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Development and implementation of uniform safety standards for inland waterways vessels and non-convention craft in Africa : the case of the Southern African Development Community (SADC)

Tasiyana Wisdom Tengananwo Kamanga

WORLD MARITIME UNIVERSITY
Malmö, Sweden

DEVELOPMENT AND IMPLEMENTATION OF UNIFORM SAFETY STANDARDS FOR INLAND WATERWAYS VESSELS AND NON-CONVENTION CRAFT IN AFRICA.

The case of the Southern African Development Community (SADC)

By

TASIYANA WISDOM TENGANAWO KAMANGA

The Republic of Malawi

A dissertation submitted to the World Maritime University in partial fulfilment of the requirements for the award of the degree of

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To

My family, Irene, Chawezi and Thobekile Kamanga

to

My late twin brother and all the lost loved ones

and

to

My colleagues at the Marine Department and the SADC

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DECLARATION

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included which a degree a degree has been previously conferred on me.

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

(Signature): .....

(Date): 2/10/2002.

Supervised by: **Professor Jan-Åke Jönsson**
World Maritime University

Assessor: **Jens – Uwe Schröder**
World Maritime University:

Co-assessor: **Capt. Rial**

ABSTRACT.

Title of Dissertation: **Development and Implementation of uniform safety standards for inland waterways vessels and non-convention craft in Africa: the case of the Southern African Development Community. (SADC)**

Degree: **MSc.**

This dissertation focuses on the enhancement of maritime safety and environmental protection in the Southern African Development Community (SADC) through the development and implementation of uniform regional safety standards. The study looks at a multiplicity of issues to be considered to achieve the desired goal.

A brief look is taken of the existing legislative framework and institutional arrangements in the region both in the dissertation and annexes. Initiatives being taken both at national level and regional level to address the problems will be analysed with emphasis on those taken at regional level. The study also looks at diverse issues of flag state implementation and Maritime Administration. The roles of the flag states in implementing the Model Regulations are explained. The requirements for establishment of an efficient Maritime Administration to carry out these roles are also determined by analysing the weaknesses in the present institutional arrangements.

The best option and process of legislating the Model safety regulations has been determined and solutions to any problems that may arise suggested. A critique of some provisions in the Model Regulations has been done. Several issues pertaining to Safety of navigation have been examined. New projects to enhance safety and environmental protection have been determined. This study goes further to look into how the region can benefit from Technical Cooperation to implement the projects. Recommendations on the need for further investigation on the subject have been made.

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LIST OF ABBREVIATIONS.A

APEC.	Asia Pacific Economic Corporartion.
CSAP	Civil Service Action Plan.
DANIDA	Danish International Development Agency.
DGPS	Differential Global Positioning System.
DoD	Department of Defence. (United States)
DoT	Department of Transport.
EAC	East African Community
GDS	Geodetic Survey Division (Canada)
GPS	Global Positioning System.
GRP	Glass Reinforced Plastic
ICEIDA	Icelandic International Development Agency.
IFMIs	Intergrated Financial Mamnagement Information System.
IMO	International Maritime Organisation.
IWSA	Malawi Inland Waters Shiping Act, No 12 of 1995.
LOP	Line of position.
MEPC	Maritime Environmental Protection Committee.
MPSR	Malawi Public Service Regulations.
MTEF	Medium Term Expenditure Framework.
NDC	National Development Corporation (Tanzania)
NTC	Northern Transport Corridor

SADC	Southern African Development Community.
SADCC	Southern African Development Coordination Conference.
SAMSA	South African Maritime Safety Authority
SATCC	Southern African Transport and Communications Commission.
SATCC-TU	Southern African Transport and Communications Commission – Technical Unit.
SCOMS	Subsectoral Committees
SPA	SADC Programme of Action.
STCW	Standards of Training and Certification and Watch keeping.
SWOT	Strength Weaknesses Opportunities and Threats.
TOR	Terms of References
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme.
UNEP	United Nations Environment Programme.
VCLT, 1980	Vienna Convention on Law of Treaties.
WCMC	World Conservation Monitoring Center.
WMCM	World Conservation Monitoring Centre

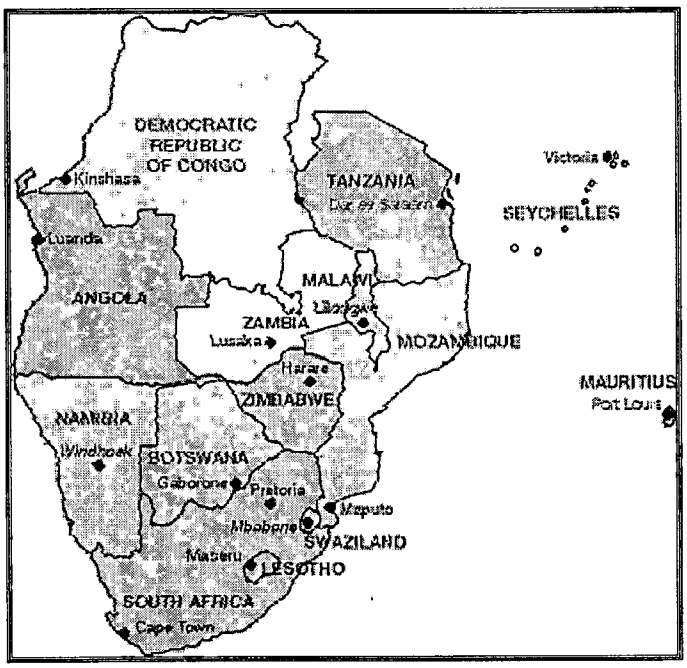

Figure 1: The Southern African Development Community Countries

Source: ASOSH (Association of Societies for Occupational Safety and Health), South Africa Website, 2002.

CHAPTER 1

THE OVERAL PERSPECTIVE.

1.1. Background to the study.

The author had initially prepared a submission to research on the effects of New Public Management (NPM) on the Malawi Maritime Administration. The Curriculum and Academic Committee (CAC) duly approved this proposal. However, on advice from the faculty, the author had to change to an alternative topic at the last minute. The advice and reasons for changing to a topic directly related to maritime safety administration were so convincing and compelling that the author decided to take the challenge despite the fact that the deadline for submission of the dissertation proposals had approached.

It was during the research to select a topic that the author was informed by the IMO that in January this year, they had finally produced the much-awaited "*Model Safety Regulations for inland waterways vessels and non convention craft, including fishing vessels operating in Africa*". This coincidence offered an opportunity that could not be missed. Besides, it gave the author the rare chance to be among the pioneers in examining and commenting on the best way to implement and adopt these regulations. The author then proceeded within the limited time to prepare a research proposal that was consequently approved by the Curriculum and Assessment Committee.

Despite the approval of the topic, the author was not sure if data and published information was available. Furthermore, it was not clear if the topic would be manageable within the time available and the constraints imposed by the weighting given to the dissertation within the course. Above all, it was not clear if the approach

and methodology proposed were suitable and could be supported by the resources available.

1.2. Importance of the study.

There are many unreported accidents and incidences occurring on non-convention ships in the Southern African Development Community inland waterways. However, despite a lack of objective hard evidence, it has become apparent that a number of serious accidents do occur to these ships. Rarely a month passes without a report of an accident to such ships in the local and international media, sometimes involving a loss of life (see BBC, 2002). The study will examine the safety standards on these vessels and all other related issues that could help to improve the situation.

The study is well timed since it has been conducted at a time when regional efforts are being made to find ways of improving maritime safety to curb the present regrettable loss of life. In March 2003, the Southern African Transport and Communications Commission (SATCC) inland waterways subcommittee will meet to decide ways of adopting and implementing the Model Safety Regulations within the Southern African Development Community (SADC). The implementation of the regulations will pose a huge challenge to the member states particularly the time scale for adoption, the method of adoption, human resources and budgetary constraints.

When IMO produced the final text of the Model Safety Regulations in January this year, the project PR267 TCO2RAF/98/109 was considered to have completed its objective of giving the African countries a mutually acceptable tool to deal with safety aspects of non-convention sized cargo ships and barges. However, it must be recognized that to simply make the regulations available to countries in the region and expect them to implement them effectively will not achieve the desirable outcome. The study is focused

on discussing ways of implementing the Model Safety Regulations in the region, considering the regional interests and concerns. These concerns are stipulated in the Southern African Development Community Treaty and Southern African Transport and Communications Commission Protocol. The study goes further to examine the possible technical cooperation assistance needed to improve safety in the region.

Most of the countries in the region neither have an Administration in place nor appropriate legislation to successfully implement the regulations. Furthermore, even though some countries have enacted appropriate legislation, the safety standards contained there in, are not consistent between countries. The study tries to fill this void by proposing a concerted regional solution, which would avoid duplication and pool resources for a common goal. The study looks at a multiplicity of issues both institutional and legal relevant to enhancing safety of life and environmental protection in the region.

1.3. Objectives of the study.

These objectives of this dissertation are as follows:

To describe in general terms the current status of maritime safety and environmental protection standards on inland waterways vessels, pleasure craft and non-convention craft in the Southern African Development Community (SADC).

To propose an institutional, administrative and legal framework for the adoption and implementation of the January 2002 IMO-Model Safety Regulations for inland waterways vessels and non-convention craft including fishing vessels operating in Africa.

To examine other factors closely related to the enhancement of maritime safety and environmental protection, particularly the provision of aids to navigation, which are inseparable to navigation aids on board the vessels.

To critique some of the provisions in the January 2002 IMO - Model Safety Regulations for inland waterways vessels and non-convention craft including fishing vessels operating in Africa and make proposals for their effective adoption and implementation within the Southern African region.

1.4. Scope and Methodology.

The study has been deliberately broken down into short chapters, topics and subtopics that have been discussed in a logical progressive fashion. This is to simplify the wide subject and guide the reader from the concept development, analysis of issues and to the conclusion.

Contact was made with the IMO Technical Cooperation program which provided the draft Model Safety Regulations, the workshop report and the associated resolutions. These were thoroughly scrutinised. A literature search was extensively undertaken to examine how other regions adopted and implemented similar regulations. Some visiting and resident experts in the field at the World Maritime University were interviewed to seek their opinion and advice.

The author then proceeded with the analysis of the workshop report, the resolutions, the preamble and the explanatory notes to the regulations identifying and taking note of any problems. Different regulations for non-convention vessels, fishing vessels, pleasure craft from different parts of the world were collected and analysed. The aim was to compare them with the African regulations and find solutions to the problems identified.

