of any port and of the port facilities ....

3 Subject to the provisions of this Decree, it
shall be lawful for the Authority to carry on such activities as it deems advantageous or necessary to carry on for, or in connection with, the discharge of its functions under this section and without prejudice to the generality of the foregoing provision of this section, the Authority may:

(a) acquire, construct, maintain or repair any property movable or immovable required for the purposes of the Authority;

(i) enter into any agreement with any person:

(i) for the supply, construction, manufacture, maintenance or repair by the person of any property movable or immovable which the Authority may require for the efficient discharge of its functions under this Decree; and

(ii) for the operation or provision of any port facilities which the Authority by this Decree is empowered to operate or provide .......

The Authority has been given the right to establish its own rules and regulations, to select and appoint personnel in accordance with their professional abilities through
the Public Services Commission in the case of Senior staff. The Authority is responsible for maintenance of all port works, for preparations of port improvement and extension plans and for awarding contracts for works and supply of equipment subject to approval by the Board of Directors and the Ministry of Transport and Communications and the availability of foreign exchange allocation by the central government.

The Authority is not directly involved in the actual port operations but allocates vessels to be worked to the various stevedoring companies. It however has the right to put pressure on any company if the vessel is not being worked properly.

The Authority supervises the general operation of the ports. It establishes tariffs and port dues with the approval of the Minister for Transport and Communications after prior consultation with the port users such as Shipping Companies and agents, Ghana Shippers' Council and the Ghana Chamber of Commerce. The Authority collects the dues and retains them. The stevedoring and cargo handling charges are supposed to be fixed by the Ghana Cargo Handling Company with the consent of the Minister after prior consultation with the Shipping Companies, agents and Shippers' Council. This has however not happened often and there have been protests by the Shipping Companies. See Annex 3.

The statute provides that the Authority could lease property to private firms and could buy or sell land
adjacent to the port, incur financial obligations in its own name and act as a legal entity that is it could sue and be sued.

5.1 (c) GOVERNMENTAL CONTROL

Government's control over the Authority is exercised directly through the Ministry of Transport and Communications but indirectly through the Ministries of Finance, Economic Planning, and Trade who have to approve foreign exchange allocations for capital intensive projects and the allocation of the foreign exchange and establishment of Letters of Credit. The Authority's application for foreign exchange allocation is considered along side the needs of the whole country and trimmed down. In the past it was difficult for the Authority to get foreign exchange allocations to purchase spare parts, marine paints and other equipment because the Authority had to go through this central system. However in 1963 the government approved the operation of a foreign exchange account for the Authority and now it is possible for the Authority to get some parts, paints and other equipment which do not cost over $10,000 without applying for import license. Capital projects however have to be approved by government. Yearly budgets of the Authority are drawn and approved by the Soand of Directors now called the Interim Management Committee of the Authority and not the Ministry of Transport and Communications. Foreign loans and contracts for large works and other activities affecting national security and foreign policy
have to be approved by government.

Plans for major port extension have to be submitted through the Ministry of Transport and Communications to government. Financial management of the port is subjected to control by auditors appointed by government and final accounts of the Authority have to be lodged with the Auditor General's Department and State Enterprises Commission for their scrutiny. Capital budgets have to be lodged also with the Ministries of Finance and Economic Planning to be embodied in the capital budget and development programmes of the country.

6.1 (d) APPOINTMENT OF OFFICERS OF THE AUTHORITY

Appointments of the Director of Ports Services and the two Deputy Directors of Ports Services are made by the government on the advise of the Public Services Commission. They should be persons with appropriate qualifications and experience. Other Senior staff are appointed with the approval of the Board of Directors. Prior to the establishment of Interim Management Committees (IMCs) in 1982, the Board of Directors were appointed by Government. The IMC/Board formulates and approves programmes and budgets of the Authority. The total effect of these legal provisions, powers and limitations make it possible to reconcile the two somewhat contradictory requirements of an ample degree of independence and autonomy for the Authority on one hand, and a reasonable measure of governmental
control on the other hand. This ensures that there is ample freedom for the administrative authorities in the Authority to manage the ports efficiently and to follow a steady, consistent programme of port development without deviating from the general economic policy of the government.

6.1 (e) PUBLIC OWNERSHIP VERSUS PRIVATE OWNERSHIP

Private ownership of land and port installations are not the order but exceptions. A private berth for Volta Aluminium Company (Valco) which imports alumina in bulk and pumps it into silos via a conveyor system is operated in the port of Tema and is the only private installation there. In the port of Takoradi the bauxite and manganese berths are leased out to the companies which deal with these bulk cargoes. The Authority however undertakes the repair and maintenance of the facilities and charges the companies accordingly. The land and all the installations belong to the Authority. Land was leased out to another private company GHACEM to build a clinker jetty with a conveyor system from the jetty by which bulk clinker and gypsum imported is conveyed to the factory.

The oil berth and jetty in the ports of Tema and Takoradi respectively are owned and operated by the Authority. The pipelines to the tank farms outside the ports' security areas are also owned by the Authority. Outside the immediate security areas of the ports, the Authority has leased out land to the various shipping companies, agents and other allied interests for the building of warehouses and other
installations the plans and drawings of which must be approved by the Authority. The Authority has been granted powers also to enter any land contiguous to the ports for any development after giving due notice to the occupier of the land and pay appropriate compensation to the occupier.

Jurisdiction of the Ghana Ports Authority extends over the channels and anchorage grounds near the ports' entrances and pilotage districts which the Authority created in the two ports.

All the transit sheds are owned by the Authority. Cargo is however released to consignees by the Ghana Cargo Handling Company after examination by the Customs and Excise Department. Cargoes which have stayed in a transit shed or the open storage areas for more than two weeks after the departure of the vessel bringing it has to be transferred to the State Warehouses which are controlled by the Customs and Excise Department. This is to create adequate space in the sheds and open stacking areas for cargo. Rent free period of seven days is also granted for the clearance of cargoes in the ports after which the Authority begins to charge port rent. This is to discourage port users from using the ports as warehouses and to prevent congestion in the port. There is normally co-operation between the Authority and the Customs and Excise Department. The Authority provides all the facilities necessary for the Customs to perform their duties. The activities of the Customs Officers and the Border Guards, a unit of the Ghana
Armed Forces are aimed at preventing smuggling, collection
of dues and enforcement of various Customs regulations.
The Authority however does not get involved in the real
operation of the sheds but based on daily reports submitted
by the staff of the Ports Operations Department stationed
in the sheds, berth allocation to vessels is made.

5.1 (f) OFFICES OF THE HARBOUR MASTERS

The offices of the Harbour Masters in both ports are
integral parts of the port administration. The Harbour
Masters are heads of the Marine Operations Departments and
control the pilots, the tugs masters, the mooring men, the
hydrographic section, divers and the signal stations of the
Authority. Activities of the Harbour Masters are closely
connected with the allocation of berths, bringing of vessels
by the pilots and the tug masters into the ports, ensuring
that all the navigational aids in the ports are working
and properly maintained as well as the buoys and the light-
houses. The Harbour Masters also ensure vessel traffic in
the ports and at anchorage through the vessel traffic system
operated from the Signal Stations through the use of VHF
Systems in both ports. Dedicated emergency and distress
calling channels are maintained in both ports. The Harbour
Masters for both ports as well as the Chief Harbour Master
are expected to possess Master Mariner's Certificates and
must have been Masters of foreign going vessels for at
least five years. The Harbour Masters in their capacity as
professional marine officers do not take orders from the
Port Operations Departments headed by Senior Ports
Operations Managers on matters of navigation. However, with respect to movement of vessels in accordance with the Port Operations Departments' plans, they follow instructions of the Senior Ports Operations Managers.

6.1 (g) OTHER SERVICES BY PUBLIC INSTITUTIONS

Health Service, health control of passengers, and various sanitary measures and quarantine or veterinary control are undertaken by Port Health, a unit of the Ministry of Health and the Quarantine Unit of the Ministry of Agriculture.

Passport control and immigration matters in the ports come under the Immigration Department of Ministry of Internal Affairs. Protection of person and property against criminal assaults is the duty of Railway and Ports Police within the port security areas. The Authority maintains a security department with a Chief Security Co-ordinator with a detachment of soldiers from the Ghana Army attached or seconded to it to protect other valuable goods in the ports from theft and pilferage and to safeguard national security. The Railway and Ports Police Unit maintains patrol of the waterfront facilities and vessels at anchorage and the Boarder Guards patrol units ensure that smuggling outside the ports in the country's territorial waters is prevented. The Police also prosecute all criminal offences committed in the ports in the courts.

A close daily contact is maintained by the Authority between the various operations departments, the shipping companies and shipping agents, the stevedoring companies
and Ghana Cargo Handling Company Limited by organising daily berthing meetings chaired by the Senior Ports Operations Managers with the Harbour Masters in attendance. Each service stays within the limits of its responsibilities and where it becomes necessary for close co-operation for example between some of the shipping companies for hiring of their equipment such modalities are worked up at the highest level by common consent between the officials.

6.1 (h) FINANCIAL AUTONOMY OF THE AUTHORITY

The Ghana Ports Authority for it to keep its autonomy has financial independence and self-sufficiency. It has its own budget approved by the Board or the Interim Management Committee (IMC) of the Authority both for revenue and expenses. Proceeds of port dues and other receipts such as rent for leases of plots and buildings, tolls at the gates and from the Fishing Harbour, storage rent levied on cargo which has over stayed in the ports etc. are used exclusively for port administration maintenance and improvement. The Ghana Ports Authority under Part XI - Dues and Rates - Section 77 has power to levy rates and also in special circumstances adjust the dues, rates, rents and charges specified in the published ports (dues and rates) regulations to accord with the special nature of the actual services rendered but the adjustment should not exceed 50% of the maximum dues, rates, rents, or charges so specified. The proviso is not used often and therefore ensures stability in tariffs.
In September 1983 the Authority started a new procedure whereby all ships dues, port dues, light dues, pilotage dues, mooring and berthing charges, charges for tugs and other crafts, charges for underwater services, charges for cranes, stackers, cocoa conveyor etc. are all charged in US dollars except wharfage and storage rent are charged in local currency. The tariffs could also be paid in local currency by Ghanaian registered vessels. This is to ensure that the Authority gets enough foreign exchange to enable her buy spare parts, equipment and marine paints for the maintenance of the ports.

The Ghana Ports Authority has been self-sufficient since the time of separation in 1977. Since the time of separation the Authority has been able to acquire some capital equipment from overseas to improve operations at the Ports. Three 10 ton portal cranes were purchased in 1979/80 and erected at the cost of $200,000. Two fire tenders and fire pumps were purchased, spare parts for the rehabilitation of the port cranes at both ports were undertaken from the resources of the Authority.

6.2 INTERNAL STRUCTURE OF THE PORT ADMINISTRATION

The administration of the Ghana Ports Authority is divided into two main branches; a policy making body, the Board of Directors now called the Interim Management Committee (IMC) and the executive branch composed of the Director of Ports Services, the departmental heads and the entire operating staff.
5.2 (a) THE BOARD OF DIRECTORS NOW INTERIN MANAGEMENT COMMITTEE (IMC)

Under the Part II (Establishment of Forts Authority) Section 3, of the Ghana Forts Authority Decree, 1977 (SMCD 96) it is stipulated that:

3 (1) The governing body of the Authority shall be the Board whose members including the Chairman shall be appointed by the Supreme Military Council (which was the government of the day).

(2) The Board shall consist of:
   (a) a Chairman
   (b) the Director of Forts Services
   (c) a representative of the Ministry of Transport and Communications
   (d) a representative of the Ghana Railway Corporation
   (e) four other persons with experience in commercial shipping or other relevant professional fields.

(3) The term of office of members of the Board other than the Director of Forts Services shall be two years.

(4) Every member of the Board shall, at the expiration of his term of office be eligible for re-appointment.

The Board was expected to meet at least once a month but emergency meetings could be called at the request of two
members of the Board to the Director of Ports Services in writing with a summary of the business to be transacted at least five days before the date of the meeting. Board members were paid allowances. The Secretary to the Board was expected to be an officer of the Authority to be designated as such and who performed such functions as the Board or the Director of Ports Services would direct in writing.

This system existed until 31st December, 1961 when the military government of the Provisional National Defence Council (FNDC) came into power and issued a directive replacing all Boards by Interim Management Committees for all ministries, departments, statutory bodies and organisations in the country. The Ghana Ports Authority Interim Management was therefore formed in accordance with the directive as follows:

(1) the Director of Ports Services as Chairman
(2) the Financial Controller or Chief Accountant
(3) a representative of the Senior executives
(4) a representative of the middle management
(5) a representative of the Local Workers Union
(6) two representatives of the Workers Defence Committee.

The Interim Management Committee performed all the functions of the Board and adopted all the procedures for Board meetings except that emergency meetings could be called within 24 hours and the members were not entitled to any sitting allowances.
In the former system businessmen from the Chamber of Commerce, the Cocoa Marketing Board, Management and Productivity Institute, Ghana Navy, members of Parliament at one time or the other served on the Board. Even though they were men with experience most of them did not understand peculiar problems relating to the ports and therefore it took them a long time to understand the working of the ports and the problems of the Authority. Some of their policies led to clashes between the workers and the Management leading to work stoppages on more than three occasions between 1977 and 1981.

With the Interim Management Committee the suspicion between the workers and the Management was greatly reduced. The leaders of the workers from the lowest level up to the management level are all represented and make the policies and ensure that they are carried out. After most of the Interim Management Committee meeting the Union leaders and the Workers' Defence Committee representatives go out to educate the workers on the decisions. On a few occasions however there were deadlocks on issues at the IMC level because the Union and the WDC members refused to compromise on issues even though they were cut voted at the IMC meetings.

This system has a few disadvantages. Firstly, it does not bring the experience and outsiders' views to bring upon the administration of the Authority and makes it more inward looking than progressive. The problem becomes more acute if the level of education and exposure of the members of
the members of the Interim Management Committee are inadequate. This could have a very disastrous effect on the organisation in the long run.

After having observed how the Interim Management Committee of the Authority worked it would be suggested that a mixture of the two systems should be adopted by amending the statute which set up the Authority so that workers' representatives as well as port users, shipping companies or their agents, Chamber of Commerce and various business interests could be represented on the Board. Moreover since the Board represents both ports its membership should be drawn from both ports. In this regard a 20 member Board is suggested. This would make the Board larger but small specialised committees could be established to perform a substantial part of preliminary work required for decision taking by the full Board.

The tenure of the members of the Board should also be increased from 2 years to 4 years to ensure continuity in the work of members. All the Board members should be reimbursed for their travelling costs and incidental expenses connected with their duties. They should also be paid sitting allowances to induce them to devote more of their time to the work of the Board. To ensure that the Board does not unduly interfere in the internal administration of the Authority the definition of their responsibilities must be clearly written and established.

The Board, as a governing body of the Authority has the
ultimate responsibility for the proper functioning of the
ports. However this function cannot be undertaken by the
Board members themselves but should be delegated to the
Senior Executives of the Authority under the supervision
of the Board. The following items could be reserved for
decision of the Board:

1. Administrative set up of the Authority - organisational set up with scheme of service;
2. Operational set up of the ports and operating regulations;
3. Financial policy and approval of annual budgets;
4. Port tariffs and dues and their approval;
5. Controlling the activities of the private contractors in such fields as stevedoring, porterage, cargo handling, lighterage, etc.;
6. Overall policy of port improvement and extension;
7. Approval of contracts for major works and purchases;
8. Sale and long term lease of port property;
9. Salary scales and conditions of service for employees;
10. Selection and appointment of senior officers of the Authority as well as their promotions;
11. General supervision of the administration;
12. Serve as a liaison between the Authority and the central government and the general public.

The system as embodied in the Decree where the Chairman of the Board is appointed by Government and is not a full time official should be maintained because the organisation is not big enough to merit a full time Chairman and the
Director of Ports Services with his two duputies should be able to manage both ports and the administration.

5.2 (b) ORGANISATION OF EXECUTIVE OFFICES

The Director of Ports Services is the Chief Executive of the Ghana Ports Authority and according to Section 8 of the Ghana Ports Authority Decree, 1977 (SI.CO 96) he shall be appointed by the government and be charged with the direction of the day-to-day business of the Authority and control of its employees, and subject to such directions as may be given by the Board. It is also stipulated that the Director of Ports Services should be a person with appropriate qualification and experience. The actual qualifications for the post are stipulated in the Scheme of Service of the Authority and after shortlisting of applications for the post by the Board of Directors, the Public Services Commission takes over the selection process with the Chairman of the Board serving on the interview panel. The result of the panel is submitted through the Ministry of Transport and Communications to the cabinet for approval and appointment and this process goes for the two deputies as well.

6.2 (c) DUTIES OF THE CHIEF EXECUTIVE

By the very nature of his duties the Director of Ports Services should be acquainted with all aspects of port operations, the deficiencies in the port and requirements of traffic. He should maintain daily contact with all his departmental heads as well as with the main users of the ports. On his shoulders rest the efficient
administration of the ports.

The Director of Ports Services should be very familiar with the economy of the country, knowing the peak seasons of the country's exports and imports, transport problems and should have a high degree of initiative and vision, in addition to his managerial talents. His personal qualities and ability to make sound judgment matter more than his academic or technical qualifications.

The duties of the Chief Executive cover a very vast area of responsibility and the duties involved are numerous. He is responsible to the governing body of the Authority and to the government for the proper functioning of the ports in accordance with its economic policies and objectives and the guidelines established by the governing body, and the legal statute establishing the Authority.

The most important functions of the Chief Executive are to implement decisions of the Board, to organize operations in the ports within the framework approved by the governing body of the Authority, and ensuring that the departmental heads carry out their duties properly. He should be strict and firm in ensuring the abuses of authority and negligence are curbed:

"The execution of Board decisions and the initiating of specific proposals for Board consideration must be of necessity rest upon the paid staff headed by the Chief Executive Officer, who, to a large degree, becomes the mainspring of the organization. His ability to organize a capable professional staff, to inspire loyal and devoted service to the
organization, to organize for Board consideration the activity programme, and to maintain smooth working relationships with the Board, port users, government and the general public, is essential. Like the members of the Board, the Chief Executive may be found in any one of several diverse professional backgrounds. In the writer's experience, such officers of exceptional competence have been drawn from the ranks of engineers, economists, lawyers, accountants, transport managers, bankers and elsewhere. The most important qualification is an ability to integrate objectively the facts of a situation and to sharpen the issues to a decision-making stage, either for action by himself within his delegated powers, or action by the Board.¹

The Director of Ports Services is responsible for the preparation of plans for port improvement and extension for consideration and approval by the Board. He also prepares amendments to the tariffs and other existing regulations for approval by the Board. Unfortunately however, the Ports Regulations, 1964 (L.1 352) for working and handling of dangerous goods in the ports have not been updated even though new standards have been developed by the International Maritime Organization (IMO) as published in the IMDG Code and the IMO Code on the Conveyance, storage and Handling of Dangerous Goods in Ports Areas and the International Convention on the Safe-handling of containers.

The Director of Ports Services is also free to select his staff, subject to approval by the Board, by the appointment and promotion of senior officers. Under the Board system

¹ Mission: Port Development ... With case studies by Walter P. Hadden pgs. 91-92.
he was a full member of the Board with the right to vote. Under the present system of the Interim Management Committee he is the Chairman and submits the budget and other proposals to the Committee for discussion and approval.

6.2 (d) ORGANIZATIONAL STRUCTURE

Internal organization of the executive offices has been simplified. The Authority has been organised into the following departments in both ports of Takoradi and Tema:

(1) Management
(2) Personnel
(3) Port Operations
(4) Marine Operations
(5) Civil Engineering
(6) Marine Engineering
(7) Electrical and Mechanical Engineering
(8) Accounts
(9) Stores
(10) Internal Audit
(11) Security

Even though there are eleven departments only four officers are supposed to report to the Director of Ports Services on technical matters, namely the Chief Harbour Master, the Chief Operations Manager (a post not yet filled), the Engineer-In-Chief and the Financial Controller. This system brings all the engineering departments under the Engineer-In-Chief; the administrative, personnel,
accounts and stores under the Financial Controller while the operating departments - marine and port operations report directly through the Chief Harbour Master and the Chief Operations Manager respectively to the Director of Ports Services.

There is however no clear distinction between the administration of Port of Tema and the Headquarters of the Authority. The Director of Ports Services, one of the Deputies and all Departmental Heads are based in Tema whilst in the port of Takoradi apart from the Harbour Master and the Senior Port Operations Manager who are full of Departmental Heads the other officers in charge of departments are seconds in command. This situation is very anomalous and undermines the authority of the Deputy Director of Ports Services in charge of Takoradi port. To make the administration of the port simpler a new organizational structure for the Authority has been proposed with clear distinction between line and staff functions in the Authority.

The system of administration should be changed whereby each port will be autonomous with its own port manager and with a small administrative staff. The ports should be organised into only three main departments: technical, operating and administrative. Financial management should come under the administrative department. There should be a Chief Engineer, a Traffic Manager and an Administrative Manager.
The Technical Department must have separate sections for civil, mechanical and marine engineering. The Operations Department should consist of a section for port operations such as cargo handling, storage and warehousing and another section for marine operations. There must also be a division for port statistics, port tariffs, port promotion. The Administrative Department should be divided into three sections namely: personnel, finance and general administration.

See Annex 4A for existing Organisational Structure of the Authority and Annex 4B for the Proposed Re-organizational Structure of the Authority.

One modern workshop must be constructed in each port to take care of all repairs of crafts and other mechanical and electrical equipment with junior engineers in charge. Civil works in the ports must however come under the port engineers who should also belong to the technical department.

In the port operations area since the Authority does not handle cargo, it must only deploy personnel to the quays and sheds to ensure maintenance of order, safety of traffic and handling of especially dangerous and hazardous materials. There must be traffic officers in charge of transit sheds and open storage areas to supervise proper distribution of consignments within allotted floor space to ensure maximum utilization of space, stacking according to marks and safety procedures, prompt delivery or removal of cargo to the state warehouse or Port Back Shed and assessment of storage rents.
Division of duties and responsibilities between the field officers and the executive departments must be in a practical manner. The general plan of berth allocation for vessels coming into port should be prepared by the Head of Operating Department in consultation with the Harbour Master and with the field officers.

The Harbour Master's office is a field office in direct control of traffic on port waters. Even though he should be autonomous in operations especially on the water, the outfit should be part of the Operations Department and considered as a partner and senior advisor to the departmental head.

Pilotage in the harbour, at the anchorage and in the channel all come under the Harbour Master. Hydrographic survey and taking soundings also come under the Harbour Master and therefore this work should be entrusted to a capable marine officer, with a few years experience as a master on foreign-going vessels.

The Administrative and Financial Department should have accounting sections with accountants attached to the field offices in charge of billing for various port services in co-operation with the operating personnel. Cost accountants and officers for property accounting and financial policy formulation, should be in administration.

The internal administrative structure should be such that both ports have their own administrative structures at one
central point for all the sections and departments in the ports. This will ensure that each port plans its own manpower requirements and the head office only supervises and co-ordinates activities in both ports, as well as formulates general policies for the ports.

Nagorski supports this idea by stating that:

"National Port Authorities, with a direct control over more than one major port, represent an endeavor to reconcile two requirements: autonomy and close co-ordination. It appears however, that the system of a single authority for several ports has two inherent weaknesses. If it is conceived as an administrative body, it would have all disadvantages of a centralized unwieldy remote control over ports. If its main responsibility is co-ordination and supervision, it would be a certain duplication of an essential function of the central government and governmental economic planning units. As previously stated, the government cannot entirely give up responsibility for major ports to a quasi independent body; a wide measure of supervision and guidance must be exercised over any Port Authority, whether national or local. To superpose on a local port administration two supervising and co-ordinating bodies, the National Port Authority and the relevant department of the central government, would not be a practical administrative procedure."

Each port in Ghana should be autonomous. There is however the problem of skilled manpower. The ports were not able to attract skilled manpower and professionals in the past. A complete autonomy for each port at present will lead to the demise of the port of Takoradi in particular because much traffic does not pass through there at present and

1 Port Problems in Developing Countries - Principles of Port Planning and Organisation by Bohdan Nagorski - pp. 171-172.
therefore it does not make enough revenue. In the long run however, each port should be made autonomous.

It is further recommended that to ensure a harmonious development of the ports and a reasonable unification of procedures and regulations, a Port Department must be established in the Ministry of Transport and Communications, devoted exclusively to port matters. In this Port Department should be all the technical staff and experts to plan the future expansion and development of the ports of the country.

With such system, the Port Department will be relieved of the day to day administrative and technical port matters and the officers of the Department will devote all their time to the formulation and following up a proper and long term development policies in accordance with the economic progress of the country. The Port Department would also serve as a check on the autonomous ports to ensure that no expensive mistakes are committed. Under the present system where there are no experts in the Ministry of Transport and Communications, very serious and expensive mistakes could be made which would go undetected until very late in the future when the consequences could be very disastrous for the country.

The work of a policy making Port Department would be made much easier and more effective with the establishment of a National Transportation Council as an advisory body where private commercial interests and the other modes of
transportation like road haulage, the railways and river and air cargo transportation could be represented to a advise on the fast evacuation of goods from the ports and propose changes in the improvements in the entire transportation system. The comments and suggestions of the business community would be of very great assistance in making policies which would not stiffle business but rather make it thrive and also offer the opportunity of avoiding mistakes and accepting the best possible alternative in each specific case. This participation of the business community in the administration of the ports from serving on the Boards to being in a consultative position on the National Transportation Council would provide the right atmosphere for business to grow which the ports require to exist.

The Port Department could be financed from dues and rates collected by the ports into a special fund to pay for the services to be provided by the Port Department. It would be the duty of the Port Department to ensure that there existed a close working relationship between the Department and other governmental agencies for all the projects envisaged included in the Government's development programme.
CHAPTER 7

PORT OPERATIONS, PORT SAFETY AND SECURITY

7.1 PORT OPERATIONS

As already intimated in the introduction the writer will not go into the actual operation of the ports in Ghana which come under the Ghana Cargo Handling Company Limited, a wholly owned state limited liability company which was formed in 1964 to handle cargo in the ports of Ghana.