IMO circulars and resolutions were also collected and used. The author also extensively used his personal experience as a cadet, master, surveyor and student at both the World Maritime University and the International Maritime Academy through out the study. This experience helped to identify main issues relevant to the objectives of the research. The author also took electives on Survey and Certification of non-convention vessels and on Maritime Legislation to increase the depth of knowledge on these subjects.

1.5. Limitations and problems encountered

The study was affected by many limitations and problems. The scope of the analyses were negatively affected by the inability to conduct field research on the subject matter in any of the Southern African Development Community countries. This drawback was further complicated by the limited availability of secondary sources of data and published information on maritime safety administration in the region both in the library and Internet. During the field trip to the IMO in London, the author took the opportunity to do research in the IMO library but again found very limited information regarding Southern Africa on the topic.

On the whole, it seems very little has been written on the subject except by Mr. Ian Williams, IMO Consultant and Dr. Heike Hoppe, Technical Officer, IMO. The author was therefore confined to materials obtained prior to arrival in Sweden. Attempts to supplement this by writing to the Government officials to request data and statistics yielded no results. The author made efforts to contact the participants to the workshop, which was held in Mwanza, Tanzania, from 15th to 19th October 2001 to adopt the Model Regulations using the contacts given in the workshop report but none of them responded. All these problems mentioned above have affected the author's ability to discuss pertinent issues.

CHAPTER TWO.

UNIFIED REGIONAL REGULATIONS AND IMO APPROACH.

2.1 Options available for the legislation and implementation of the model regulations.

The challenges facing the regional countries in choosing the correct approach in legislating and implementing the model regulations cannot be over emphasised. It is the view of the author that two options are available from which the states can choose one or a combination. These approaches are unilateral approach, and regional approach. These options will be examined briefly to be able to determine the best way to achieve the desired goal.

2.1.1. *Unilateralist approach.*

On taking this approach, the states have an option of taking unilateral measures whereby each country as a flag state, will have to adapt the regulations for integration in their respective legislations and make the necessary amendments on an individual country-to-country basis.

2.1.1.1. *Justification for unilateralist approach.*

This concept, which is becoming common in international law, is justifiable in the states whose vital interests are affected or simply threatened. This demands instantaneous action, to remedy shortcomings or plug loopholes in international regulations (Boisson 1999, p 176.). The main reasons for unilateral action are inadequacies in international regulations and immediate interests of states, which may vary. This is worsened with the bureaucracy involved in coming up with solutions. Furthermore, though these model regulations have just been adopted this

year, inadequacies specific to each country are bound to be noted, which may result in the need for each of the participating countries to review and update their regulations unilaterally.

In public international law, the organising principle on the national territory is that of exclusive jurisdiction of the sovereign state. Each state has full jurisdiction to legislate and enforce legislation on its territory (UNESCAP, 1991 p.7). There is no doubt therefore that each of the participating states in the region has both legislative "prescriptive" jurisdiction and enforcement " prerogative" jurisdiction to take action. Legislative "prescriptive" jurisdiction denotes the power of a state to set rules on certain matters while enforcement jurisdiction denotes the power of the states to enforce the national rules on its territory (UNESCAP, 1991p7). According to Professor Murkejee (2001, p 1) ***"Flag State jurisdiction is the primary basis for the regulation of ships and a flag state must ensure that its ships comply with international maritime standards and is obliged to enforce them."***

However, it is important to note that a state may have legislative jurisdiction in a matter without the power to enforce its rules. Conversely, it is hardly conceivable that a state would have enforcement jurisdiction without legislative jurisdiction. After all, enforcement jurisdiction denotes the power to enforce rules set by a state which may only be enacted if a state has the power to do so i.e. legislative jurisdiction. Legislation alone is not enough as Williams and Hoppe (1999, p.11) caution " ***It must be recognised that to simply make regulations available to countries and expect them to be implemented effectively, will not achieve the desired outcome***".

It is the observation of the author during the study that some countries in the region have not exercised legislative jurisdiction in that they have no appropriate legislation in place. Those countries that have some form of legislation in place have no

required major enforcement mechanisms in place. These mechanisms are discussed in Chapter 5.

2.1.2. *Regional Approach: the best way forward*

2.1.2.1. *Background history of regional approach.*

Regionalisation of safety standards worldwide was born in 1993. The United Kingdom, following the Herald of Free Enterprise accident submitted a series of measures to improve safety on passenger ro-ro ferries. The measures were mainly based on the Sheen inquiry to the IMO, which between April 1988 and April 1992 adopted four series of regulations that meant far- reaching changes to the IMO convention (Focus on IMO, 13 – 18). The proposal by the UK was that the SOLAS amendments on damage stability which had come into force in 1990 for all new ships, should be made mandatory to existing ferries from 1st March, 1993 otherwise UK would act unilaterally (Boisson 1999 p.180). Despite their radical nature, the proposals received enough support from IMO delegations although the MSC decided to apply SOLAS 90 standards in a more flexible form to ferries in service by setting a grace period of 11 years from 1st October, 1994 as to give time for ships in service to be upgraded. Realising that the deadlines could not be respected at IMO, the UK turned to its European partners to hasten the regulatory process. A regional agreement was signed in London by fourteen European countries to apply SOLAS 90 standards in accordance with a stricter overall timetable to all existing ro-ro passenger ferries in the western European zone (Boisson 1999 p 181). It must be noted however, that this agreement resulted in a two-tier approach to safety at sea. There was one for North- Western countries and another conducted by IMO for the rest of the world. This in the view of the author is a good example of a regional approach working in tandem and not in conflict with a global approach. In this regard, SADC countries can jointly adapt and modify the IMO African regulations to suit specific requirements in the region through the already existing regional structures.

2.1.2.2. *Advantages of a regional approach.*

It is the view of the author that maritime safety regulations on the region's inland waters ought to transcend national boundaries and that a regional approach is clearly the most effective approach as it has several advantages.

Constraints as noted in the SWOT Analysis in Chapter 4 will derail any efforts to improve safety on these vessels if the countries opt for a unilateralist approach.

A regional approach would ensure the avoidance of unnecessary duplication. Member states would benefit from the already currently implemented projects related to maritime safety in different countries. They will then have the ability to focus on coordination and subsequently the integration of these projects and ascertain the pooling of limited resources.

A regional approach will be vital in providing a network of important information between the member states. At the same time it will provide the states with access to information from several sources like different bilateral donors who have currently entered into various agreements with the individual countries.

Furthermore, the regional centres as a focal contact point can easily leverage governments or donor funding particularly from the IMO's TCC to hire full-time qualified resource people. This approach has worked well in the East African Community (see IMO project ID PR403) where consultants on Maritime legislation and Aids to navigation have been engaged on the Lake Victoria project.

The success of the regional approach in other regions is noted by Williams and Hoppe (1999,p2) when they state that " ***the regional approach so far comprising special regional regulations taking into account existing small ship regulations and paying special attention to the requirements of the particular countries has proved to be successful.***" It is therefore fair to conclude that the regional approach is the best way forward in the adoption and implementation of these regulations.

2.2. The IMO approach in developing regional regulations.

The IMO has been prevented from taking direct action because of its international mandate. Consequently, it has approached the matter through Technical Cooperation where it has a strong mandate. Williams and Hoppe, instrumentally and directly involved in developing regional regulations, observe that for best results the projects have been implemented in a three-phased approach. This has worked well and has been applied to all IMO projects on the subject matter as follows:

2.2.1. *Analysis of existing legislation and documentation.*

The first phase involves the analysis of existing current national legislation of the participating countries. This is followed by a selection of suitable international regulations that can be adapted and modified to provide a detailed framework for draft regulations for discussion during subsequent fact-finding missions. This is then followed by the provision of a framework of draft regulations to beneficiary countries, requesting feedback and comments.

2.2.2. *Fact finding missions*

The second phase are facts finding missions to selected countries that are representatives of the region for consultation with the national governments. The aim is to review and resolve any issues arising from the draft regulations. The review and modification of the draft regulations is then based on the conclusions and findings of the fact-finding missions. The mission then provides amended draft regulations to beneficiary countries requesting feedback and comments.

2.2.3. *Regional workshop and adoption.*

The final phase is the conduct of a regional workshop for representatives from the beneficiary countries to discuss the draft regulations that are based on the outcome of the discussions.

2.3. Regulations in other regions of the world

Following the approach mentioned above, the IMO has been successful in developing regional regulations in other regions of the world. It is beyond the scope of this paper to elaborate in detail the contents of these regulations. However a brief summary and comments are made only on certain features relevant to the development and possible implementation of the African Regulations.

2.3.1. *Safety regulations for non-convention sized ships in the Asian region*

The standards in these regulations are supplemented by footnoted references to a number of IMO resolutions to provide technical standards and guidance on applying the regulations. The regulations apply principally to new cargo ships and barges over 15m in length. However, administrations can apply the standards specified in the Regulations to existing ships, as far as practicable and reasonable. Furthermore, an Administration is allowed to permit a ship designed to a lower standard than that specified in the regulations to operate on certain or restricted voyages. However, the ship should comply with the safety requirements that the administration considers adequate for the intended voyage and the overall safety of the ship and personnel on board. Survey and certification is based on SOLAS principles, with a major survey every five years and an annual inspection. The stability and floatability requirements are based on IMO standards and contain simple bilge pumping provisions.

2.3.2. *The Caribbean Cargo Ship Safety (CCSS) Code for ships of 24 m in length and over up to 500 GT.*

In general terms the Caribbean Code was based on the Asian regulations. It has a similar framework, including its application to cargo vessels having a length of 15m and over although the details depart from the Asian model in a marked manner in some areas. They are organised in quite a different way, having two broadly based construction chapters. The first one deals with construction, subdivision, stability, machinery and electrical provisions. The second chapter deals with fire protection matters. The most significant departure from the Asian model, later adopted in the African model, lies in the requirement for a comprehensive, 20-page record of equipment and ship information. This provision has been adopted in the African Model Regulations. The author fully supports this inclusion. This is most important because of poor record keeping of the original information from the builder each time a vessel changes owner. The detailed record of equipment provides owners with valuable, up-to-date information on a vessel throughout its life and will assist administrations and surveyors in managing the regulatory aspects of the vessel's operations.