It is the duty of the Ghana Ports Authority to ensure that the ports of Takoradi and Tema are organised and operated efficiently and to ensure the smooth flow of traffic through the ports. Movement of vessels, handling and storage of cargo, customs delivery formalities, evacuation and supply of cargo by road, rail or waterways must be organised and co-ordinated in such a way that delays and congestions are avoided in the ports. All these activities come under the umbrella of the Ghana Ports Authority.

Cargo handling operations in the ports are undertaken by the Ghana Cargo Handling Company Limited. They have the sole monopoly over master porterage and shorehandling and therefore are in charge of moving cargo from the quays or wharves to the sheds or open stacking areas for storage and effect delivery of cargo to consignees.
Stevedoring is carried out by three stevedoring companies including the Ghana Cargo Handling Company handling 75% and the rest 25% shared by Atlantic Ports Services and Speedline Stevedoring Company handling 15% and 10% respectively. In the port of Takoradi cocoa and sawn timber are lightered from the sheds to vessels moored at the buoys and loaded there. The lighterage company, Ghana Lighterage Company, is also a wholly owned state company with Ghana Cargo Handling Company and the State Shipping Corporation (Black Star Line) being the share holders.

There are several functions connected with port operations all of which necessarily do not have to be performed by the port administration but by shipping agents, various Government departments such as Customs, Health, Immigration and others. The ultimate aim of all these activities is to ensure the smooth working of the ports. In the writer's opinion, it does not really matter whether cargo handling operations, stevedoring, lighterage, towage, pilotage and all allied activities are undertaken by the port administration, state or by private concerns. The essential thing is to ensure that these functions are performed efficiently and quickly and at the least cost to all concerned.

In port operations some factors have to be taken into consideration. Firstly, the best possible use of existing facilities must be the primary concern no matter how limited the facilities might be. Better services and increased productivity from the present facilities should
be sought not by physical extension of the port, but by improving all aspects of activity within the port. This could mean increased productivity by simply eliminating unnecessary and archaic procedures which cause bottle necks. Even where there are clear indications that there is need for new berths or modifications to existing structures, all efforts must be put in to utilising the existing facilities fully.

The second point to be noted is that operating costs in the ports must be kept to the minimum by speeding up operations in the ports. Speed of operations leads to increased capacity utilization of existing facilities and low costs.

The speed of loading or unloading cargo will depend on how long vessels stay at the berths and how many vessels can be handled on a berth per week, per month, per annum. The greater the number of vessels the higher will be the port’s income from the berth utilization and the less will be the need for building an additional berth. The longer the period spent at berth by a vessel means a loss in income to the vessel due to operation costs of the vessel. Days spent at anchorage waiting to come into port due to congestion in the port caused by slow working of ships also means a loss in income to the vessels. Ship owners will react to these delays by levying surcharges on the port or charging demurrage. It is therefore very important to speed up the loading and unloading of cargo in the ports.
The speed of operations also means a lot to cargo handling contractors since it means higher labour costs and a low degree of utilization of mechanical equipment. For cargo interests, a slow rate of working means higher storage costs, depending on the policy in the port, and delayed final delivery of the goods to customers. It also means long waiting time for trucks and lorries which either brought the goods into the port or came to evacuate cargo from the ports and this means a loss in revenue to the trucking companies. With export cargo slow working of the trucks and loading vessels meant delay in meeting shipping schedules and therefore loss in revenue to the country.

Speed of operations does not however mean very expensive equipment should be employed nor should expensive labour be hired if in the long run it would be more expensive if the vessel were worked normally than hiring the labour. Speed of operations especially at a general cargo berth should not necessarily mean handling a large tonnage per hour. What should be aimed at is a regular pace of work without interruptions and without workers having to wait for a piece of equipment or for another set of workers to complete work before they start. Work should be arranged such that the men and equipment are utilized fully without much wastage. High speed should not mean that the workers should be overworked and exhausted physically but that work is organised carefully and improved techniques employed in the handling of cargo, reduction in wastage of man hours and full utilisation of equipment to cut down costs.
There are two important limitations on the pace with which vessels and cargo can be worked in ports. The first and more important is safety. Vessel manoeuvring and working in the port must not be undertaken at the expense of safety not only of the vessel and its crew but also of the waterfront facilities and the longshoremen. Great care must be taken in handling the cargo to prevent damage and loss and accidents and injury to workers.

The second limiting factor is the cost factor. If high speed of cargo handling is to be achieved through the use of very expensive equipment or labour through costs of overtime, night work and work on holidays which in the long run will erode all benefits of speed then this should be avoided and normal working should be preferred.

With the above points in view it could be safely concluded that the operation of the two ports in Ghana leaves much room for improvement. First and foremost the best possible use is not made of existing facilities and equipment in both ports. For example the Cocoa Conveyor system is not always used for loading cocoa when necessary. The cocoa conveyor could work at 30-35 tons per hour per out loader if all the 4 outloaders are working or could be operated on high speed using two outloaders only working at 70 tons per hour without interruptions. With preslinging of cocoa and using the trailers the loading rate is greatly reduced to an average of 15 tons per hour. For example, the average tonnage loaded by stevedoring gang per hour whilst
loading MV Aleenib of 7/2/84 using the trailers and tractor units was 12.46 per hour on the first day and 22.25 tons per hour the second day when the conveyor system was used.

Since cocoa could only be loaded at berths 6 and 7 using the conveyor system it should be made a policy that all vessels coming in to load cocoa at the port of Tema, as much as practicable, should be put at these berths so that conveyor system could be utilised.

Another piece of equipment in the port which is under utilised is the conveyor system for discharging grains. Here the conveyor system is located at berth No. 11 and has 1 fixed pneumatic suction unloader which can be operated at between 500-700 tons per hour. However the draft at the berth is only 25 feet and until the vessel is lightened up it cannot be moved to this berth for the use of the facility. Grain vessels are therefore put at Berth No. 1 and portable vacuvators with capacity of 10 tons per hour are employed. Even here because of interruptions and sometimes unavailability of vehicles the discharging capacity is greatly reduced. This is a special case which requires that the berth should be deepened to about 42 feet so that grain vessels could be sent straight to the berth for the equipment to be used. For example, a vessel of 7,638 N.R.T carrying 10,000 tons of wheat spent 12 days discharging at the port of Tema in January 1984 and made an average expenses per NRT of $1.66.¹ This makes the port very

¹ Source: BIMCO Bulletin 3/84 pg. 7705
expensive. If the conveyor system had been used from beginning to the end the vessel could have been discharged at an average rate of 600 tons per hour and the discharge could have been completed in three days with the average expense per NRT reduced to 50.50. Fast working of vessels means berth availability for incoming vessels, greater berth utilization and increased berth throughput. In the long run it would lead to greater efficiency in the ports and increased productivity.

The discharge rate in the ports average 15 tons per hour for general cargo and break-bulk cargo. This needs to be improved. On the average 3 to 4 forklifts are allocated to a cargo vessel working 3 hooks. Because of the repercussions of slow working of vessels the cargo handling operations should be mechanized to improve the turn-round time of ships in the ports.

The equipment position of the Ghana Cargo Handling Company to meet the challenges of cargo operations in the ports is not very satisfactory and needs to be improved. As at August 1984, the equipment position of the Company in the port of Tema was as follows:

<table>
<thead>
<tr>
<th>Type of Equipment</th>
<th>Serviceable</th>
<th>Unserviceable</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forklifts (of various lifting capacities)</td>
<td>34</td>
<td>59</td>
<td>93</td>
</tr>
<tr>
<td>Container Toplifter</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Mobile Cranes</td>
<td>10</td>
<td>-</td>
<td>10</td>
</tr>
<tr>
<td>Industrial Tractor Units</td>
<td>9</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Industrial Haulage Trailers</td>
<td>11</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Trucks</td>
<td>9</td>
<td>6</td>
<td>15</td>
</tr>
</tbody>
</table>
The position in the port of Takoradi is not very different except that there are no Container Toplifters. The table on page 81 shows that the number of unserviceable forklift trucks out number those in service. Enough spare parts have to be acquired to put all the forklifts into service to improve the cargo handling operations in the ports.

The speed of operations at berth should also be sought with the adoption of better cargo handling methods such as palletization and preslinging to increase loading or discharge rates.

All concerned with the ports in Ghana should be made to understand the implications of slow pace of working vessels in port which results in higher labour costs, low degree of utilization of manpower and mechanical handling equipment, congestion at the ports and in the long run, payment of demurrage and other penalties resulting in more expensive imports and less revenue from exports and therefore lowering of the living standards of the people. All efforts must therefore be made to increase the productivity in the ports by increasing the rate of working ships to about 60 tons per hour per gang for general cargo vessels.

Normally concessions or priorities are not given to vessels which call at the ports and ships are berthed on first come first served basis except for vessels with special berths such as tankers, bulk carriers for manganese and bauxite. In the port of Tema however, the UK West Africa Conference
Line (UKWAL) has been allocated a berth to enable them schedule the call of their vessels to port. They have provided their own cargo handling equipment for the fast working of their vessels in port. Some shipping companies and Conference Lines which operate to Ghana have followed suit and have mechanical handling equipment for working their vessels in the ports to quicken their turn-round time.

A sort of artificial waiting time is imposed on vessels in that vessels cannot sail after 2300 hours GMT and cannot enter port before 0600 hours GMT. Working of vessels during normal working of the ports is from 0730 GMT to 1700 GMT and before or after these hours are counted as overtime. Heavily laden vessels have to be brought in or sailed with the tides because of the draft limitations in the ports and at the entrances and this also causes delay to the vessels.

To eliminate this artificial barrier at the ports the berths should be deepened to receive bigger vessels which would not only reduce the cost per ton mile of cargo due to economies of scale but will also remove the artificial congestion which is sometimes created at the ports. Vessels should also be allowed to come into port anytime and sail as soon as they are ready to reduce time spent in port.

If the Government is aiming at efficiency through competition in the stevedoring business, then the quota system as exists should be abolished and the three companies should be
allowed to compete on equal basis for cargo and undertake all aspects of cargo operations such as shore handling, porterage and delivery. Otherwise it will be much better to merge the companies together and provide them with enough foreign exchange to get the mechanical handling equipment, cut down on the labour force and train their labour force properly to increase their output and efficiency in the working of cargo. The situation as exists at present sometimes leads to chaos because of the confusion which results after allocation of vessels by the Authority.

7.2 PORT SAFETY AND SECURITY

One of the most serious problems facing the Authority is in the area of port safety and port security. In 1978 there was fire which completely destroyed shed No. 6 in the port of Takoradi. At the time of the fire bales of cotton were stacked in the shed together with some general cargo. It was speculated that the bales of cotton might have been the cause of the fire.

In 1979 there was another fire in the port of Tema which razed shed No. 8 to earth. The cause of these two fires could not be determined by the committees which were appointed by Government to investigate them.

Other minor incidents have occurred in both ports like vessels hitting shore cranes, the breakwaters and jetties, minor fires on board vessels and a host of others. There
is little or no facilities in both ports to cope with any great disasters or accidents which might occur. There are no disaster plans to evacuate workers and people living in the vicinity of the ports. The existing laws and regulations in the country are inadequate to prevent major accidents in the ports especially at the oil berths and other parts in the ports where dangerous cargoes might be handled.

To date however, the Authority still uses the outdated Ports Regulations 1964 (L.1 352) which has not been revised since, to take into account modern developments in the maritime sector as regards international conventions.

The other regulatory aspect of shipping in ports and the territorial waters of Ghana is the Merchant Shipping Act, 1963 (Act 183) which unfortunately is also outdated. Both the Act and the Port Regulations contain provisions based on the International Regulations for Preventing Collisions at Sea, 1948, the International Convention for the Safety of Life at Sea, 1948 (SOLAS 1948), the International Convention on Load Lines, 1930, the International Convention for the Prevention of Pollution of the Sea by Oil, 1954; the Merchant Shipping (Dangerous Goods) Rules of 1952 the Timber Regulations, 1958 and the Merchant Shipping (Grain) Rules 1952 of the United Kingdom.

The existing laws and regulations in the country are inadequate to deal with all aspects of port safety, port state
control and prevention of pollution. The country has not ratified the updated international conventions on safety and prevention of pollution. Worse still, there is no administrative machinery in the country to enforce the outdated legislations in the country. The Ministry of Transport and Communications should as a matter of urgency take remedial measures in this direction.

The Government has to adopt and implement the following international conventions to ensure safety in the ports:


(b) Convention on the International Regulations for Preventing Collisions at Sea, 1972

(c) International Convention for the Prevention of Pollution from ships, 1973 as modified by the Protocol of 1978 relating thereto (MARPOL 1973/78)

(d) International Convention on Load Lines, 1966

(e) International Convention for Safe Containers, 1972

(f) Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matters, 1972

(g) International Convention on Tonnage Measurement of Ships, 1969

Other areas of port safety to be taken care of in regulations are dangerous substances safety regulations and the IMO Recommendations on Handling of Dangerous Goods in Ports and the International Maritime Dangerous Goods Code which should be incorporated in national regulations to regulate working
in the ports.

National contingency plans should be drawn to cover the ports and other coastal areas in the country. The plan should designate a competent national authority responsible for oil spill matters, designing strategies for combating spills and identifying logistic support facilities available for combating pollution.

There is considerable shipping, fishing and exploration and exploitation of oil in the country's internal and territorial waters and its exclusive economic zone to warrant the drawing up of a national contingency plan.

Taking shipping alone, the traffic annually averages about 1,300 vessels passing in and out of the ports as could be seen from the figures below:

**SHIPPING TRAFFIC IN GHANA**

<table>
<thead>
<tr>
<th>Year</th>
<th>Vessels Entered</th>
<th>Vessels Cleared</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974</td>
<td>1,324</td>
<td>1,319</td>
</tr>
<tr>
<td>1975</td>
<td>1,544</td>
<td>1,516</td>
</tr>
<tr>
<td>1976</td>
<td>1,488</td>
<td>1,489</td>
</tr>
<tr>
<td>1977</td>
<td>1,402</td>
<td>1,418</td>
</tr>
<tr>
<td>1978</td>
<td>1,808</td>
<td>1,800</td>
</tr>
<tr>
<td>1979</td>
<td>1,338</td>
<td>1,328</td>
</tr>
<tr>
<td>1980</td>
<td>1,261</td>
<td>1,251</td>
</tr>
<tr>
<td>1981</td>
<td>1,506</td>
<td>1,496</td>
</tr>
<tr>
<td>1982</td>
<td>1,363</td>
<td>1,353</td>
</tr>
<tr>
<td>1983</td>
<td>1,316</td>
<td>1,322</td>
</tr>
</tbody>
</table>

Sources: 1974-1977: UN, Statistical Yearbook (Statistical Survey)
From the figures on page 87 the number of oil tankers which called at the two ports were as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Port of Tema</th>
<th>Port of Takoradi</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>74</td>
<td>8</td>
</tr>
<tr>
<td>1979</td>
<td>58</td>
<td>4</td>
</tr>
<tr>
<td>1980</td>
<td>54</td>
<td>8</td>
</tr>
<tr>
<td>1981</td>
<td>72</td>
<td>23</td>
</tr>
<tr>
<td>1982</td>
<td>49</td>
<td>19</td>
</tr>
<tr>
<td>1983</td>
<td>31</td>
<td>20</td>
</tr>
</tbody>
</table>

Sources: Unpublished figures from Ghana Ports Authority.

The quantity of oil transported to or from each port is equally substantial as could be seen from the Table on the next page.

An average of 1.3 million tons of both crude oil and refined petroleum products is handled in the port of Tema a year except in 1983 when this fell to 682,331.00 tons due to severe economic constraints on the economy and the refusal by Nigeria and Libya, the main sources of crude oil imports, to sell on credit to Ghana. The port of Takoradi on the other hand handles an average of 48,000 tons of refined products per annum normally light products such as petrol, diesel and kerosene.

The quantities of oil and oil products handled in the two ports are potential sources of pollution. The other sources are vessel traffic to and from the ports as well as along the coast and thirdly from the exploration and exploitation of oil reserves on country's continental shelf.

The country is a party to the International Convention for
PORT OF TEMSA - TOTAL VOLUME OF OIL HANDLED BETWEEN 1978-1983

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Import of crude oil</td>
<td>1,156,801.56</td>
<td>1,031,395.42</td>
<td>1,067,815.00</td>
<td>1,150,170.00</td>
<td>1,094,570.00</td>
<td>562,371.00</td>
</tr>
<tr>
<td>Export of refined oil and oil</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>products</td>
<td>314,783.66</td>
<td>203,737.08</td>
<td>257,110.00</td>
<td>257,391.00</td>
<td>238,191.00</td>
<td>119,960.00</td>
</tr>
</tbody>
</table>

PORT OF TAKORADI - TOTAL VOLUME OF OIL HANDLED BETWEEN 1978-1983

| Refined oil                    | 48,914.30 | 44,129.08 | 45,030.36 | 49,100.00 | 48,659.21 | 52,922.00 |

Source: Unpublished figures from Ghana Ports Authority.
the Prevention of Pollution of the Sea by Oil 1954 (OILPOL 54) and the Port Regulation, 1964 (LI 352) prohibits the discharge of ballasts, ashes, oils, paints or any other objectionable matter in a port and it is an offence to discharge ballest so contaminated that it leaves an aridescent sheen of oil on the water. There is however no organization in Ghana charged solely for clean up of pollution incidents or to fight pollution should one occur in the ports or along the country's coast. The Harbour Masters outfit keeps a small stock of chemical dispersants to disperse any oil sheens found in the ports from leakages and accidental spills.

Since there is no organization in the country charged with the sole responsibility of fighting pollution and there is no clean up company in the country either, it is absolutely important that the Authority should have its own pollution abatement and control teams in both ports. It is also important for the Authority to acquire some basic equipment such as booms, oil snares, absorbents and portable skimmers for use in case of a pollution incident in the ports. Some of the port equipment such as grab dredgers, barges, pontoons, launches etc. could be deployed in cases of emergency. A small core of men of the Authority should be trained in pollution combating for the ports.

It is necessary also for the government to set up an organization in the country to be in charge of pollution control and provide it with all the equipment for the purpose. There
should also be drawn contingency plans for each port to be incorporated in a national contingency plan encompassing the whole country especially covering the 327 miles (526 kilometres) of the country's coast and areas of sensitivity to the ecology such as fisheries, wildlife and other marine resources.

The ports of Takoradi and Tema have to be provided with reception facilities in accordance with Article VIII of the International Convention for the Prevention of Pollution of the Sea by Oil, 1954 (OILPOL, 54) and if Ghana becomes a party to the International Convention for the Prevention of Pollution from Ships, 1973 and its Protocol of 1978 (MARPOL 1973/78 to fulfil the provisions in Regulations 9 and 12 of that convention. This is very important because of the ship repair yard in Tema where ocean going vessels are repaired. The Authority and the Tema Shipyard and Drydock Corporation should pool resources to provide the facilities. To begin with vacuum trucks could be acquired for the purpose while a study is carried out for the provision of some permanent structure. In this study consideration should be given to other annexes of MARPOL 1973/78 which will be coming into force later.

Serious consideration must also be given to other sources of pollution in the ports such as tallow which is imported for soap and detergents manufacturing, acids and other chemicals for the industrial sector of the country and adequate plans made for them in the country's contingency
plans to combat them should there be a pollution incident.

Seaworthiness of vessels and substandard vessels coming into Ghanaian ports has to be taken very seriously by the Maritime Administration. Some old vessels have been abandoned in the ports between 1977 and 1983 and the Authority had to scuttle some of them in the deepseas and others have been beached.

The Maritime Administration would have to set up an authority to be in charge of inspection and survey of not only Ghanaian flag vessels but also all foreign flag vessels which come into port to enforce port state control. The Maritime Administration must ensure that vessels brought into the port should not only endanger the facilities but also the whole marine environment of Ghana.

The Government has to adopt and implement the conventions enumerated below in order to carry out port state control:

1. The International Convention on Load Lines 1966
2. The International Convention for the Safety of Life at Sea, 1974
5. The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978
Closely linked to the port safety question is port security which has assumed very serious dimensions in Ghana. Pilferage and other security problems reached a point in 1981 when soldiers and other units of the Ghana Armed Forces had to be seconded to the Authority to help check stealing.

The Port Security Units must be provided with facilities and equipment such as radio communications, patrol vehicles, patrol launches and the personnel given proper and adequate training to improve their effectiveness and efficiency.

It is also the writer's opinion that pilferage in the port could be greatly reduced either by giving tallying, master porterage and effecting delivery to another organization or giving the whole process of cargo handling in the ports to one organization and holding that organization responsible for any thefts or lapses in the cargo handling operations in the ports.

In order to achieve better co-ordination, higher efficiency and improvement in performance of the present port safety and port security arrangements and train the staff for pollution it is suggested that there should be a merger of the present port fire service units with the
port security set up in each port and give the new unit responsibilities for all safety and security problems in the port areas. The new port safety and security unit should be responsible for:

(1) fire prevention and fire fighting;
(2) first aid and ambulance services transportation;
(3) handling and storage of dangerous cargoes in port areas;
(4) pollution control, prevention and combating in port areas;
(5) enforcement of port safety and security rules and regulations;
(6) control of pilferage and trespassers;
(7) control of movement of vehicles and visitors in port areas;
(8) co-ordinate fire fighting and pollution combating facilities.
CHAPTER 8

CONTAINERIZATION AND THE PORTS OF GHANA

Ports play an important role as an interface in the transportation network linking sea transportation to the other modes of transportation. As Rinman and Lindén put it:

"All seaborne transportation today is accepted as only one link in a more or less integrated through transportation chain, whether the cargo be general, unitised, drybulk or petroleum."¹

This interface aspect of the ports has been made more pronounced with the introduction of containerization in the 1960s which was reinforced by the Through Bill of Lading concept.

Presently shipment in containers has become the way of shipping general cargo and this phenomenon of containerization has spread to all nooks and corners of the globe and Ghana is no exception. The port of Tema, the main import port of the country has been overwhelmed with the phenomenon and unless adequate measures are taken to provide the infrastructure and equipment to handle the containers the situation will get out of hand and the country will not benefit from the advantages of containerization, namely speed-up in delivery, reduction in turn-round time of vessels in port, reduction in pilferage and damage and increase in tonnages handled at berth.

There is also need for inland transportation of the containers to be improved by the provision of good roads.

¹ "Shipping - How it Works by Th. Rinman and R. Lindén p. 130
and railway connections with trucks and wagons adapted to safe carriage of containers to the importers' doors instead of the containers kept and unstuffed in the ports which does not bring any advantage.

As already stated above the number of containers handled in the port of Tema continues to increase year by year.

The container traffic in the port of Tema is as follows:

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Loaded units</td>
<td>4292</td>
<td>7776</td>
<td>4286</td>
<td>3190</td>
</tr>
<tr>
<td>Empty units</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

| EXPORTS | |
|---------|------|------|------|------|
| Loaded units | 606 | 1204 | 1643 | 805 |
| Empty units | 3096 | 5479 | 3958 | 2045 |
| Total | 7994 | 1459 | 9987 | 6040 |

Note: Container figures are in 20 ft. equivalents (TEUS)

° Container figures are up to June 1983 only.


The port of Takoradi does not have much container traffic but provision should be made in this port too for there is reason to believe that with improvements in the nation's economy trade will increase and with it the number of containers to be handled in both ports will increase.

In both ports at present, the container vessels have to use their own gear to land the containers on the wharves and in the port of Tema a container top lifter is used to convey
the container to a site which was formerly occupied by
Shed No. 8 which was demolished after the fire in 1979.
This area is small, 48,000 sq. feet and is the only
hardened surface in the whole port of Tema where some
meaningful and orderly stacking of containers is done.
Otherwise full or partly full containers are stacked any
where in the open storage areas where space is available.

The present system of handling containers in the port has
the following disadvantages:

(i) haphazard stowing which leads to errors,
    confusion and waste of time;
(ii) poor selectivity causing unnecessary shifting
    of containers;
(iii) extended delivery time;
(iv) unnecessary utilisation of already scarce plant
    and equipment;
(v) damage to containers and equipment due to
    multihandling;
(vi) access to random container stacks affected by
    other congested areas of the port;
(vii) waste of manpower and difficulty in locating
    specific containers

Container operations in the ports especially the port of
Tema had suffered greatly from congestion of empty
containers and haphazard storage of containers in the
port. In this regard therefore, there is need to develop
multi purpose berths with a container terminal at the
site behind and including berth Nos. 8, 9, 10, 11 and 12 being a Ro-Ro berth together providing adequate land space for container operations in the port. The Authority should also acquire two mobile container cranes on wheels so that they could be driven to any of the berths for the purpose of loading or unloading ships. The berths should also be dredged to take bigger multi purpose container carriers.

The area for the storage of the containers has to be hardened and surfaced to carry the load and equipment. Reefer points should be provided for refrigerated containers. Provision should also be made for dangerous goods in containers and repair facilities for damaged containers and a shed for stripping and stuffing less than Container Load (LCL) with offices for workers and customs officials.

Trailers, tractors units, forklifts and other mechanical handling equipment have to be acquired for the container handling operations in the port.

The men involved in the handling of the containers should be trained to deal with this new type of operations especially stowage of the containers to make locating and delivery to the consignees easier and less time consuming as well as export of containers empty or loaded easy to facilitate the turn-round time of ships in port.

Studies should be conducted into developing and building full container berths with equipment in a free zone area
to be used as a transhipment zone because of the strategic location of the port of Tema as midway between the eastern and western parts of the West African Coast. Presently some transhipment is done to Nigeria where ports are normally congested and to Cameroon. The ports also serve landlocked countries as Boukina Fassô, Mali, Niger etc. If adequate facilities are provided and the road and rail networks are developed to link these countries, the ports could become important entrepôts.
The Ghana Ports Authority has been charged by Government under Sections 13 to 19 of the Ghana Ports Authority Decree (SMCD 96) to have enough funds for the efficient administration and operation of the ports of Tema and Takoradi. Like any other economic enterprise the ports must be financially strong to be efficient. Only sound finances will enable a port administration to keep all port facilities in top condition to render efficient and economical services to port users. The Ghana Ports Authority tries hard to meet these standards.