2.3.3.*Safety regulations for non-convention vessels operating in the Pacific region*

The Pacific regulations follow the regulations developed by Asian countries with some references from the Caribbean Code. The scope of the regulations includes passenger vessels although the normal differentiation between cargo and passenger ships derived from SOLAS (the carriage of a maximum of 12 passengers on cargo ships) was decided inappropriate for the region because of the importance of inter-island sea transport to economic, social and cultural aspects of life in Pacific Island countries and the need to effectively use all relevant transport resources This necessitated the provision that cargo vessels should be permitted to carry passengers, subject to special consideration of the safety of the vessel and the conditions upon which a voyage with passengers should be permitted. A category of "cargo-passenger ship" is defined that meets the basic standards of construction and

equipment of cargo ships but requires higher standards in the area of intact stability, life-saving arrangements and communications equipment. (Williams & Hoppe, 1999). This provision is has been adopted in the Model Regulations. The writer also supports this inclusion and hopes it will help alleviate transport problems especially on the islands where people lack transport despite cargo ships operating in the area.

CHAPTER THREE.

LEGISLATION OF THE MODEL SAFETY REGULATIONS

...regulatory legislation should be drafted with, primarily, the special audience other than the judiciary in mind. The legislation should be usable and applicable, if its object and purpose is to be achieved.

Professor P. K. Murkejee, *"Maritime Legislation, (2002,p.80)*

3.1. Introduction.

One of the issues raised in the report on the Workshop on the Safety Regulations (IMO (2002b,p.5) was that, " in some participating counties, there was absence of effective existing maritime legislations or parent acts.

Murkejee (2002, p. 54) in his recently published book, *Maritime Legislation* observes that in many countries, especially those from the developing world, maritime legislation is contained in numerous pieces of legislation that are often archaic and outmoded. Most of the states in the SADC region at present do not have an administration in place nor any legislation with which to implement maritime safety and environmental protection regulations.

The IMO- Technical Co-operation Committee during the 44th Session on June 26, 1997 approved a programme aimed at strengthening administrations and therefore focus on establishing maritime administrations in selected countries and providing assistance in formulation and implementation of national maritime legislation.

The author will now try to briefly look at some of the issues. It is important to note that each one of the issues raised is a wide topic on its own and it is beyond the scope

of this study to address all the legal issues in detail. The discussion will focus on the common law system that is followed by most of the countries in the region.

3.2. Formulation and Implementation of National Legislation.

The Resolution 1(1) of the Model Safety Regulations (see IMO 2002c) recommends the Governments of the participating countries to adopt and adapt the regulations for integration into their national legislation. **Resolution 1 (2)** also recommends that the participating counties either adopt the regulations in their present form or as modified to suit specific national needs and conditions. It further recommends the regulations to be adopted as an integral part of national legislation or applied as a means to modify national legislation so that it contains the principles relevant to securing the safety of navigation on these vessels and protection of the environment. "It is easier to legislate non-technical provisions than technical ones" (Murkejee, 2002)

Most of the participating countries stated that the model regulations would be amended to reflect their national requirements and practices. Two of the participating countries stated that they would probably be able to adopt the model regulations as they stood. The author highly recommends the model regulations to be adopted on a regional basis resulting in a regional set of legislation. Besides ensuring the required uniformity and harmonisation, there is no compelling evidence that the national requirements significantly differ in the region. Since all the countries in the region follow a common law system, the discussion will be restricted to that system of legislation.

3.3. Legal status of the Model Safety Regulations.

The first fact to consider is the legal status of the model safety regulations. They should form part of Sub-ordinate Legislation. This means that they would be issued pursuant to statutory authority signifying an Act of the Legislature (Parliament). The

statutory authority will be derived from the statute itself or from some superior or parent legislation such as the Constitution or a statute flowing from it. It is advisable to have the main regulations and IMO conventions connected to them referred to in the national primary legislation.

Murkerjee (2002, p.50) notes that as a general rule, matters of fundamental importance, whether substantive or procedural, should be dealt with in primary legislation or principal legislation. Procedural details and technical specifications should be dealt with in the subsidiary or secondary legislation. He further cautions that, "Bureaucratic convenience should not determine what should go into subordinate legislation."

3.4. The advantages of empowering the Minister or Department.

The Shipping Act should clearly empower the Minister to make and administer the safety regulations through the Government department. Another alternative, which the author favours, would be the statute or constitution directly empowering the Government department to administer subordinate legislation. In this case, legislation can be delegated for approval by the head of the maritime administration without having to go to the national legislature or parliament to make amendments. IMO frequently amends its conventions and regulations that would in turn affect the model safety regulations. From the author's experience, keeping domestic legislation up to date is very time consuming and most often falls behind. A classic example is Malawi where the Primary Act was enacted in 1995. Yet to date, efforts to amend the subsidiary legislation have failed. Suffice it to say that amendments to domestic legislation must be undertaken in the most expedient manner available.

3.5. The Drafting Process:

From practical experience, the author feels that it is of vital importance that those in the administration are familiar with the drafting process. Unfamiliarity with the process often leads to frustration on the administration and procrastination by the Justice ministry. A good example is the failure of Malawi to come up with a subsidiary legislation to the Inland Waters Act, 1995 despite several efforts by the department including the author. The main reason for failure ranged from ignorance, lack of resources and poor strategy. In most common law countries like Malawi, specialised legislative parliamentary draftsmen who are experienced in the job do the drafting.

Murkejee (2002, p.74-80) gives a good guidance on the subject from which the writer will try to capture some of the important issues relevant to the study.

3.5.1. Drafting Instructions:

The first and most important step in the drafting process will be the preparation and issue of drafting instructions by those officers working in making policy of the marine administration or any senior officer entrusted to do so. The instructions will serve as a blue print for the legislation and therefore need to accurately reflect the government policy, objectives and intensions. This will give a clear guidance to the draftsman as to the proposed law. The instructions need to be detailed in a narrative form outlining topics and subtopics in a logical order and explain the rationale for the instructions.

The instructions must specify whether the legislation will incorporate the model safety regulations in verbatim or seek to import only the pith and substance. If the instructions are for the drafting of the enabling provisions in the Act, it must also be clearly stated. Matters pertaining to the general law of land and constitutional interpretation should be left to the draftsman. References should be made to these matters mainly to draw his attention.

3.5.1.2. *Drafting Instructions for the Primary Act*

The difference in drafting of the primary "Act" and subsidiary legislation (the Model Safety Regulations) can best be illustrated by looking at the example of Malawi. In the case of Primary legislation, the Chief Parliamentary Draftsman prepares the legislation from drafting instructions written in ordinary language issued by the Marine department headquarters.

3.5.1.3. *Drafting Instructions for the Model Safety Regulations.*

For the subordinate legislation in this case the Model Regulations, no formal drafting instructions will be necessary. The initial drafts will be prepared by the marine department officers and forwarded to the parliamentary draftsmen at the Ministry of Justice for final drafting. The parliamentary draftsmen will do the final drafting from these drafts prepared by marine department officials. The power to do so is derived from Ministerial directive provided for in the parent statute (see Inland Waters Shipping Act, No 12, 1995 s. 45)

3.6. General Contents of the Drafting Instructions:

Professor Murkejee (2002, p.75) states that there are no set rules regarding the form or content of drafting instructions. However as a general rule he stresses the need for the drafting instructions to be comprehensive, self-explanatory, clear and precise. The draftsman should not have to seek clarification of one point or another from the author of the instructions.

3.6.1. *The tone of the drafting instructions.*

They should be written in an instructive tone and not in the tone of an order or a suggestion or advice. Furthermore, they must be restricted to statements of facts or

information without actually instructing the draftsman on what to do with the given facts (Murkejee, 2002).

3.6.2 *Background of the drafting instructions*

A brief background to the Model Safety Regulations needs to be provided in the instructions. In this case it would be helpful to include the source, the report of the workshop to adopt the regulations and the associated resolutions that were adopted. The background should be a description of matters in chronological context leading to the decision of the Governments to legislate.

3.6.3. *Object and purpose of the drafting instructions.*

The instructions should clearly articulate the object and purpose of the legislation, which is provided in the preamble, including any mischief that is anticipated to be remedied. Any opposition to administrative action within the framework of the existing legislation should be explained.

3.6.4. The need for consultation in the drafting process.

Before the drafting instructions are finalised, the author of the drafting instructions and the designated draftsman should have oral consultations to reach a common understanding. The consultation will also minimise changes and facilitate a smooth process of drafting. This important fact is often ignored.

3.6.5. Technical matters and terms of art.

It is also important that all technical matters, terms of art and terminology with special connotation and contextual significance are clearly explained in the instructions.

3.6.6. Other important considerations.

The instructions need to be in a progressive order in logical fashion, as this will help the draftsman in developing the scheme of the legislation. Reference to similar legislation in other jurisdictions like the Caribbean Code and the Asian Regulations should be made. Reference to relevant judicial decisions where the intention is to endorse or overrule them should also be made. If the legislation is for the enabling Act, the subordinate legislation necessary (in this case reference to the Model Safety Regulations) should be made.

3.7. Steps of Drafting the Model Safety Regulations:

According to Thornton, as quoted by Professor Murkejee, there are five steps in the drafting process that are not distinctly separable. These steps will need to be followed by the draftsmen who will be responsible for drafting the model regulations. The steps are as follows:

3.7.1. Understanding the drafting instructions.

The draftsman should begin by studying the background as presented in the drafting instructions and endeavour to comprehend the instructions in a logical commonsensical progression.

3.7.2 Analysing the drafting instructions.

Analysing the legal status quo to understand the objective and proposed content of the legislation. Examine the legal consequences and implications of proposed law.

3.7.3. Designing the legislation.

The design of the scheme will begin by methodically examining all the implications of the proposed legislation. The design must be logical and conducive to easy comprehension and conception by the user and reader of the legislation

3.7.4. Composition

Draftsmen who are skilled and specialised must compose the legislation since this is the most important step in the whole process. This process leads up to the eventual articulation of the text of the legislation

3.7.4.1. Ingredients of composition:

3.7.4.2. Style of the composition.

The style should be in conformity with the prevailing style in the legislation. It should be standardised by the drafting office and conformed to by all draftsmen.

3.7.4.3. Logic in the draft legislation

Professor Murkejee (2002) advises that, "Every sentence in the draft should make sense and be grammatically correct. The message in provision should not be nonsensical and ambiguous. There must be an element of logic in every expression". The use of metaphorical or rhetorical expressions should be avoided. There must always be consistency in what has been drafted in the past, the present and the future. Contradictions and contrary provisions must be avoided by the re-examination and understanding of the objectives of legislation.