Section 15 of the Ghana Ports Authority Decree, 1977 (SMCD 96) stipulates that the Authority shall have reserve funds for unforeseen contingencies and for regular renewal and modernization of port installations or investments with approval of the Secretary for Transport and Communications. The Authority could issue debentures, bonds or other securities to secure the repayment of any money borrowed for long term investment projects and could take short term loans or could apply for refundable allocations from the national treasury. All these provisions in the statute setting up the Authority are aimed at ensuring financial self sufficiency for the Authority. The Authority has not taken advantage of any of these provisions yet to finance
a port expansion project.

The statute provides that the Authority should achieve and maintain a balance of revenue and expenses with provisions for payment of interests, and for renewal and amortization of equipment. Surplus profits after meeting all the obligations of the Authority are to be paid into the Consolidated Fund.

The revenues of the Authority accrue from the port dues and charges. Charges made for handling of cargo are determined by the Ghana Cargo Handling Company Limited separately. The Authority makes charges for specific services like the supply of fresh water, removal of garbage, supply of power from ashore. Apart from such specific charges the Authority levies charges based on the net registered tonnage for cargo vessels and for fishing vessels upon the length of the vessels for ships' dues; port dues are charged on commodity basis with the export cargoes attracting lower rates than imports. Light dues are charged on the net registered tonnage as well as pilotage dues whilst wharfage is charged on commodity basis. In the case of wharfage there is again discrimination against imports attracting higher rates than exports. Port rent and removal charges are based on commodities whilst mooring and berthing charges are levied on the net registered tonnage of the vessel likewise the charges for tugs for towage. Charge for hiring of other crafts equipment and workers of the Authority are based on specific amounts per period.
The Authority consults Shipping Companies and other port users before new port rates and charges are levied. Some basic costing is done too. There is however more work to be done in this area because of lack of sufficient data. The personnel in this field also need more training. The Authority should be able to provide port users with a breakdown of the costs of the equipment, infrastructure and services rendered if required. The Authority must also ensure that the equipment and facilities are operated efficiently to keep down the cost to the users.

One area of great controversy is the cargo handling and stevedoring charges in the ports. These have often been levied by Ghana Cargo Handling Company Limited independently. Since 1981 however, the GCHC had met strong opposition from shippers and shipping companies about the arbitrary increases in their rates. Annex 3 provides an example of the reaction of the shipping companies and Conference Lines to the arbitrary rates charged by GCHC.

The area of port pricing and port charges has to be carefully looked at because apart from driving away traffic from the ports, it makes both imports and exports very expensive.

All port dues and charges are charged in US dollars from 1st September, 1983 except wharfage and port rent and removal charges which are in local currency. Ghanaian registered vessels however could pay in local currency.
Cargo handling and stevedoring charges are also levied in foreign currency, except on Ghanaian flag vessels.

9.2 PORT STATISTICS

According to B. Nagorski:

"Statistical service is an essential and often a rather neglected section of administrative offices in many developing ports. For a long time the belief was widespread that port statistics are mainly of interest to economists and researchers studying the trends of foreign commerce. Their great value for current management of the port has been frequently underestimated.

If a port is to be operated with efficiency and foresight, the management must be accurately informed all the time about every aspect of port traffic and port operations. This information must be based on correct figures and it should be available promptly as otherwise it loses part of its usefulness. A substantial increase in a certain sphere of port traffic may require urgent improvements, additional storage space or more mechanical equipment. A decline may be due to unsatisfactory services or excessive costs, resulting in a deviation of traffic to a competitive port."

Unfortunately, Authority does not have a good data base because much attention had not been paid to this vital section in the past. This has to be remedied and serious efforts are being made to improve this section of the Authority.

A good information base in a port forms an excellent basis for analyzing a port, identifying its problems and prescribing solutions. A good port information system showing

2 Port Problems in Developing Countries - Principles of Port Planning and Organisation by Bohdan Nagorski - pg. 230.
usage of berthing facilities, port equipment and the utilization, ship traffic, turn-round time of ships, labour productivity, cargo traffic and analysis of waiting time could give banks and other financial institutions a clear image of state of affairs in a port and speed up granting of financial assistance should the need arise.

With all the data available port efficiency indicators could easily be worked out for ships, cargoes and labour. Additional indicators could always be added for the monitoring of some specific aspects of a port's activities that were being reviewed such as accounting, training, changing billing procedures, equipment utilization or maintenance or any aspect of port operations.

Such measures are also very important and essential if management should try to take any meaningful decision on say increasing productivity in the ports, eliminating waste, making new investments, identifying causes of congestion and providing essential information for planning. In Annex 5 some recommended models for tables to collect data and prepare port indicators are given. \(^3\)

The port indicators should be made very simple and understandable by all and these could be used with the unions.

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\(^3\) Port Statistics - Selection, Collection and presentation of port information and statistics United Nations New York, 1971 (TD/B/C4/79 REV 1)
during negotiations, shipping conferences and this basic data collection process should be based on ship and cargo movements in the port and should be built into the port’s operating and reporting system.

With the basic data available efficiency indicators based on physical operations of the port could be arrived at and this would form a good basis for pricing of the services rendered and the revenues thus generated.

The statistical service should as much as possible be adapted to the needs of the port administration and not for economic planners of the country who would need a very detailed data which should be provided by the Central Bureau of Statistics. The port statistics must be simple and must always be available to management and must as much as possible be used in making decisions.

To get a very good data base for a good port information system the officers working on this must be properly trained and must be encouraged to work. A good port information system is however useless if the forecast, projections and other analyses made are not used by management.

All forecasts, prognosis, analysis etc. made using statistics involve constants and variables and political situations, economic situations, social situations could all change and sometimes these changes are very difficult to forecast. Plans and programmes drawn should therefore be flexible enough to allow changes to be made. Port
information systems and statistics are tools for management and judicious use should be made of them.

Nevertheless, statistics remains a basic input into any planning exercise and should be used for effective pricing policy in the ports and in aiding management in making very vital decisions. There is need therefore for the Authority to improve its data base by setting up a Unit for the collection and processing port information into statistics for use by the management.
CHAPTER 10

TRAINING AND MANPOWER DEVELOPMENT

In his introduction to Walter P. Hedden's book, Mission Port Development, the late Austin J. Tobin wrote:

"The financial, administrative and technical problems arising from port development needs often force emerging ports to seek a helping hand from the more developed harbors. Men with the skill and experience to solve these problems are in great demand for there is a worldwide scarcity of qualified experts with this type of training and background. Many national and international organizations have taken steps to meet this critical need. Programs that seek to recruit qualified port managers and place their experience and skills at the service of the developing ports have been initiated by the United Nations, the International Bank for Reconstruction and Development, the Organization of American States, the Colombo Plan, the United States Agency for International Development, the American Association of Port Authorities and the International Association of Ports and Harbors, among others."

He went on to say that each time a port is helped to function more efficiently,

"... it places that port in a position to increase the movement of cargo over its docks and wharves. This in turn contributes to the economy of the developing nations and supports and encourages the flow of commerce throughout the world." 2

1 Austin J. Tobin, Executive Director, The Port of New York Authority, Chairman, Committee on International Port Development, International Association of Ports and Harbors 1967.

2 Ibid
The need for training and the transfer of technology at all levels of not only port affairs but the whole maritime sector is even greater today than when Mr. Tobin wrote them 18 years ago. This is especially so in many of the developing or Third World countries.

One of the international bodies training personnel in the maritime sector including the ports is the IMO. Apart from developing conventions for safety and welfare of seafarers and prevention of pollution of the sea and the marine environment, the IMO also plays quite an important role in training by sending out experts on missions in the maritime sector including the ports. Through the World Maritime University, the IMO is also training personnel from the developing countries to go back to improve the maritime sectors in their respective countries which of course includes the ports.

A well-trained work force is among a country's greatest assets. Those who have acquired and perfected skills have also acquired a self-confidence and pride in their work and the esteem of their communities.

One of the biggest problems facing developing countries embarking on the running of a port according to modern concepts is the training of staff at all levels. This problem faces Ghana Ports Authority as well.

The necessary skills needed to operate the ports effectively and efficiently require that all the port infrastructure
such as the wharves, the jetties, the quays, the breakwater and the roads in the ports are in excellent condition to receive the ships, and vehicles that bring the goods as export or imports are moved in and out of the port and all equipment are maintained properly. This requires provision of machine shops, stockrooms for spare parts and gear, overhaul facilities for Marine crafts, a workforce to carry on these activities of maintenance of the structures, utility lines, paving, dredging etc. At higher levels of technical expertise engineers are needed to select and design the most efficient types of quays and piers, sheds and fixed mechanical installations, choose and test materials, formulate specifications and supervise construction contracts.

The management of a port requires the skills necessary to run any economic enterprise especially when the Authority is expected under the laws to operate like a commercial enterprise, declare profits and pay excess profits into the Consolidated Fund, it requires a team of experts in management, personnel, finances, purchasing, legal, accounting, statistics, fixing of tariffs and rental charges, public relations, etc.

Unfortunately, however, trained manpower is lacking especially in the fields mentioned in the paragraph above. Even though the Authority boasts of a few engineers, administrators, legal officers, accountants with good academic background and work experience they lack the experience in modern maritime transport systems, especially in operational
methods, data processing, multi purpose and container
terminal development and operations as well as modern
techniques of management. There is need for specialised
training for the executives and the staff in operation and
maintenance, engineering and management.

The Authority needs to draw up a comprehensive training
programme to cover all the work force of the Authority.
Some of the training especially for the top management
should be done overseas where adequate training facilities
are available and which would afford the officers the
opportunity of seeing how the ports of developed countries
are operated. The professional staff like engineers,
accountants, finance officer etc. should be sent on re-
resher courses and seminars local and overseas to acquaint
them with new technologies and ideas in their fields. Visits
to neighbouring ports to see how they are being operated
should be organized from time to time for the operation staff
to acquaint them with problems in other ports and discuss
common problems with their counterparts in these ports.

The junior staff should be trained as well in their specific
fields.) Presently the technicians on the tugs are trained
at the Regional Nautical Academy; the accounts officers are
encouraged to take the professional examinations and the
clerks sponsored on courses organised in the country by the
Management Development and Productivity Institute, the
Ghana Institute of Management and Public Admin., the Civil
Service Training Centre and the Universities in the country.
It has been recognised that with proper training, efficiency could be greatly improved, costs would be cut down and new equipment could be introduced without much problem because the retraining for the use of these new equipment would not take much time and this would reduce resistance to change especially during this era in the maritime field when technological changes are so rapid and requires constant adjustments or modifications if organisations want to keep up with the pace of development.

The Ghana Ports Authority has benefited from fellowships granted by the Japanese, Dutch, British and other governments for the training of its officers. Fellowships also from the International Association of Ports and Harbors (IAPH), IMO and other international organisations have been used to train the officers of the Authority.

Since cargo handling operations are not in the hands of the Authority, the Cargo Handling Company should be encouraged to train its personnel in modern cargo handling techniques and maintenance procedures for their equipment too. There is need for them to train their workers in safety measures with a sense of responsibility for the safety of cargo and fellow workmen. They could train a few foremen or senior staff overseas to come home to train the longshoremen. The existing GCHC training school should be expanded to train the officers and stevedores in the efficient handling of cargo in the ports. The Regional Nautical Academy in the country could also be used to train personnel from the port industry in the efficient working of ships.
CHAPTER 11

PORT MODERNIZATION AND FUTURE DEVELOPMENTS

The ports of Takoradi and Tema have not been fully utilised to warrant the building of a new port in the country. The two existing ports however have to be modernised and adapted to the country's trade so that they could be better utilised than at present.

The port of Tema since 1975 suffers an annual congestion between December and February and there is waiting time normally for deep draft vessels because of draft limitations in the port. Between December and February every year Christmas goods are imported, importers also try to rush in goods to beat the deadline of their import licences and Letters of Credit which expire on 31st December. The government also imports fertilizer for the farming season which begins in March/April and grains especially corn, rice and wheat are imported to augment the national stock around this period which is the lean period. These items come in bulk carriers and because of the draft limitations in the port an artificial congestion is created. The inland transportation network is also not adequate to meet the importation of these items in large quantities and the general cargo which are rushed in to beat the expiry date of import licences and Letters of Credit.

The above factors lead to congestion every year due to bad import planning, lack of adequate internal transporta-
tion network to evacuate goods from the port, and the fact that most imports are routed through the port of Tema whilst the port of Takoradi around this period handles very little traffic.