3.7.4.3. Scrutinising the prepared draft.

This entails thoroughly, methodically and repeatedly reviewing of draft by another draftsman for a fresh uncluttered view of the draft system of subordinate legislation

3.8. The language of drafting the Model Safety Regulations.

Technical and regulatory legislation like the model safety regulations should be written for those it purports to address or regulate. Due regard will be to nautical and technical terms. The formulas must not be written in prose. Draftsmen should thoroughly understand the terminology in the text as appropriate to avoid floppy draftsmanship, frustration and procrastination. Interest of the ultimate user should always have priority over those of the legislators. It is important to note that legislation for technical purposes requires technical words and technical law is good law. Legislation should deviate from common language only when a specialist topic requires. The draftsman must struck the right balance between precision and comprehensibility. Regulatory legislation should be drafted primarily with the audience in mind other than the judiciary (Murkejee, P. K, 2002, p.80).

3.9. Amendment of the existing legislation

As stated earlier, most of the countries in the region follow a common law system based mainly on the British Merchant Shipping Act of 1894. Over the years, most of the countries have updated their Acts with the help of the IMO International Technical Cooperation Programme. However if they have to implement the model safety regulations, there will be a need for them to amend their Acts. On this issue, Professor Murkejee, (2002, p. 161) states, "the work is particularly difficult where there is an existing legislation which is voluminous, but largely outdated; sometimes quite archaic." Considering the cumbersome task of making a series of amendments to bring to effect the model regulations, it is highly recommended that the states consider completely whole new Acts.

3.9. Choosing the options: Code or Acts?

Some countries in the region may wish to have their maritime legislation concerning the regulations contained in a comprehensive single piece of legislation. This would be straightforward and convenient to the users. However this approach would be intricate to achieve in the region since legislation has to pass through parliament with the associated formal legislative procedures. Furthermore, legislation that is highly technical in nature like the model regulations, if it survives the process would take extraordinarily long to become law. Considering the inevitable frequent amendments to the regulations, the law would likely become outdated even before it is passed.

Due to afore mentioned reasons, it is highly recommended that the regional states consider the option of having their enabling maritime legislation separate from the regulatory legislation giving effect to the model safety regulations.

3.10. Regulatory and Penal legislation

According to explanatory notes, (IMO, 2002a) the Model Regulations are concerned with physical aspects of the safety standards applicable to inland waterways vessels. The provisions are of such a nature that sanctions should apply to non-compliance in order to encourage the achievement of an appropriate standard of safety in the construction, equipment and operation of vessels and for the persons who serve on them. The Model Regulations themselves make no provision for such sanctions. The sanctions can either be regulatory or penal. Professor Murkejee (2002,p.55) suggests that the distinction between the two should depend on the severity of the consequences of a violation of law and the attendant sanctions

3.10.1. Regulatory Sanctions.

When converting the Model Regulations into national legislation, Administrations should include regulatory sanctions in the regulations themselves. These sanctions

could result in imposition of a monitory penalty or detention of the ship. Due to the fluctuations in the national currencies and the frequent legal amendments to regulations determining detainable offences, all regulatory sanctions should be in the subsidiary legislation. The law should then empower the Administration to adjust the monitory values as need arise. This would facilitate amendments to monitory values to suit the present time. This is important since it avoids having embarrassing sanctions that are plausible or laughable in value. In Malawi for example since 1995 it has been difficult to amend section 189 dealing with sanctions in the Inland Waters Act No. 12 of 1995. The offences for misconduct endangering the vessel (s.125) and sending an unseaworthy vessel results in a penalty of MK 600.00 (USD 8) or two years imprisonment with hard labour. The maximum penalty for a company or vessel owner violating the Act is MK3, 000 (USD 38). Surely, this defeats the whole purpose of penal legislation.

3.5.2. *Penal sanctions.*

These are sanctions where there is a loss of life and arising from negligence or recklessness of the master. In this case, penal sanctions should be provided for or referred to, in appropriate superior legislation. The best way to keep pace with the fluctuations is to make provisions that will leave it to the courts to decide the penalty. In Malawi, due to negligence an overloaded boat capsized and 22 people lost their lives. In accordance with the provisions of the Act mentioned earlier, the boatman had to pay the prescribed penalty MK600 (USD 8) or face two years imprisonment with hard labour. The company under the law was to pay MK3, 000 (USD 38)

CHAPTER 4

REQUIREMENTS FOR AN EFFECTIVE MARITIME ADMINISTRATION

4.1. Maritime Administration.

Maritime Administration is a complex and wide topic that generally encompasses the role of the government in maritime affairs. It falls within the ambit of pubic administration. It is difficult to come up with a precise definition and definite prescriptive requirements for a maritime administration. However, Professor Hodgson, (2001a,p.5) sums up maritime administration in a very concise way that shows how wide the subject is:

> Maritime administration can generally be regarded to fall into three broad categories of activity: policy development, regulation and provision of services. In each one of these categorise efforts are directed at managing the national interest in three principal sectors of responsibility: economic performance, safety and environmental protection.

As seen from Professor Hodgson's description above, maritime administration is indeed a broad subject that includes both the economy and maritime safety and environmental protection aspects. It is essential that the administration's infrastructure enable it to fully implement and ensure compliance with the Model Safety Regulations. It must be an administrative organization and structure that is capable of fulfilling the roles and responsibilities of a flag State. The three Annexes provided aim at showing how an Administration can be structured to fulfil its roles.

It is beyond the scope of this dissertation to go into details of maritime administration but to give a brief overview of some of the policy and administrative issues which need to be addressed by the SADC states.

4.2. SWOT analysis of the Maritime Administrations.

To begin with, it would be appropriate to make a general Strengths, Weaknesses, Opportunities and Threats Analysis (SWOT) of the Administrations in the SADC region.

4.2.1. *Strengths*

Most of the administrations enjoy guaranteed government funding regardless of performance and massive assistance from donors like UNDP, DANIDA, Iceland Japan and the IMO. These donors continue to provide fellowships, capital equipment and technical experts in shipping, training and administration. The prospects of attracting new donors and raising revenues locally remain immense. (See IMO Project D02202GLO/96/906)

Malawi, Mozambique and Tanzania boast a large number of WMU graduates evenly distributed in all sectors. There are also several postgraduate lawyers from the International Maritime Law Institute, Malta and the International Maritime Academy in Trieste, Italy.

Under the SADC Treaty, there is political good will, commitment and a legal basis for regional cooperation.

Modern port infrastructure, equipment and two modern Survey vessels, RV Timba (ICEIDA, 2001) and RV Zaituno Janguo (IMO, 2000) and associated equipment have been donated for hydrography and charting of both Lake Malawi and Lake Victoria respectively.

4.2.2. *Weaknesses*

The organisational structure in the Administrations does not lend itself to a free flow of information. This hinders efficient and client-responsive implementation of activities. There is rampant documented corruption and no respect for business and market forces. (see Tanzania National Policy Document, 2002 and Malawi National Policy Document 2002).

At national level, coordination is lacking between departments, divisions and the remote areas where shipping is concentrated. There is evidence of a chronic state of conflict between the ship owners and administrations due to inadequate civic education on the role of the administrations. There is also considerable scope for increased involvement of key stakeholders in processes and activities related to the maritime industries. There is further need for harmonisation with other transport modes and a regional approach to pool finite resources.

Most administrations have neither a mission nor vision statement. Where it exists, it is only on paper. There seem to be no measures in place to implement the balance between environment and economic policy. There are no Quality management policies being implemented in the administrations. Clear policies procedures and plans on Incident prevention and response are lacking.

All the training institutions in the region lack expert instructors. Only South Africa is on the IMO white list. There is duplication in most sectors in the region as a whole, for example; each state is trying to develop a national training institution. There is no Search and Rescue in any of the countries except South Africa.

There is limited technological advancement especially in data collection and management. In most countries, it is done manually and it is not easily accessible throughout the whole industry. This has a negative impact on planning.

The administrations level of dependence on donors is worrying. Funding from some governments is often erratic and foreign aid subject to politics. There is failure to collect millions of revenue for services rendered to state owned companies.

The ageing fleet in all the countries is difficult and costly to service (see Singini, 1994 and Mulilima 1998). On both lakes there is lack of aids to navigation (see ICEIDA, 2002 and IMO, 2002). Those available are gas powered and obsolete.

4.2.3. *Opportunities*

The opening up of the Northern Corridor project linking Malawi's rail, road and lake transport with the port of Dar-es-salaam (Tanzania) and the proposal to open the Mtwara corridor linking the port of Mtwara in Tanzania and Lake Malawi. Zambia will be linked to the lakes to allow foreign and domestic transit cargo. (see NDC,1999). There is a huge potential for tourism growth and cruising on the lakes. In Malawi for example, Le Meridian Hotels (France) and Protea Hotels (Republic of South Africa) are planning to invest in two five star hotels and lodges along the lake and there is a planned development of a $15 million luxury resort at Cape Maclear. Lake Malawi National Park is the only lacustrine park in Africa, with the largest number of fish species of any lake in the world, inscribed on the World Heritage list in 1984. (UNEP-WCMC, 1995).

The SADC Treaty, the SATTC Protocol and the recent signing of the African Union Treaty offers a great opportunity for the countries to integrate their economies and work closer together.

4.2.4. *Threats*

There is competition mainly from the road sector for funding from Governments. In Malawi, peace in Mozambique and the opening up of cheaper rail connections to the nearer ports of Mozambique is a threat. Several lakeshore roads that are planned will lessen the need of the lake transport in the multimode transport network. The brain drain of maritime experts for greener pasture to other countries outside the region is worrisome.

Poor management and past failures to deliver at MLS Ltd and Tanzania Harbours Authority is definitely a threat. Delays and hesitation by some governments like Malawi, Tanzania and Zimbabwe to implement NPM has resulted in suspension of aid worth millions (BBC, 2001) Vandalism and lack of appreciation for infrastructure has resulted in sabotage of aids to navigation on the lakes.

4.3. The size of the Maritime Administration.

The size will depend on many factors such as the size of the fleet, government policy and the importance of maritime affairs in the economy. The role of a maritime administration can be focussed in one organisation or distributed across a number of government bodies.

4.4. Establishing a Maritime Administration

For those states that still have no Administration in place, considération has to be given as to where it best fits in the Government structure. The structure for the Maritime

Administration will be mainly determined by the duties imposed on it by the Shipping Act and the available support necessary to carry out those duties.