The economic depression of 1970s greatly affected the country. Her foreign trade, both imports and exports through the two ports have declined steadily during the past years with Takoradi port being the worse hit as the tables for imports and exports of the country over a period of 8 years show:

**TAKORADI**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>IMPORTS</th>
<th>EXPORTS</th>
<th>APPROXIMATE TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>619,912</td>
<td>1,298,203</td>
<td>1.9 million tons</td>
</tr>
<tr>
<td>1977</td>
<td>570,638</td>
<td>1,157,612</td>
<td>1.7 &quot;</td>
</tr>
<tr>
<td>1978</td>
<td>501,628</td>
<td>1,070,965</td>
<td>1.6 &quot;</td>
</tr>
<tr>
<td>1979</td>
<td>281,983</td>
<td>818,503</td>
<td>1.5 &quot;</td>
</tr>
<tr>
<td>1980</td>
<td>345,265</td>
<td>664,057</td>
<td>1.0 &quot;</td>
</tr>
<tr>
<td>1981</td>
<td>332,468</td>
<td>520,824</td>
<td>0.85 &quot;</td>
</tr>
<tr>
<td>1982</td>
<td>249,862</td>
<td>417,082</td>
<td>0.66 &quot;</td>
</tr>
<tr>
<td>1983</td>
<td>193,182</td>
<td>353,170</td>
<td>0.54 &quot;</td>
</tr>
</tbody>
</table>

**TEMA**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>IMPORTS</th>
<th>EXPORTS</th>
<th>APPROXIMATE TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>2,444,251</td>
<td>789,459</td>
<td>3.1 &quot;</td>
</tr>
<tr>
<td>1977</td>
<td>3,224,483</td>
<td>831,006</td>
<td>4.1 &quot;</td>
</tr>
<tr>
<td>1978</td>
<td>2,902,149</td>
<td>897,328</td>
<td>3.7 &quot;</td>
</tr>
<tr>
<td>1979</td>
<td>2,447,187</td>
<td>786,058</td>
<td>3.2 &quot;</td>
</tr>
<tr>
<td>1980</td>
<td>2,445,406</td>
<td>946,874</td>
<td>3.3 &quot;</td>
</tr>
<tr>
<td>1981</td>
<td>2,741,981</td>
<td>898,003</td>
<td>3.6 &quot;</td>
</tr>
<tr>
<td>1982</td>
<td>2,164,160</td>
<td>870,663</td>
<td>3.0 &quot;</td>
</tr>
<tr>
<td>1983</td>
<td>1,433,448</td>
<td>472,526</td>
<td>1.9 &quot;</td>
</tr>
</tbody>
</table>

The port of Takoradi was until recently the main export port of the country handling mainly manganese, bauxite, logs and lumber and 50% of Ghana's cocoa. The bauxite and manganese are mined in the Western Region of Ghana and exported through the Takoradi port at special berths with equipment belonging to the bauxite and manganese companies. Export of these commodities have declined because the Ghana Railway Corporation due to lack of wagons, locomotive power and frequent derailments could not meet production targets of the companies.

Logs and lumber in the past were exported in the raw form until January 1979 when the government banned the exportation of 14 species of round logs. Sawn timber is lightered and loaded at the ship's side at the buoys. Due to the poor state of the lighters most of which have sunk and lack of spare parts for the timber mills export of sawn timber declined. Cocoa is also lightered in the port of Takoradi and due to the slow nature of the operations as a result of the poor state of the lighters and their inadequacy several vessels leave without taking their full cargo and this has hurt Ghana's export trade.

The port of Takoradi in its present state and structure has very serious handicaps because it is old in concept and design and makes any future extension and development a potentially expensive proposition. The present system of lighterage operations in the port is outmoded, slow and expensive. The port does not have adequate land area for
the development of modern cargo handling facilities for the country's main export commodities of agricultural, forestry and mineral ores so that higher loading rates with improved quality and lower costs of handling could be achieved. There is also insufficient land area for the development of modern cargo handling and storage systems for imports related to container traffic.

If the port should adequately serve the main mining region of the country, then there is need to modernize it and provide it with modern and more efficient handling facilities. This would involve the drawing up of a new master plan for the port, reclamation of most of the water surface and replacing the mooring buoys with quays and wharves and installing equipment so that cargo could be loaded from the wharves. This means abandoning the lighterage system. In doing this the draft in the port and the entrance must be increased to enable bigger bulk carriers to come into port to load and with more modern loading facilities exports would be greatly boosted and because of the quick turn-round time of ships in port and economies of scale, freight rates would be low and stabilised with the end result being more revenue for the country.

With reclamation space could also be found to develop Ro-Ro berths, multi-purpose berths and a container berth with enough space for handling and storage.

See Annex 6 for Proposals for Modernization of the Port of Takoradi.
As already stated earlier this is a very expensive proposition which would cost millions of dollars. However with prospecting activities for oil, iron ore, and other minerals taking place in the Western Region in addition to the existence of large deposits of bauxite and manganese untapped, it is hoped that this project would be undertaken someday. A study could be commissioned now to examine all the facets of modernisation and extension to the port with model tests made and a master plan prepared ready for the take off when the time is due. The master plan should be flexible to accommodate any future changes in the mode of sea transportation.

The port of Tema has a master plan which needs to be revised. In the review of the master plan for the port consideration should be given to the idea of developing the port into an entrepot for the whole of the subregion of West Africa which is in the process of being developed into an economic zone called the Economic Community of West Africa (ECOWAS) because of its strategic location.

In the present master plan for the port Quay No.2 is to be extended to accommodate 4 more berths and the construction of Quay No.3 as a container berth. Because of the ever increasing size of vessels it is the shared opinion in the Authority that extension to Quay No.2 would protrude too much into the main basin of the port making manoeuvring difficult especially for large vessels. It is also the opinion that Quay No.3 to be constructed adjacent to Quay.
No. 2 will not provide enough land area for container operations. It was therefore the suggestion from certain quarters that a new area has to be developed into a container port and provided with all the infrastructure and equipment for this purpose. This could later be expanded into the entreport envisaged. Annex 7A refers.

As a first step in the modernization of the port it has been proposed that berth Nos. 8—12 on Quay No. 1 should be converted into multi-purpose berths with berth No. 12 being provided with Ro-Ro facilities. Please see Annex 7A for drawings of the proposal.

Studies are also being carried out at the instance of the Ministry of Fuel and Power to build a single buoy mooring system outside the port to accommodate bigger tankers. Presently the oil berth is situated just near the entrance of the harbour and can only accommodate vessels with a maximum draft of 32 feet and length of 650 feet. Because of the location of the oil berth even if the berth could be dredged to take in bigger draft vessels mooring would be a problem because they would extend across the entrance of the channel and manoeuvring them would also be difficult.

A committee on which the Authority is serving is studying the proposals. A final decision would be taken by the government on the project and how it would be financed.

Capital dredging of the whole port of Tema should be under-
taken to increase the depth at the entrance and all berths in port to at least 42 feet to admit bigger draft vessels to enable the country to benefit from the economies of scale. The berths should also be provided with modern cargo handling equipment.

Since the country does not have the capital for these projects financial assistance could be got through loans from the World Bank (International Bank for Reconstruction and Development) in Washington, the International Development Association (IDA) or from bilateral governmental sources through loans from friendly countries. However many nations making such loans require that the borrower use the proceeds only for purchases of equipment and services of the lending country. A big disadvantage with such financing is that the project could have been undertaken more cheaply if it were put on international tender.

Commercial and merchant banks in the developed countries also grant loans or contractors or suppliers credits could also be used.

Apart from the World Bank there are other international lending agencies such as the Asian Development Bank, African Development Bank, Inter-American Development Bank and others. In the case of Ghana the African Development Bank would be the most appropriate agency to approach.

There could also be a combination of all the above sources
for funding a project especially if the cost of the project is huge and no one lender was prepared to shoulder the burden or is able to put on the total amount of the project loan.

The last source of financing is by leasing companies. This is best developed in the container business where handling and transportation equipment are leased by companies. Equipment leasing provides a convenient and flexible means of bridging the gap between conventional breakbulk and container handling operations. It has a fast delivery and flexible method of buying time in order to determine the optimum long-term layout, capacity and equipment needs for a port's expansion. If the traffic is not maintained or does not grow as forecast, the leased equipment can be returned to the lessor. If the equipment proves suitable, arrangements can be made for its purchase. The lessor can also provide training for the local operations and maintenance staff.

The above are possible sources of funding for port rehabilitation, modernization or expansion programmes. The government has to be involved in the negotiations especially with the World Bank, the international financial institutions, the friendly governments and the foreign commercial banks.

There is a programme currently going on for the rehabilitation of the ports in the country. Funding is being provided by the World Bank, the Japanese government and
the European Economic Community. The cost of the projects is about £3,000 million or $60 million. The Saudi Arabian and Italian governments are also assisting in the acquisition of some equipment for the ports.

The efficiency of the technical operations and maintenance of port infrastructure and equipment and port operations, in Ghana is suffering because of a variety of factors. In the past inadequate allocation of foreign exchange or import licence for the acquisition of equipment for replacements, essential spare parts for repairs and improvements, materials for preventive maintenance have all contributed to the problem. There is also the problem of effective utilization of the present facilities and infrastructure due to physical limitations or ignorance of operators about the benefits of their use. As a result, port equipment and structures have either degenerated into unsatisfactory condition, gone out of service or are underutilised. The culminative effect of all these shortcomings is unnecessarily high operating costs and ship delays in ports due to lack of adequate and modern handling equipment and modern storage space especially for containers. Delays in clearing cargo from port areas due to internal transportation problems have also worsened the situation and the ports instead of promoting economic growth have almost become drain pipes on the economy.

There is need for internal reforms in the organization of the Ghana Ports Authority to cut down on the staff, recruit more qualified personnel and train staff to meet modern techniques of port operation and administration which would
eventually enable the ports to be autonomous. A Port Department should be created in the Ministry of Transport and Communications with experts and specialists to be responsible for the long term formulation of policies and development programmes for the ports in Ghana. A National Transportation Council or an advisory body comprising shipping executives, businessmen and private commercial interests, representatives of the railways, roads, river transportation, air cargo service and other professionals involved in business, transport, technology and research should be created to advise Government on port policies and the entire transportation system in the country.

In order that the ports are operated safely and pollution and other hazards to the marine environment are prevented it is recommended that the Government should ratify the relevant international conventions. These conventions include the International Convention on Load Lines, 1966; the International Convention for the Safety of Life at Sea, 1974 (SOLAS) and the Protocol of 1978 relating to the International Convention for the Safety of Life at Sea 1974; the International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 relating thereto (MARPOL 73/78); the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW); the Convention on International Regulations for Preventing Collisions at Sea, 1972 (COLREG); and the Merchant Shipping (Minimum Standards) Convention (ILO Convention 147). The Law of the Sea, 1982 should also
be ratified to provide the basis and regulations of the activities on the country's continental shelf and the Exclusive Economic Zone.

After the ratification and adoption of the Conventions and an organization should be set up to implement them. Port State control could then be enforced to ensure that substandard vessels are not permitted into the country's ports and her internal waters. Vessels which pollute the territorial waters or the Exclusive Economic Zone could also be chased and arrested because the country is already a party to the International Convention on Intervention on the High Seas, 1969 but has not ratified its Protocol of 1973 which should be done.

The ports should be provided with reception facilities for oily wastes and residues especially in the port of Tema because of the existence of the shipyard and drydock for ship repairs in accordance with the provisions of MARPOL 1973/78 and also for the cargo vessels which come into ports which might want to dispose of their sludge.

There is also an urgent need for the establishment or designation of an authority to be in charge of pollution control and abatement in the country. This organization has to be provided with the equipment, facilities and training to fight pollution on a large scale. There is need for a contingency plan to be drawn for the country mapping out the very vulnerable areas where fishes and fish stock and other marine species breed; tourist
attractions along the coast; the mangrove swamps and other habitats which are also vulnerable and need to be protected; to take stock of the equipment available in the country to fight pollution; draw up plans for co-operation with neighbouring countries in emergencies and where to go to ask for help externally should an incident occur.

To make the ports safe in respect of cargo working, the International Convention for Safe Containers, 1972, International Convention on Tonnage Measurement of Ships, 1969, the International Convention on Load Lines, 1966, the International Maritime Dangerous Goods Code (IMDG Code) and IMO Recommendations on Handling of Dangerous Goods in Ports should all be adopted into port regulations to ensure that workers and the cargoes handled in the ports are safe.

The Ghana Ports Authority should train a core of security and safety personnel to protect both cargo and port equipment and infrastructure and provide them with equipment and facilities to combat fire, pollution and other accidents which might occur in the ports. These men should also be in charge of physical security of the ports and ensure that stealing, pilferage and other acts of vandalism are not committed in the ports. This should be in addition to the normal Police duties carried out by the Railway and Port Unit of the Ghana Police Force who are responsible for prosecution of criminal incidents.

The two ports have to be properly maintained and modernised
if the country hopes to make the ports contribute to the economic development of the country. This calls for planned maintenance programmes to be drawn up, the master plans for the ports modified, enough foreign exchange allocation and import licence allocated for the purchase of spare parts, new equipment and building of new facilities and infrastructure in the ports.

As a matter of urgency dredging of both ports to accommodate bigger vessels should be undertaken. The port of Takoradi where the bulk commodities of manganese and bauxite are loaded should be dredged and modernised to accommodate bigger bulk carriers. The port of Tema should also be dredged to admit bigger vessels which bring in the imports to avoid waiting at anchorage and the payment of demurrage. It would also stop the shifting of vessels from one berth to another during discharging and thus avoid unnecessary delays.

One of the most conspicuous problems facing the port of Tema is the poor performance in container operations and handling. The port should be provided with facilities to handle containers in the form of berths, cranes, terminal for stacking, trailers and tractor units and the personnel adequately trained for this mode of cargo handling. The internal transportation network has to be improved so that the boxes could be carried inland by road and rail to consignees door steps instead of the containers ending in the port. Research should be carried out to see if
the country's cocoa, coffee and other traditional export commodities could be shipped in the containers instead of exporting empty containers.