According to Professor Murkejee (2002, p. 52), the Act will spell out the subject matters that fall within the scope of responsibilities of the Minister, and his Ministry or Department but will not provide the prescription for an organisational chart. This is considered to be purely an administrative matter. An exception to this rule would be an instance where it is the intention of the legislature to create a statutory body or office within the auspices of the Ministry, but as an autonomous or semi autonomous entity.

4.5. The types of Marine Administration.

There are various options available. Hubbard, M J. (Canada), IMO Consultant and Heike Hoppe, Technical Officer, IMO (2001, p.10) in their paper "Possible Framework for a Maritime Administration" offer the following options that the author will discuss giving examples of where they have been tried in the SADC:

4.5.1. *Project unit or division of a ministry.*

A classic example is Malawi where the administration started as a small section within the Ministry of Transport and Communications developing into a fully-fledged department today. Some core functions were distributed across several departments in various ministries as shown in Appendix. E. The Administration was placed within the Ministry of Transport and Communications. It was subject to Malawi Public Service Regulations (MPSR) and conditions of service with respect to personnel matters and budget, relying solely on appropriations. The section had some great deal of autonomy in certain matters but still relies on the support of the ministry. The major disadvantage

with this set up is that the decision making process is slow and cumbersome due to bureaucracy.

4.5.2. *Department of a Ministry*

This is the present status of the Malawi Marine department. As a department it is an agency of the Ministry of Transport but has a degree of autonomy in that it controls its own budget that is provided through appropriations. Despite having support of the Ministry, the decision making process is time-consuming and onerous.

4.5.3. *Statutory Administration.*

This is a set where the Administration is a Statutory Corporation but in effect still part of a Ministry and reporting to the Minister. It has more autonomy than the Department and is controlled by a Board of Directors, who set policies and procedures. It has different and in most cases better conditions of service than the government. The Corporation can be self-supporting or supported by the Government. The obvious advantage is that decision-making is eased and there is flexibility enabling it to adapt to the changing times. This was the status of the South African Directorate of Shipping prior to 1998.

4.5.4. *Executive agency or authority.*

Here, the Administration can be an Executive Agency or Authority. Although being part of the Government, it is established as a full business entity under the Corporations Act and is expected to operate as such. It has no economical support from the Ministry and has to be self-sustaining.

A classic example in SADC is the South African Chief Directorate of Shipping that transformed into a self-funding Maritime Safety Authority on 1st April 1998 (D. o. T, 1998, p. I – 11). The South African Maritime Safety Authority (SAMSA) is operating under the South African Maritime Safety Authority Act, 1998 (Act No 5 of 1998), and the South African Maritime Safety Levies Act, 1998 (Act No 6 of 1998). The transformation was in line with the government strategy of reducing the Civil Service through the transformation of parastatal organisations that are self-funding on the "user pay" principle.

5.6. Management of maritime activities in implementing the Model Safety Regulations.

4.6.2. *Policy formulation.*

Policy may be defined as a course of action to be adopted by an organization and as a selected planned line of conduct in the light of which individual decisions are made (Julian, M, 2001)

Policy development for the Administrations will be the vital element in ensuring the successful adoption and implementation of the Model Safety Regulations. Policies in general are a guide for the consistent and uniform administration of an organization's mandate, programs and activities. Established policies are particularly important for a Maritime Administration/Authority because of its regulatory and enforcement functions and activities, the diversity of its clients and the international influence on its roles and responsibilities. (Hubert, M.J. and Hoppe, H, 2001).

Firstly, the purpose and objectives of the Model Safety Regulations has to be reflected in a key policy statement. The statement should show dedication by the Administration to ensuring the safety of ships, the protection of life and property and the marine environment. It should also indicate dedication to compliance with applicable national laws and regulations and go much further to identify the administration's roles and responsibilities. It should unequivocally state how these would be achieved in a specified period. (Julian, M. (2001p.4). A process should be indicated in the policy statement for the monitoring, development and revision of the policies in view of the fast changing maritime world.

4.6.3. *Policy development.*

Generally, the development and promulgation of policies on the regulations will have to originate from and be consistent with the respective Governments' national policies as illustrated in their National Policy Documents. This is with respect to the delivery of programs and services provided by the individual Governments (see Malawi National Policy Document, 2002; Tanzania National Policy Document, 2002; Zambia Approved National Policy Document). It needs to be mentioned that except for Malawi, very little is said as regards the maritime sector in these national policy documents even for a coastal state like Tanzania. International and national initiatives that affect the safety of shipping and the prevention of marine pollution in the inland waterways, like the model regulations, ought to influence the policy development. The other essential considerations in the policy development will be the national maritime legislations and the national industry policies.

4.6.4. *Key issues to be addressed in developing policy.*

Hubbard, M J. and Hoppe, H. (2001) itemise the key policy issues needed to be addressed by administrations in general. Some of these issues listed below are addressed in the model regulations while some will have to be promulgated in the enabling parent act before policy formulation. These are:

- Certification of seafarers.
- Regulation of shipping regarding the construction and equipment of ships and navigation.
- Inspection of ships for the purpose of maritime safety and pollution prevention.
- Maritime training and safety standards.
- Inquiries into shipwrecks and casualties affecting ships.
- Inquiries as to charges of incompetence or misconduct on the part of seafarers.
- Staff recruitment.
- Staff training.
- Co-operation with other agencies.
- Levels of service.
- Consultation.
- International activities.

4.7. Funding for the Administration.

Funding for the Administration 's flag State activities will be the most important yet thorny issue to be considered particularly for the Administrations that are in their early stages of development. On this issue, Hubbard, M J. and Hoppe, H. (2001) caution, "The Maritime Administration has little opportunity to generate revenue and it should be kept in mind that it is primarily a service organization, which is not necessarily a revenue earning one." Indeed a newly established Administration will have to be supported by appropriations, certainly in the short and medium term, until other sources of revenue

are identified. In the short term, the structuring of fees for services rendered must realistically reflect the costs in performing these functions. This would to a scale offset the overall cost of the organization.

4.7.1. *Appropriations funding.*

This is the dominant way of funding Administrations in the region. The only exception is South Africa. The governments fund maritime activities from the national budget. Accountability is exclusively to the minister and to the parliament. There is no revenue generation hence revenue management is poor or non-existent. The culture and values in the organization are conditioned by serving the public interest and characterized by equity of treatment, consistency, prudence, probity, and aversion to risk taking. (Hodgson, 2001a). In Malawi, there is pressure to shift to some mechanisms for retention of funds generated by the administration. There is also pressure to contract out some of the activities. These other sources of funding can come from a levy on ships visiting ports, pilot services using the fairways, fees charged for the conduct of examinations, lighthouse dues, inspections and surveys of ships and charges for the registration of ships. In South Africa, revenue is raised from direct user charges and a service charge to government for certain statutory duties performed on its behalf by SAMSA (D. o. T, 1998, p. 9)

4.8. <u>An economic approach to safety .</u>

Currently many countries in the region are implementing IMF economic structural adjustment programmes. The programmes have resulted in the adoption of New Public Management and an economic approach to safety. There is pressure for cost recovery to augment Government appropriations.

5.8.1. Cost Recovery.

The cost recovery rationale is that those receiving benefits that exceed the benefits received by the general public should contribute to the provision of those services. This is not only fair but disciplines demand. Hodgson, F. (2001a).

4.8.1.1. *Considerations in introducing cost recovery*

In planning to introduce cost recovery, the governance structure of the whole administration has to be changed and the impact of charges assessed. While the author subscribes to this notion, there are a few things that need to be considered by administrations seeking to introduce cost recovery. Introduction is difficult because it increases the charge with no increase in service. What should also be noted is that creating a group of paying users also creates a relentless demand for cost transparency.

Professor Hodgson F. (2001a) in his lecture notes to class 2001 gives a hint on some of the considerations before the introduction of cost recovery. It requires cost identification, allocation and justification to clients. The users should regularly be consulted and the costing methodology clear and transparent. Costs should be clearly allocated to all beneficiaries and the revenue should not exceed costs for any user group. User charges should also recognize the manner in which the service is delivered and the value of the services received. The level of user chargers should recognize the groups' ability to pay. Furthermore, the administrations will need to establish activity based costing and accrual accounting as well as cost tracking systems and procedures. Paying users always expect to see their revenue reinvested in the services they are paying for.

4.9 New Public Management reforms in the maritime industry: the case of Malawi.

The maritime industry in Malawi is currently undergoing reforms in line with *New Public Management*, which has resulted in the restructuring, commercialisation and privatisation of MLS Ltd. (see CPSC Transcom, 2000). The Marine Department will also be restructured, decentralized, functionally reviewed, services contracted out and staff retrenched by the Public Sector Change Management Agency. (see Lungo and Mugore 1999.). The Medium Term Expenditure Framework (MTEF) and The Civil Service Action plan (CSAP) were adopted in 1996. (see Durevall, 2001) Last year saw the introduction of Integrated Financial Management Information System (IFMIs) a computerised network accounting system linking the Ministry of Finance, the Reserve Bank of Malawi (RBM, 2000) and line ministries and the Credit Ceiling Allocation System (CCAS) to monitor government accounts a daily basis. (RBM, 2001).

4.9.1. *Caution on reforms*:

Hughes & O'Neill, (2001) caution on adopting NPM concepts that are driven by ideology rather than practicability. This he warns, "breeds suffering, problems and unpopularity of the government". It also results in failure of programs like contracting out and tendering due to failure to march rhetoric of public sector reform. Polidano, (1999.p.5-15) also describes how NPM in general has failed in developing countries due to rhetoric, corruption, abuse, inconsistencies, low administrative capacity to march the reforms and lack of popular support. It is therefore, important that Administrations willing to improve efficiency by adopting NPM reforms do it with caution. To illustrate this, the author will give an example of Malawi where the reforms have been tried with disastrous effects.

4.9.2. *Analysis of effects of the current reforms in Malawi.*

1. Efforts at contracting out activities have encountered serious problems with the Contracting Out Unit not ready in time. Contracting out in the private sector on behalf of the administration is limited.

2. The government has a poor record of payment for services rendered and many private companies are reluctant to tender for the new functions being contracted out. Banks are not willing to finance firms even after being awarded contracts if they realise that the contracts are with the Government which is regarded a poor customer and unreliable.

3. The fact that the reforms are focused on retrenchment; privatisation and contracting out, with little effort on capacity and institution building, further alienated civil servants who feared loss of employment.

4. Without an action plan the Civil Service Action Plan (CSAP) remains a list of initiatives and nothing more. (Lungu, P. & Migore, J, 1999).

4.10. Administrative aspects of adoption and implementation of the Model Safety Regulations.

4.10.1. *The need for authority from Government.*

As with any governmental organisational structure a maritime administration will need firstly the formal fully documented authority of the Government to undertake its work within the scope of work it is to do on behalf of the Government. This could be legislation establishing the agency or government department and other agreements to perform certain functions on behalf of the Government. Clear lines of responsibility to the Minister and government must be established. A range of procedural documents will need to be prepared to explain how the administration is to function. These will include operational manuals such as instructions to surveyors to finance procedures, asset management and pollution contingency plans.

4.10.2. *Key essential management personnel..*

According to Captain Laudridsen (2001) any Administration will need a strong Policy and Executive staff at management level in order to adopt and implement any international convention or regulations. A common slip-up in most Administrations is to have a weak Policy part on the conviction that all staff at management level have to be former officers on board. The SADC region is no exception to this fallacy.

4.10.2.1. *Administrative (Policy)*

The staff of the Policy part will have managerial or administrative backgrounds and either legal experience or direct access to legal advice. This part will be responsible for the initiation of national legislation, maritime fiscal and commercial policy and formal links with other departments within the Government.

4.10.2.2. Administration (Executive)

The staff of the executive part of the Administration must have professional backgrounds and sea going experience. They will be responsible for preparation of the technical aspects of the legislation, representation at technical meetings at international forums, implementation, investigation of offences against requirements and casualties. The executive will also generally be responsible for flag state implementation, delegation of duties to recognised organisations and monitoring their performance. It is important for the executives to have offices where shipping activities are concentrated and have adequate control and reporting mechanisms for an efficient service.

4.12. Staff training and support services.

Staff training is essential to the maintenance of a workforce of the highest quality with staff who have the knowledge and skills necessary to develop and implement effectively the Administration's policies and programs. Support services are responsible for the day-to-day administration needs of the Administration, budgets, financial and personnel matters. The most common mistakes by Administrations is to have very weak support services.

4.13. Measuring performance of the Administration.

Levels of service need to be established in order to provide a measure of performance that can serve as guidance for the Government, client population and staff of the Administration. The Administration has to establish time frames to register a ship, survey and inspection of a ships and responding within an established time to requests of the clients. There is a need for a quality management system within the Administration.

4.14. Communicating with industry.

A key factor in the success of the implementation of the Model Safety Regulations by the maritime administration will be the need for close consultations with its clients, the shipping industry. Clear policy guidelines in communicating with industry are essential. Prior to the implementation, the Maritime Administrations will need to consult fully with all interested parties particularly the ship owners. These are responsible for the maintenance and safe operation of ships.

4.15. Possible structures of a Maritime Administration

The organization of the Maritime Administration shall be structured to reflect its duties, roles and responsibilities and to ensure that its mandate is achieved in the most effective

and efficient manner. It is beyond the scope of this study to go into the intricacies of the subject. Several models have been suggested to give an insight. Appendix C contains a plan for a possible organizational structure by function. The author has also provided an organisational structure for the current Malawi Administration in Appendix E and what the author perceives to be a better structure under one roof in Appendix I. By comparing the two, the reader will better appreciate the concept of a distributed Administration. The author believes the best way around having a bloated organisational structure is to have some of the core functions distributed to other departments in other ministries. In this case, proper coordination and consultation between different functions is needed.

CHAPTER 5

FLAGSTATE IMPLEMENTATION

5.1. Introduction.

The main challenge in the successful implementation of the Model Safety Regulations once enacted, is the regional countries being aware of their roles and responsibilities as flag states. Needless to say that awareness alone is not enough but the states must carry out these roles and responsibilities effectively. The Annex to IMO Assembly Resolution A. 847(20) "*Guidelines to Assist Flag States in the Implementation of IMO Instruments*" provides detailed information on the roles and responsibilities of a flag state. UNCLOS Article 94 provides a general prescription from which those relevant to the inland waters can be extracted and summarised as follows:

5.2. Role and responsibilities of SADC flag states.

The states will need to maintain a register of their ships and exercise effective jurisdiction under their internal law over every ship in their registers including the small ones that are most often ignored. The jurisdiction must cover the ships personnel in administrative, technical and social maters.

The states will need to ensure that all ships flying their flags meet all the safety and marine environment protection regulations contained in the Model Safety Regulations.

The flag States will need to take measures to regularly survey their ships to ensure continued compliance with the requirements in **chapter 2** of the Model Safety Regulations.

The flag state will need ensure that the master, officers and crew are appropriately qualified and trained in accordance with the requirements of **Chapter 13 and Annex 8** of the Model Safety Regulations.

The flag states will need to ensure that the master, officers and crew are fully conversant with the maritime safety and marine environmental protection measures contained in the Model Safety Regulations.

The flag states will need the capacity to undertake inquiries in accordance with **Regulation 1.9 and Annex 6** of the Model Safety Regulations into any 'marine casualty or incident of navigation' causing serious damage to other ships or the marine environment of the inland waterways. They must also investigate incidents of non-compliance to regulations reported to them by other states. It is important that priority is given to the investigations, which may assist in determining whether changes to the Model Safety Regulations are desirable or necessary.

In addition to the maritime safety and marine environment regulations contained in **chapter 14** of the Model Safety Regulations, the flag States will also need to be aware of and implement where appropriate, other international and national laws on social and humanitarian issues regarding their employment on board.

5.3. Training and human resource implications of implementation

5.3.1. *Shortage of Surveyors in the region.*

There is an acute shortage of surveyors in the whole SADC region that will impact negatively on the implementation of the Model Safety Regulations. According to the D.o.T, (1998, p.9), South Africa had difficulties in recruitment and retention of surveyors due to uncompetitive salaries offered by D. o. T compared to the market rates. Tanzania has an acute shortage of surveyors and relies on two local private companies. These are Captain Kanijo and Surveyors Company and Mbando Marine

Boat and Surveyors. In the past before the Bukoba accident, the Tanzania Harbours Authority based in Dar es Salaam did the surveys. Despite advertising for more surveyors, the response has been disappointing (see Mwamunyonge, 2000). Malawi has shortages mainly due to the brain drain with some of the surveyors going into private business and abroad for greener pastures.

5.3.2. *Qualifications for surveyors*

All the flag State will need appropriately qualified and trained marine surveyors to fulfil both technical and managerial functions required to adopt and implement the model regulations.

5.3.3. *Workshop recommendations on training Surveyors for small boats.*

One of the major issues identified and discussed during the workshop on the adoption of the model safety regulations was the training of surveyors/inspectors specifically for small inland waterways vessels. The participants recommended the development of training courses aimed at local marine personnel such as launch masters or master class 4 and senior motormen or engineer class 4 who may not necessarily have the required formal educational levels but had acquired the appropriate knowledge and experience on-the-job. (see IMO 2002b, p.5). The IMO Consultant concurred with this approach on the basis that it would negate the need for lengthy training thus speeding up the provision of necessary manpower to deal with the sheer number of smaller vessels.

5.3.3.1. *Comments on workshop recommendations.*

The author strongly feels that while this approach is innovative, it has its problems. Experience and skills alone devoid of adequate formal education is not a good prerequisite. Formal education is critical for the surveyors since they would need to

be able to read, understand and interpret national legislation and safety regulations. They would also need to write survey and accident investigation reports. It is therefore essential that appropriate knowledge and experience including formal education be the precondition for recruitment even for surveyors of the small boats.

The best approach (followed by Malawi in the past) would be to train qualified boat carpenters at Maritime Colleges to launch masters or master class 4 and senior motormen or engineer class 4 and then employ them as surveyors. A minimum prescribed sea service of 6 months could be considered. The advantage would be that since most small boats in the region are wooden and Glass Reinforced Plastic (GRP), it would be easy for these trainees to follow the *IMO Compendium for Model Course 3.02, "Survey of small craft"* that mainly deals with such boats. The trainees would also need to be trained in legal matters and accident investigation. These courses could be run locally by local qualified staff or regionally at one of the several maritime institutions. Nonetheless, such an approach would need to be audited by the Administration to ensure its appropriateness and the continued effective performance of inspections.

5.3.5 *Surveyors for larger inland waterways vessels*

For the larger inland waterway vessels, the author recommends the following professional qualifications based on personal experience and IMO guidelines:

1. 1. a Master Class 1 certificate issued under current national legislation or after enactment **regulation 13.5** of the model regulations equivalent to STCW Code Table A-II/2 enabling persons to command a ship of 500 GT or more provided in Annex.

   2. a Chief Engineer Class 1 issued under current national legislation or after enactment regulation 13.6 of the model safety regulations equivalent to STCW Code A –III/2 or STCW Code A-III/3 enabling them to command machinery installed in a ship of 750 kW and 3,000 kW provided in Annex .

3. meet the provisions in the radio and communications in the regulations Annex A8-1 provided as Annex). Administrations may consider sending their officers for GMDSS certification.

2. a university degree or diploma as a naval architect, mechanical engineer, electro technical engineer or other type of engineer whose professional education could be related to the maritime industry;
3. at least three years service as an officer on board preferably as a master on board a ship , or in a capacity as a naval architect, or as an engineer in the maritime field;
4. relevant university degree or diploma, augmented by completion of a the IMO model courses; 3.03 Machinery, 3.04 Electrical Installations, 3.05 Fire Appliances and Provisions, 3.06 Life Saving Appliances, 3.07 Hull, and 3.08 Navigation and with relevant sea service of not less than 6 months.

5.3.5.1. *Comment on qualifications for surveyors for larger vessels*

As pointed out earlier, there is a shortage of the above personnel in the region. Lower qualifications can be considered but the individuals must be taught basic skills in the classroom and on the job under the supervision of a qualified surveyor for a reasonable period of time. The administration should ensure that the surveyors have a working knowledge and practical experience in those subject areas pertaining to their duties. An approved practical training programme must be designed. The regional States may wish to have joint training and exchange programmes. This would also ensure the exchange of knowledge, expertise and uniformity. Surveyors should be encouraged to be members of international professional institutions appropriate to their work such as the Royal Institute of Naval Architects in order to take advantage of seminars, workshops, technical visits, and on job training. In Malawi, all surveyors have been encouraged to be registered members of the professional engineering groups.