In order to facilitate the container operations and other modern integrated transport systems berths 8-12 in the port of Tema should be converted to multi-purpose terminals and berth 12 provided with Ro-Ro facilities and all the modern handling equipment referred to in earlier chapters.

Stevedoring and cargo handling operations in the port should be re-organized to bring in greater efficiency and ensure faster turn-round of vessels. Either the three companies engaged in the business now should be permitted to compete on their own for stevedoring business and shore handling thus breaking the monopoly of Ghana Cargo Handling Company Limited or they should all be merged together into one company to facilitate better working of cargo and greater utilization of equipment and machinery.

Bringing greater efficiency into the operations and administration of the ports requires that labour should be trained properly at all levels in the Authority and the cargo handling and the stevedoring companies. Staff must be sent on courses and on-the-job training should be arranged for all. Refresher courses, seminars and conferences should be organized for the senior executives and middle level personnel and junior staff should be encouraged to improve their skills and talents.
Manpower development and training programmes should be linked to well-defined career planning programmes for the workers. Advantage should be taken of technical assistance programmes offered by friendly foreign governments and international organizations to train the staff.

Major rehabilitation of the ports should be undertaken but since the present economic position of the country cannot permit such ventures by the Authority or the government assistance from international financial institutions such as the World Bank and its subsidiary the International Development Association (IDA), the African Development Bank or any of the other institutions, from friendly foreign governments through bilateral loans and financial agreements, from foreign commercial merchant banks or any other sources for the projects should be sought.

To conclude the countries in West Africa and other Third World countries should consider seriously economic cooperation and also development of some ports into very modern and efficiently operated ports to serve specific areas in their regions instead of each country along the coast trying to develop its own port which is very expensive. With co-operation, resources could be pooled together to fund the projects and construct other less expensive infrastructure such as good roads and railway network to transport the goods to or from the ports. Such cooperation would lead to greater utilization of the port infrastructure and equipment.
The developed countries of the north should also assist not only Ghana but the developing countries of the south to develop their ports and economies because the world is growing more and more into one big economic and social entity where the development and welfare of nations should be the concern of all. With the development and improvement of the ports and economies of the developed countries, the vessels of the developed countries would be worked more efficiently and the turn round time in port would be increased. This would mean substantial savings for the shipowners. The developing countries would also benefit from such projects through reduced import costs, bigger revenue from exports and therefore capital for industrial development. This would eventually lead to bridging the gap between the developed and the developing nations and foster closer economic ties and understanding between the developed and the developing countries.
Development of ports. Ghana.

**GHANA**

Ports open (Post 1919 boundaries)

1900–1919

1925–1929

1960–1965

1980–1982

Ghanaian port charges protest

By Peter Green, Freighting Editor

A STAGGERING jump in stevedoring charges of 200% at the Ghana ports of Takoradi and Tema has brought a protest from the UK/West Africa Lines Joint Service.

"We have lodged a protest with the Ghana port authorities," a Ukwal spokesman said. "What effect it may have we do not know. We have also discussed the matter with the West African shipper associations.

"There is considerable concern over the unrealistic extent of increasing stevedoring charges. We have no alternative but to pass on the added costs to shippers."

Then spokesman said the latest increases were all part of the "generally depressing" scene in Ghana.

"It all adds up to higher freight rates at the end of the day. We think that in this case it is realistic to confine the increase to breakbulk cargo. Even so, we do not anticipate any massive switch to containers."

The joint service lines run around 15 sailings a year to Ghana, with much of the cargo moving southbound. The northbound leg is severely depressed. Some 75% of the line's business is with Nigeria.

February-1981
EXISTING ORGANIZATIONAL STRUCTURE OF GHANA PORTS AUTHORITY

BOARD OF DIRECTORS NOW
INTERIM MANAGEMENT COMMITTEE (IMC)

DIRECTOR OF PORTS SERVICES

SOLICITOR SECRETARY

CHIEF INTERNAL AUDITOR

DEPUTY DIRECTOR OF PORTS SERVICES, TEMAN

DEPUTY DIRECTOR OF PORTS SERVICES, TAKORADI

ENGINEER-IN-CHIEF

FINANCIAL CONTROLLER

CHIEF HARBOUR MASTER

CHIEF OPERATIONS MANAGER

CHIEF CIVIL ENGINEER

CHIEF ELECT/MACH ENGINEER

CHIEF MARINE ACCOUNTANT

CHIEF PERS. STORES ADMIN. HARBOUR MASTER

SNR. PORT OPERATIONS MANAGER

HARBOUR MASTER

SNR. PORT OPERATION MANAGER

PORT CIVIL ENGINEER

PORT ACCOUNTANT

PRINCIPAL ADMIN. OFFICER SUPT.

PORT CIVIL ENGINEER ETC.
PROPOSED ORGANIZATIONAL CHART FOR GHANA PORTS AUTHORITY

BOARD OF DIRECTORS

SECRETARY

INTERNAL AUDIT

MANAGING DIRECTOR
PORT OF TEMA/TAKORADI

TECHNICAL DEPARTMENT
DIRECTOR OF TECHNICAL SERVICES
OR CHIEF ENGINEER

OPERATIONS DEPARTMENT
DIRECTOR OF PORT OPERATIONS

ADMINISTRATIVE AND
FINANCIAL DEPARTMENT
DIRECTOR OF ADMINISTRATION

CIVIL ENGINEERING
PORT CONSTRUCTION
AND MAINTENANCE

MECH. ENGINEERING
AND MAINTENANCE
OF EQUIPMENT

NAVAL ENGINEERING,
TUGS,
LIGHTERS,
LAUNCHES

PERSONNEL FINANCES OFFICE
ADMINISTRATION ESTATE LEGAL
SERVICES

PORT OPERATIONS

MARINE OPERATIONS

ECONOMIC SECTION
PORT TARIFFS, PORT
STATISTICS
Table 1. Berthing Facilities

<table>
<thead>
<tr>
<th>Year</th>
<th>Berth No.</th>
<th>Draft Length (depth below datum*)</th>
<th>Draft Width (approx.)</th>
<th>Handling Equipment</th>
<th>Transit Sheds</th>
<th>Stacking Areas</th>
<th>Other Facilities</th>
<th>Main Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Crane Capacity (a)</td>
<td>(b)</td>
<td>(c) Pump Equipment</td>
<td>(d) Number Type</td>
<td>Capacity per Hour</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(b) Lifting Capacity</td>
<td>(c) Capacity</td>
<td>(d) per Hour</td>
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<td></td>
</tr>
</tbody>
</table>

Passenger Berths
1
2

Break Bulk General

Cargo Berths
1
2
3

Container Berths
1
2

Roll-on/Roll-off Berths
1
2

Oil Berths

Ore Berths

Grain Berths

Cement Berths

Other Berths (may be detailed)

Anchorage Points

* Datum used should be specified. Any supplementary information may be given by adding a "remarks" column.

If port is tidal, the range of spring tides should be given.
Table 2 Handling and Other Equipment

<table>
<thead>
<tr>
<th>Type of Equipment</th>
<th>Number</th>
<th>Make and Model</th>
<th>Characteristics</th>
<th>Capacity</th>
<th>Age in Groups of Five Years</th>
<th>Condition</th>
<th>Part</th>
<th>Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Conveyor Systems</td>
<td></td>
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<tr>
<td>2. Mobile Cranes</td>
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<td>3. Palletizing Cranes</td>
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<td>4. Forklift Trucks</td>
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<td>5. Truck--Tractors</td>
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<td></td>
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<tr>
<td>6. Trailers</td>
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<td></td>
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<td>7. Lifters</td>
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<tr>
<td>8. Tugs</td>
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<td></td>
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<tr>
<td>9. Pallet Racks</td>
<td></td>
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<tr>
<td>10. Pallets</td>
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<tr>
<td>11. Harbor Launches</td>
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<tr>
<td>12. Other--Etc.</td>
<td></td>
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</tbody>
</table>

*Remarks:*
- Any of the equipment is not owned/operated by the port entity itself but by another (or a private party) and is not listed.
Table 3: SHIP TRAFFIC

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Year</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Ship number</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Name of ship</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Size of ship - Expressed in GRT, NRT, or DWT</td>
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<td></td>
</tr>
<tr>
<td>4.</td>
<td>Type of ship - Break-bulk General Cargo</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Tanker</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Bulk Carrier</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>- Specialized</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>- Passenger</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Other</td>
<td></td>
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<tr>
<td>5.</td>
<td>Length of ship</td>
<td></td>
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</tr>
<tr>
<td>6.</td>
<td>Number of Hatches</td>
<td></td>
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</tr>
<tr>
<td>7.</td>
<td>Draft</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Day and hour of arrival</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Day and hour of berthing</td>
<td></td>
<td></td>
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<tr>
<td>10.</td>
<td>Berth number</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Hours awaiting berth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Day and hour of departure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Hours alongside</td>
<td>- (i) working</td>
<td></td>
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<tr>
<td></td>
<td>- (ii) not working (idle or lost)</td>
<td></td>
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<tr>
<td>14.</td>
<td>Distribution of hours alongside under (i) working</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>- (ii) not working (idle or lost)</td>
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<tr>
<td></td>
<td>(In breaking down the cargo by individual items besides cargoes with special handling, items involving an annual tonnage of 100,000 and over may be itemized; others may be grouped together.)</td>
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<td></td>
</tr>
<tr>
<td>15.</td>
<td>Tonnage of Cargo Discharged</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>(By categories):</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>(a) Bulk liquid - (i)</td>
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<tr>
<td></td>
<td>- (ii)</td>
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<td></td>
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<tr>
<td></td>
<td>- (iii)</td>
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<tr>
<td></td>
<td>(b) Bulk solid - (i)</td>
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<tr>
<td></td>
<td>- (ii)</td>
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<tr>
<td></td>
<td>- (iii)</td>
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<td></td>
<td>(c) General Cargo - (i)</td>
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<tr>
<td></td>
<td>- (ii)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>- (iii)</td>
<td></td>
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<tr>
<td>16.</td>
<td>Tonnage of Cargo Loaded (by categories) - same categories as in (15) above.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>Tonnage Loaded/Unloaded by Lighter:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) Lighter into vessel along quay or vessel along quay into lighter</td>
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</tr>
<tr>
<td></td>
<td>(b) Vessel in stream into lighter or lighter into vessel in stream</td>
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<tr>
<td>18.</td>
<td>Number of gangs per shift</td>
<td></td>
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<tr>
<td>19.</td>
<td>Number of shifts</td>
<td></td>
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<tr>
<td>20.</td>
<td>Shift length in hours</td>
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<tr>
<td>21.</td>
<td>Average tons per gang hour (excluding idle hours referred to at (14) above)</td>
<td></td>
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<tr>
<td>22.</td>
<td>Average tons per man hour (excluding idle hours referred to at (14) above)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Tonnage ( tonnes)</td>
<td>Average Turn around Time (hours)</td>
<td>Average Tonnage per Ship (tonnes)</td>
</tr>
<tr>
<td>-----------------------</td>
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</tr>
<tr>
<td>Lash</td>
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<tr>
<td>RoU-on/Roll-off</td>
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<tr>
<td>Container—ocean, 800t</td>
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<tr>
<td>RORO</td>
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<td></td>
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<tr>
<td>Feeder Container Ships</td>
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<td></td>
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<tr>
<td>Tankers</td>
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<tr>
<td>Bulk Carriers</td>
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<tr>
<td>Separate table as above for break-bulk general cargo ships</td>
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</tbody>
</table>

Table 4 Turn around Time of Ships—Ship Productivity

ANNEX
<table>
<thead>
<tr>
<th>Causes of Delays</th>
<th>Number of Ship Arrivals</th>
<th>Number of Ships Having to Wait</th>
<th>Percentage of Ships Having to Wait</th>
<th>Duration (ship hours)</th>
<th>Average Waiting Time for Ships that Had to Wait</th>
<th>Average Waiting Time for All Ships Arriving</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Awaiting Berth</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Causes attributable to ship</td>
<td></td>
<td></td>
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<tr>
<td>Berth not available</td>
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<td>Pilot not available</td>
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<td>Tug not available</td>
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<td>Tidal constraints</td>
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<td>Weather constraints</td>
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<tr>
<td><strong>B. At Berth</strong></td>
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<td>Breakdown of equipment</td>
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<td>Lack of export cargo</td>
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<td>Administrative delays</td>
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<td>Strike</td>
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<td>Other</td>
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<td><strong>Total B</strong></td>
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<td><strong>Total A + B</strong></td>
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Separate tables in the above form for Break-bulk General Cargo Berths and other berths e.g. specialized berths for Grain, Ore, Containers Timber, etc.
<table>
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<tr>
<th>Commodity</th>
<th>Type of</th>
<th>Packaging</th>
<th>Bags</th>
<th>Rolls</th>
<th>Pallets</th>
<th>Conainter</th>
<th>Roll-on/Roll-off</th>
<th>Lash</th>
<th>Bulk</th>
<th>Solid</th>
<th>Bulk Liquid</th>
<th>Total</th>
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Table 7. Port Cargo Traffic