5.4. Delegation of authority

Most maritime administrations in the region take advantage of delegating some or all of their authority to classification societies and tender the work to private local companies to perform work on their behalf. A classic example is Tanzania, where two local companies "Captain Kanijo and Surveyors Company" and "Mbando Marine Boat and Surveyors" have been engaged to carry out statutory surveys and certification on behalf of the Government (see Mgamba, 2002 and Mwamunyongwe, 2000). In the past, the responsibility was delegated to the Tanzania Harbours Authority. In view of this, the author finds it appropriate to discuss the matter in detail.

5.4.1. IMO Guidelines on delegating of authority.

When delegating such work, clear guidelines on the use of 'recognised organisations' contained in the following IMO Assembly resolutions should be referred to for guidance:

- Guidelines for the authorisation of organizations acting on behalf of the Administration. Resolution A. 739 (18)
- Specifications on the survey and certification functions of recognised organizations acting on behalf of the Administration. Resolution A. 789 (19)
- A model Agreement is provided in the Annex based on MSC/CIRC. 710MEPC/CIRC.307-ANNEX)

5.4.2. Considerations when delegating authority.

- Contractual agreement with the 'recognised organization(s) should be selected with a clause included in the contract which details how the maritime administration will undertake continuous monitoring or audit of the organisation.

- the responsibility and accountability for the delegated activities remain with the Administration.
- written agreements with those societies authorized to act on behalf of the Administration shall be in place.
- the Administration will monitor inspections carried out on its behalf and should retain the right to carry out inspections itself as it deems necessary.

5.4.3. Model and form for delegation of authority.

An Appendix B provides an example of a Model Form for delegation of authority based on the Annex and the Appendixes of MSC/Circ.710 MEPC/Circ.307 (Model Agreement for the Authorization of Recognized Organizations Acting on Behalf of the Administration). The actual Annex itself provided is very detailed and should be used when delegating authority to Class Societies. However, the author has adapted it to come up with a form (Appendix B) that could be used locally. Unlike dealing with Class Societies, local companies do not have a quality system in place. It is therefore the duty of the administration to check on these local companies and familiarise them with the IMO requirements as regards delegation of authority.

5.4.4. *Main clauses to be included in the contract forms*

As seen from the forms of agreement, applicable instruments, degree of authorization and co-operation with the Administration to rectify reported deficiencies must be indicated. The sanction of delegation of statutory services, interpretation of equivalents and exemptions must be agreed. There is also a need to specify exemptions procedure for temporary non-compliance, and reasons for non-delegation. Methods of reporting to the administration and access to survey supporting documentation by the administration must be guaranteed. The administration must supply all the documentation for provision of statutory services.

Technical liaison and a working language to be used must be established. Supervision and compliance with a quality system according to appendix 1 of A.739 (18) and the possible use of an independent audit group must be decided. Remuneration must be settled and confidentiality guaranteed. The use of exclusive and non-exclusive surveyors must also be settled in advance. The form must contain an amendments clause. The applicable law, settlement of disputes, liability and termination of the contract must be put in writing and duly signed for.

5.4.5. *Surveyors required by a Maritime Administration.*

According to Da Coasta (2001,p1-4) a visiting professor at the IMO- International Maritime Academy on the course on Flag State Implementation, the determining factors for the number of surveyors required by an administration are:

- The size and make-up of the national fleet;
- The size and make-up of the foreign flag vessels using the Administration 's ports;
- The extent of the delegation of functions to recognized organizations.
- The number and location of district survey offices to achieve sufficient national coverage;
- the inspection targets on both foreign and national ships and survey work which must be undertaken abroad; and
- any work which can be undertaken by personnel with other specialist qualifications, for example, for plan approval or tonnage calculation.

5.4.6. *Recruitment of Surveyors by the Administrations.*

Normal recruitment procedures should be followed, appropriate and in accordance to the policy of the Administration. From personal experience, the author recommends that whatever the composition of the survey force is, it must have a wide range of experience from different backgrounds. In Malawi, this policy has been meticulously

implemented. The force comprises marine engineers, deck officers, electrical engineers and radio and electronic engineers. Such a force helps to ensure specialisation and thoroughness of the survey since no man can be a jack-of-all-trades. The problem is seen from different angles, perception and experiences. Members also consult on site, analyse the situation and pool their ideas together before coming to a decision.

5.4.7. Training of surveyors.

According to Da Coasta (2001,p.1-10) the training requirements from the point of view of the Administration should initially involve the identification of training requirements for all the surveyors. Provisions must be made for the basic training of new members of staff and provision for the in-service training of all staff on a continuous basis.

The procedure should have provisions for selection and training of surveyors for specific areas of work including auditing, monitoring of the surveyors' performance; and recording the surveyors' training programmes. There should be provision for annual "appraisal reviews" for each surveyor to discuss performance and any future training requirements. Unfortunately, this prerequisite is lacking in most civil service organisations. In Malawi for example, appraisals follow the Malawi Public Service Regulations (MPSR), which are shrouded in secrecy with no room for counselling and discussion of the strengths and weaknesses of the surveyor.

5.4.8. Instructions to surveyors

Instructions should be prepared to supplement the national (and international) regulations and to ensure a uniform application of those regulations. These instructions will normally be compiled in consultation with interested parties and then published. They should contain the statutory or non-statutory authority on which the surveyor is acting. In case of the model safety regulations, detailed regional

interpretation of the regulations will be required. This will ensure uniformity within the region. The action to take in cases where the survey reveals non-compliance with the regulation or requirement should be clearly documented in accordance with the powers accorded to the surveyors by national legislation.

5.4.9. *Procedures for surveys and inspections*

Due to lack of adequate resources and the long distances from headquarters to the regions were shipping is concentrated the administrations in the region have resorted to conducting surveys by telephone. Take the case of Tanzania for example, a trip to Mwanza, Lake Victoria to check a few items on ships could be expensive in terms of both time and money. The tendency is to accept verbal assurance by telephone that outstanding defects have been dealt with. In Malawi and Mozambique reliance on telephone surveys is also common practice.

Chapter 3 of the model safety regulations covers procedures for issuing certificates of seaworthiness that will be discussed in this chapter. The author would also like to discuss some administrative procedures the Administration needs to put in place for an efficient survey force. It may be necessary to point out here that successful surveys and inspections will depend primarily on motivated surveyors, experienced and backed with "instructions to surveyors" containing appropriate written procedures and a thorough scrutiny of records, if any, of earlier surveys and inspections of the ship.

5.4.10. Documentation for surveys

Firstly, documented procedures should be prepared covering the assessment of the request for a survey/inspection and the selection of the appropriate surveyor(s) to carry out the survey. Sending more surveyors than required should be avoided, as this is a waste of finite resources. The surveyor's work, where necessary should be monitored and his report thoroughly reviewed. It is important that a specified period

for submission of the report is indicated, preferably within 48 hours or less depending on the urgency of the situation. From experience, the ship owners often demand a preliminary report soon after the survey so that they immediately can start rectifying defects. The surveyor must make sure that a provisional list of deficiencies is provided to the ship owner or his representative directly onboard after the survey. It is for this reason the author strongly recommends that lap tops where affordable be provided by the Administration for the use of the surveyors. Another cheaper option is designing standard forms from which defects would be drawn from a checklist to compile a report. When the surveyor is satisfied and depending on his professional judgement, he should issue the certificate as appropriate. It is important to mention here that the law should specifically give the surveyor autonomy to make an on spot decision without referring to headquarters. Accordingly, where the activities of the surveyors are subject to an audited quality system, the instruction should be "controlled" documents.

5.4.11. *Documented procedures.*

Captain Da Coaster (2001) states the following as documented procedures that should be prepared covering topics associated with surveys and inspections:

- Compliance with a code of ethics;
- Respect for the confidentiality of information;
- Making appointments for surveys/inspections;
- Conduct of surveys/inspections;
- Reporting of surveys/inspections; and
- Issue of certification, where appropriate.
- Follow up inspections after the survey through spot checks on the vessels.

5.4.12. *Other Matters to be documented..*

From personal experience, the author recommends that even the provision and use of the appropriate safety clothing and equipment for the surveyor should be documented. This is necessary particularly in developing countries where due to shrinking budgets these items are often neglected or simply ignored. The surveyor must record the time used and the expenses incurred preparing for and conducting the survey. This will help to measure his efficiency and in the assessment and recovery of any fees associated with the survey. In conducting surveys and inspections surveyors should use the relevant statutory requirements supported by their professional judgement.

5.4.13. *Advice to surveyors.*

Being unable to check everything, the surveyor must be able to make a choice. This is done on the basis of technical knowledge and professional judgement acquired over a number of years. This may entail visual inspection, discussion with the crew to find out about particularly sensitive zones. In Malawi good rapport with crew has yielded positive results. The crew tend to appreciate that a safe vessel is to their benefit. It must be borne in mind that inspections often rely on subjective assessment of the structural condition of the vessel. Since every surveyor has different interpretation of what is acceptable, decisions may lead to disagreements and arguments.

CHAPTER 6

SAFETY OF NAVIGATION

Pilotage and ship handling in narrow waters have their own infinity of characteristics; in this art, in clear weather, is a mixture of eye and memory, of anticipatory judgement and almost subconscious appreciation of movement and distance, by impressions from many sources.

Captain F. J. Wylie: ***The use of radar at sea (1983,p.259)***

6.1. Introduction

Today, it may be unequivocally stated that the situation as regards aids to navigation in the SADC region is desperate and needs urgent attention. According to NAVGUIDE (December 1993, p.1) there has been no document generally available which describes the various systems and the means and criteria to be adopted in determining a mix of aids most appropriate for an authority to meet the user requirements. It is for this reason that the author endeavours to look at the situation of navigation aids in the region and ways of improving it.

6.2. Aids to navigation and Navigational Aids.

Boisson (1999, p.321) defines *Aids to Navigation* as "consisting of equipment or services namely devices and systems not on board ships intended to facilitate the conduct of ships, and thereby improve the safety and efficiency of maritime navigation." These are different from *Navigational Aids*, which are ship borne equipment or installations.

It is significant however to note that navigational aids and aids to navigation are inseparable and neither in principle can function without the other. Both need to be

addressed at the same time. While both categories of aids have the equivalent end goal, to prevent shipping casualties, their conditions of use and the financial costs involved remain quite different. It is also significant to highlight that any efforts to improve safety of navigation on board ships alone, will be doomed to failure unless corresponding efforts are taken to provide appropriate and adequate shore based aids to navigation.