<table>
<thead>
<tr>
<th>Type of Traffic</th>
<th>Cargo Discharged by Category</th>
<th>Cargo Discharged by Type of Operation</th>
<th>Cargo Dispatched by</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bulk Liquid Bulk Dry General Cargo Specialized &amp; Container Total</td>
<td>From Vessels From Vessel From Vessel onto Quay alongside in Stream onto Quay to Lighter to Lighter</td>
<td>Road Rail Water Pipeline</td>
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<tr>
<td>Foreign</td>
<td></td>
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<tr>
<td>Coastal</td>
<td></td>
<td></td>
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<tr>
<td>Inland Waterway</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Cargo Loaded by Category</th>
<th>Cargo Loaded by Type of Operation</th>
<th>Cargo Received by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulk Liquid Bulk Dry General Cargo Specialized &amp; Container</td>
<td>Loaded from From Lighter into Vessel into Vessel into Vessel Vessel alongside Quay to Stream</td>
<td>Road Rail Water Pipeline</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cargo Transhipped</td>
</tr>
<tr>
<td>Number of berths</td>
<td>General Cargo</td>
<td>Container</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Total length of berths (feet or meters)</td>
<td>General Cargo</td>
<td>Container</td>
</tr>
<tr>
<td>Area of Storage</td>
<td>Transit (sq. yards or sq. meters)</td>
<td>Warehouse (sq. yards or sq. meters)</td>
</tr>
<tr>
<td>Area of land used in Port Operations (acres or hectares)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max ship draft</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of ship arrivals</td>
<td>General Cargo</td>
<td>Container</td>
</tr>
<tr>
<td>Average size of ships (DWT)</td>
<td>General Cargo</td>
<td>Container</td>
</tr>
<tr>
<td>Average waiting time per ship</td>
<td>General Cargo</td>
<td>Container</td>
</tr>
<tr>
<td>Average time spent by ship at berth when loading/discharging</td>
<td>General Cargo</td>
<td>Container</td>
</tr>
<tr>
<td>Ratio between working time and total turn around time of ships</td>
<td>General Cargo</td>
<td>Container</td>
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</tbody>
</table>
Suggestions for Master Plan and Future Container Terminal
Port of Tema
Rehabilitation of ports

The Ghana Ports Authority (GPA) is to spend £3,000m. ($60m.) on the rehabilitation of the Tema and Takoradi ports, the new Director of Port Services, Group Captain L. A. A. Awuvri, has said.

Speaking to newsmen at Tema, Group Captain Awuvri said various financial institutions, including the World Bank were expected to provide assistance for the project. Already, the World Bank had allocated £145m. ($2.9m.) for the first phase of the project. The Japanese government is also considering giving a loan of £1,200m. ($24m.) while the LEC has also offered a grant of £240m. ($4m.).

Group Captain Awuvri said there is a separate offer from the Italian government to finance the acquisition of a dredger, a tug boat and a crane, while Saudi Arabia has also expressed its willingness to contribute substantially towards the projects.

... and possibly for Tema harbour

The World Bank is negotiating with Ghana to help in financing the rehabilitation of the port of Tema and its oil refinery by granting credits and to participate in electrification plans. It is also negotiating a $50m credit for imports for the agricultural, transport and industrial sectors.

EXTRACT FROM WEST AFRICA MAGAZINE

- Tema harbour was completely congested with various goods and commodities "simply because consignees are facing transportation problems in their attempts to clear the goods", reported the Daily Graphic. It said the quays, sheds and stacking areas were all congested with containers, rice, sugar, lubricating oil and other items. February 1981

The Daily Graphic reported that over 900,000 tonnes of fertiliser had been left unprotected from rain and other hazards since they arrived in December last year. The Ghanaian Times added that over 10,000 tonnes of sugar and maize were also piled up.

June 1981
GHANA PORTS AUTHORITY DECREES, 1977

ARRANGEMENT OF SECTIONS

PART I—DECLARATION OF PORTS

Section

1. Existing ports and new ports

PART II—ESTABLISHMENT OF PORTS AUTHORITY

2. Ports Authority
3. Composition of the Board and tenure of office of members
4. Meetings of the Board

PART III—FUNCTIONS OF THE AUTHORITY

5. Functions of Authority

PART IV—ASSETS

6. Vesting of assets and transfer of liabilities
7. Liability for contracts

PART V—STAFF

8. Director of Ports Services and other members of staff
9. Pensions, etc.
10. Officers employed on any service deemed officers for such services.
11. Acts, order, etc. of authorised officer of the Authority are deemed to be those of the Authority.
12. Rules for conduct of port officers, etc.

PART VI—FINANCE

13. Funds
14. Application of the funds
15. General reserve fund, and investment of money
16. Accounts and audit
17. Annual reports and periodical returns
18. Borrowing powers
19. Surplus profit to be paid into Consolidated Fund
GHANA PORTS AUTHORITY DECREE, 1977

PART VII—POWER OF ENTRY TO DISCHARGE FUNCTIONS

Section
20. Commissioner's consent necessary for disposal of land
21. Power to erect beacons and make surveys
22. Power of entry and performance of other work
24. When notice of entry on land to be given
25. Compensation for damage

PART VIII—REGULATION OF PORTS

26. Power of Authority to make port regulation
27. Power of Ports Operations Officer
28. Limits of Ports Operations Officers' jurisdiction
29. Restrictions on moving ship
30. Penalty for not complying with directions of Ports Operations Officer.
31. Power to remove vessels or slacken ropes

PART IX—REGULATION OF WHARVES AND PREMISES

32. Customs area
33. Rules by Authority

PART X—PILOTAGE

34. Pilot districts
35. Obligations where pilotage compulsory
36. Power of Authority in relation to pilots
37. Pilotage boards
38. Membership of pilotage boards
39. Duties of pilotage boards
40. Meetings of pilotage boards
41. Inquiries into conduct of a pilot
42. Evidence
43. Misconduct of a witness
44. Punishment by pilotage board
45. Appeal to Commissioner
46. Revocation of pilot's licence
Section
47. Regulations for pilotage districts
48. Liability of the master or owner
49. Limitation of pilots liability.

PART XI—DUES AND RATES

50. Levy of port dues
51. Information on arrival
52. Information on proceeding outwards
53. Payment of port dues
54. Persons liable for payment of port dues
55. Retention of port dues out of owner’s moneys
56. Levy of ships dues
57. Person liable to pay ships’ dues
58. Retention of ships’ dues out of owners’ moneys
59. Levy of rates
60. Authority’s lien for certain rates
61. Lien for freight
62. Discharge of lien
63. Sale by Authority
64. Application of proceeds of sale
65. Power of entry to ascertain dues, etc.
66. Weighing and measuring of goods in event of dispute
67. Payment of expenses of weighing and measuring
68. Distress for non-payment of dues and rates
69. Clearance to be withheld until dues or rates are paid
70. Recovery of dues, rates
71. Port rates on passengers, goods and shed rates
72. Unclassified goods
73. Power to vary dues and rates
74. Power to compound for rates on goods
75. Shippers to give account of goods
76. Removal of goods to warehouse
77. Regulations for levy of dues and rates
78. Free access to copies of regulations on dues and rates, kept at offices of Authority.
79. Exemptions
80. Application to Government goods
GHANA PORTS AUTHORITY DECREE, 1977

PART XII—LIABILITY OF THE AUTHORITY

Section

81. Liability of Authority for loss of life or injury to passengers
82. Delay to passengers
83. Liability for loss or damage to goods
84. Liability for delay of goods
85. Limitation of liability for loss of animals
86. Further provision relating to the liability for loss of goods
87. Liability in connection with pilotage
88. Limitation of liability for several claims
89. Consolidation of claims
90. Sections 87, 88 and 89 inapplicable in certain cases
91. Liability in respect of licensing pilots
92. Exclusion of liability for dangerous goods
93. Removal of goods from a port

PART XIII—LEGAL PROCEEDINGS

94. Limitation of suits against Authority
95. Service of documents
96. Stay of arrest in certain cases
97. Representation of Authority in proceedings

PART XIV—OFFENCES

98. Damage to lighthouses, buoys and beacons
99. Prohibition of false lights
100. Penalty for obstructing authorised entry, etc.
101. Penalty for compulsory pilotage district without pilot
102. Penalty on pilot endangering a ship
103. Penalty for illegal pilotage
104. Evasion of dues and rates
105. Failure to comply with section 51 or 52
106. False returns
107. General offences
108. Penalty for unlawfully loosing moorings
109. Wilfully sinking vessels and damage by ship to works, etc.
110. Behaviour of servant of Authority
Appendix 1

GHANA PORTS AUTHORITY DECREE, 1971

PART XV—MISCELLANEOUS

Section
111. Rating
112. Exemption from taxes and duties
113. Saving of powers under customs laws
114. Regulations for management and good order and government
115. Interpretation
116. Power of authority exercisable by servants and agents
117. Repeal and savings
118. Commencement.

SCHEDULE
PORTS REGULATIONS, 1964

ARRANGEMENT OF REGULATIONS

PART I—ARRIVAL AND DEPARTURE OF SHIPS

Regulation
1. Application of Collision Regulations.
2. Notification of arrival of a ship.
3. Quarantine signal.
5. Hoisting of National Flag.

PART II—LIGHTS, DAY MARKS AND SIGNALS

7. Signals to be displayed by petroleum ships.
8. Signals in respect of explosives and dangerous goods.
9. Smallpox, fever, etc.
11. Ship at anchor or moored to single buoy.
12. Ship moored fore and aft.
13. Small ship moored to larger ship exempted.
15. Shading of electric arc lights.
16. Firing of guns and rockets.
17. Bad weather signals.
18. Sounding of steam whistles, etc.

PART III—NAVIGATION

20. Ships to be navigated with care.
21. Ship to keep to starboard of channel.
22. Ship not to drift.
23. Ship not to anchor or remain in swinging grounds.
24. Public landing places not to be obstructed.
25. Collisions to be reported.
26. Notice to be given of position of ship sunk in a port.
27. Notifying outbreak of fire.
29. Notifying anchor or cable left in a port.
Regulation

30. Fouling of moorings or cables.
31. Dredging for lost objects.
32. Notifying drifting buoys, timber, etc.
33. Towing of floats or rafts of timber.
34. Navigating whilst drunk.

PART IV—MOORING AND BERTHING

35. Application to berth ships, etc.
36. Refusal of application for berth.
37. Warping of ships.
38. Power of Authority to supply warps.
40. Assistance by warping on other ships.
41. Sea-going ships to be kept in movable condition.
42. Removal of projections.
43. Readiness to move.
44. Report of cargo, etc., overboard.
45. Ballast, ashes, etc.
46. Tackle.
47. Supply of towage, etc.
48. Supply of tugs for ordinary berthing and unberthing.

PART V—WORKING OF SHIPS, USE OF QUAYS AND MARKING OF TIMBER

49. Work not to begin until ship properly secured.
50. Loading and unloading outside a port.
51. Landing and transhipment of goods.
52. Responsibility of master when discharging cargo.
53. Landing of dangerous goods.
54. Removal of dangerous goods.
55. Disposal of dangerous goods.
56. Landing or loading of animals.
57. Wharves to be kept free from obstruction.
58. Port equipment.
59. Marking of logs and curls.
60. Delay in loading or unloading.
61. Gangways and accommodation ladders.
PORTS REGULATIONS, 1964

Regulation
62. Prohibition of smoking and use of naked lights in holds.
63. Storage of inflammable substances, etc.
64. Repairs to vessel or small craft.
65. Emission of smoke.

PART VI—PUBLIC HEALTH
66. Ships liable to quarantine and boarding thereof.
67. Persons dying on board.
68. Infectious diseases.
69. Throwing animals overboard.
70. Rat-guards.
71. Closing and screening of port holes.
72. Water-closets, etc.
73. Fumigation.

PART VII—SMALL CRAFT
74. Making way for ocean going vessels.
75. Licensing of small craft.
76. Notice of imported ships to be moored in a port.
77. Registered number and authorised number of passengers.
78. Notice of transfer of ownership of small craft.
79. Withdrawal of small craft from work.
80. Small craft to be sufficiently manned.
81. Duty of coxswain and crew.
82. Obstruction of approaches to gangways and ladders.
83. Making fast or loitering alongside ships, wharves, etc.
84. Special bulwarks for coal, ballast, etc.
85. Embarking and disembarking at unauthorised places.
86. Mooring, poling and beaching of small craft.
87. Fires in small craft.
88. Bilge water.
89. Life-saving, fire equipment and lights.

PART VIII—CONTROL OF PORT PREMISES AND TRAFFIC
90. Entrance and exits.
91. No person to enter port without permission except on business.
92. Intoxicated and disorderly persons.
93. Trespassers.
PORTS REGULATIONS, 1964

Regulation
94. Holding meetings, etc.
95. Bashing or fishing in a port.
96. Selling articles of merchandise, touting.
97. Divers.
98. Advertising.
99. Defacing and injuring notices, etc.
100. Smoking, etc.
101. Mustering and discharge of labourers.
102. Regulation and control of vehicles within a port.
103. Obstructing the Authority's officers and others.
104. Onus on agent to supply Regulations to master.

PART IX—MISCELLANEOUS

105. Penalties.
106. Interpretation.
107. Revocation.
108. Commencement.

SCHEDULE

FIRST SCHEDULE—COLLISION REGULATIONS
SECOND SCHEDULE—FORMS
THIRD SCHEDULE—DANGEROUS GOODS RULES.
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