6.3. Provisions in the Model Safety Regulations.

The Model Safety Regulations require vessels 25m in length and above to be provided with at least one compass. Power-driven vessels 25m and above in length are to be fitted with: (a) a standard magnetic compass, except as provided in ***regulation 10.2.5*** which exempts vessels trading near land. Vessels 25m and above in length shall also be required to carry a spare magnetic compass, interchangeable with the standard compass, unless a gyrocompass is fitted. ***Regulation 10.2.6*** requires vessels 10m and above in length to be fitted with a Global Positioning System receiver, where required to do so by the Administration. ***Regulation 10.2.7*** requires passenger vessels and cargo-passenger vessels 15m and above in length to be fitted with a radar installation capable of operating in the 9 GHz

6.8. Responsibility for provision of Aids To Navigation

Aids to navigation are a responsibility of all the coastal states in the SADC region and require cooperation among all maritime administrations to function properly. Ship owners bear responsibility for navigational aids whenever flag states impose them. It is incumbent therefore, for all coastal states bordering Lake Malawi, Tanganyika, Victoria and other navigable inland waterways to make a collaborative effort to provide navigation aids wherever they are essential. Authorities responsible for the provision and maintenance of aids to navigation are required to operate as efficiently and as economically as possible. They should provide a system of aids

with high standards of availability, reliability and with appropriate levels of accuracy to enable the mariner make a safe and expeditious passage.

It seems though, that throughout the SADC region marine safety standards have been undermined due to lack of adequate, reliable and updated navigation aids particularly sailing charts. The charts do not meet international standards and are also out of date and print. Chart scales on these old charts are very inconvenient, as they do not render themselves for easy arithmetic interpretation in metric standard (see ICEIDA, 2002)

6.9. National Policy vs. International cooperation

When new aids are being planned, or when radical changes to existing aids are contemplated, the need of international cooperation is obvious. The kind of cooperation required will depend upon the geography of the area, the volume and type of traffic, national boundaries, the type of aids contemplated, the required coverage and accuracy. The establishment of aids to navigation should be connected with national policy and international cooperation. The benefit of having cooperation with other nations is the sharing of costs, knowledge and specialisation. According to the NAV Guide (1993, p.1-4) some of the policy considerations involved in international cooperation in the radio navigation field could be; national security, industrial security and competition. Also to be considered is the dependence upon other nations, the demand for consultation with the user community, sharing costs and the shut down of systems no longer required (cost saving).

It is worth noting that the projects on lake Victoria seem to have been planned well. There is active involvement of all the three states whilst the charting project on Lake Malawi has not involved the two other neighbouring states Tanzania and Mozambique. The NAVGUIDE, (1993,p. 1-4) cautions that international cooperation needs to be considered in the early planning stages because once policy decisions and

commitment to expenditure have been made, it may be difficult to vary them. Further more, the most appropriate coverage may not bee achieved if one or more nations do not consider the wider international interest. Malawi under the ICEIDA charting project seem to have done just that. It is vital then that any project in the future on the subject matter is done within the framework of SADC and in consultation with the neighbouring states.

6.10. Balancing user requirements and service provider

The Navigational Aids system should be assessed from the benefit of the user and from the viewpoint of the provider. It is important that when planning aids to navigation an administration considers the complete aids to navigation system as it plans its Navigation Plan. It must establish the minimum standards of aids to navigation required.

The NAVGUIDE, (December 1993 p. 1) advises that:

> Authorities must endeavour to achieve commonality of standards and practices and to ensure the provision of appropriate aids to navigation bearing in mind the user's requirements and the capability of the responsible authority to maintain a complete system of aids to navigation.

6.11. Users of Aids to Navigation on the inland waterways.

In the SADC region the several categories of users can be identified.

a) The commercial users involved in transport of cargo and passengers along well defined and recognized routes. Their requirements are for aids to navigation to ensure a safe and expeditious passage from port to port.

b) The fishermen whose vessels are currently not so large and therefore not restricted to passage. However they do require repeatable levels of accuracy to locate fishing grounds and avoid obstruction that may damage fishing gear.

c) The leisure sailors who are generally less well equipped with onboard instruments except in South Africa where regulations have been enacted (see Merchant Shipping Act 57 of 1951). With the booming of tourism on the lakes and rivers, there are many leisure boats. In Malawi for example annually there is an international yachting marathon "*The Lake Malawi Yachting Marathon*" involving many nationalities.

d) The specialists including the navy and hydrographical departments.

6.12. The current status of Navigation Aids In SADC

6.12.1. *Lake Malawi*

Navigation on Lake Malawi is a great risk and challenge particularly at night and in bad weather. The author who was a master on the lake from 1991 to 1997 at most times had the excruciating and agonising experience of sailing on ships which had no navigational aids i.e. no radar, no GPS, an erratic and faulty compass and obsolete worn out charts. Both Captain Kingsly Likukuta and Chriss Marrow the General Manager of Malawi Lake Services report that as of July 2002, only one light off Chirumba, a northern port is currently working as a result the MV Ilala the biggest passenger vessel hit rocks at Chizumulu. Such accidents are common on the Lake (see Appendix F).

The existing charts were produced in early 1960s by the British, based on data collected from surveys of 1900s and 1950s (ICEIDA, 2000). The available information is obsolete. Worse still, there are no general chart series for the lake. Instead, the charts are in various scales which in most cases are unsuitable for navigation. Over the years the water level on the lake has fluctuated considerably, making it imperative that survey work should carried out and new charts be produced. Despite unresponsiveness by the concerned authorities, the Malawi legislation (IWSA, 12, 1995) provides for the need to maintain updated charts on a regular basis.

6.12.2. *Lake Victoria*

The situation on Lake Victoria is also threatening. The IMO, (2002) in its Project ID: PR403 reports that today, there are currently no aids to navigation on Lake Victoria. In the past there were 30 visual marks with lights, which have all disappeared leaving vessel masters only with radar at their disposal to avoid the numerous reefs. Tanzania on its part, in the past maintained 14 buoys and beacons, which are now out of operation while in Uganda the Lake Steamer Co., maintained about 20 buoys on reefs on prominent points (Nyirikindi (1997 p. 35.) Lake Victoria though was thoroughly surveyed by the British in 1890 to 1906 and nautical charts consequently prepared and printed by the Hydrographical office of the British Admiralty in 1902 and 1908 and subsequent corrections and reprints were made in 1956.

6.13. Regional efforts in providing Aids To Navigation.

6.13.1. Legal basis for regional cooperation.

The SADC Protocol on Transport in the sub- sector of maritime and inland waterway transport urges SADC member states to ***update existing charts or to chart the coastline and inland waterways of the region including the ports***. It also urges for cooperation in developing the standard of hydrographical practice within the region. It further urges member states to focus on the updating of existing charts or the charting of the coastline. Most importantly, it calls for instituting a procedure for regularly maintaining updated charts, coordination of work plans, exchange of information and optimising the use of resources to whatever extent is practicable. (SATCC, 2001 TOR, p.7) states:

> Member states agree to cooperate in improving the provision and operation of aids to navigation in the SADC coastal waters by upgrading aids to

navigation to achieve a comparable standard throughout the region and pooling resources and sharing expertise to accomplish this.

In addition to that, Coetzee & Botha, in a presentation on annexes to the Maritime and inland Waterway sub-sector committee meeting held in Maputo, Mozambique on 9th March 1999 on *Model legislative provisions: commercial port operations (restructuring and regulation)* called for all Landlord Port Authorities (LPA) in the region to be responsible for the provision of lighthouses and radio navigational aids. This has been hitherto incorporated into the *Model legislative: Port Acts, 1998* to be adopted by SADC states (see SATTC, 1998, vol. 2_s. 37)

6.14. Making a NAV Plan for Aids to Navigation

It is important that the Administrations considering a revision or a review of their aids to navigation require an overall plan in which all matters are included that may impact on the provision of new aids and replacement or removal of existing ones. It is paramount that the needs of navigational safety are carefully weighed against the demands of various user groups. The Administrations should bear in mind that the ultimate aim is to enhance safe navigation and its resultant positive impact in the most economic and effective way. This should be consistent with national and regional goals and priorities. A list of items in Appendix G, from the NAVGUIDE (1993, p 2-10) has been provided as a guideline on factors to be considered in making a NAV Plan.

6.1.5. Management of Aids to Navigation in the region.

A look at the management of Navigation aids in the region and Malawi were the author has been actively involved, will help demonstrate some loopholes and how the appendix may be useful.

Funding is mainly done from the government budgets, which are often not enough. There are no ways of recovering costs. The administration of the aids seems bizarre and haphazard with no database, procedures and instructions. The award of contracts is not according to outlined Government procedures. There is no comprehensive training programme for personnel. In Malawi, for example, there is presently only one skilled person who was trained by the British in servicing lighthouses. The other problem is the supply of equipment and spares because the gas lighthouses in use are now obsolete. The introduction of solar powered lights in the region has been hampered by vandalism.

6.16. Floating Aids to Navigation.

It is important to caution on reliance on floating aids to navigation (e.g. Sungu spit buoy on lake Malawi) that have been placed on certain parts of the navigable inland waterways. In Malawi for example, a considerable amount of money is annually being spent to service them yet these aids are mainly supposed to be used only as confirmatory aids. Floating aids to navigation it must be stressed, are not always as reliable as fixed ones due to environmental forces to which they are subjected. This should be given careful consideration since wind current and wave action reduces their mission time. The following typical text from the British Admiralty as quoted by the NAVGUIDE, 1993, p.6-8) emphasises the fact.

> No reliance can be placed on floating aids always maintaining their exact positions. Buoys should therefore be regarded with caution and not as infallible navigation marks, especially when in exposed positions; and the ship should always, when possible, be navigated by bearing or fixed objects or angles between them, and not by buoys.

6.1.7. Nautical and Meteorological Information.

There is no systematic system of dissemination of nautical information and weather forecasts for Lake Victoria and Lake Tanganyika. This lack of information has resulted in severe consequences particularly for the small boats. The weather on both lakes changes very rapidly. The lakes are subject to short but severe gales (IMO, 2002c). On lake Malawi every day Malawi Lake Services vessels send a weather reports in the mornings but these are mainly for commercial purposes.

6.1.8. Aids to Navigation Projects currently in progress in the region.

6.1.8.1. *Lake Malawi*

On lake Malawi, there is only one project "*Charting of Lake Malawi for the Safety of Navigation*" currently underway which started on 1st January 2001 and will run up to 30th June 2004. The project is estimated to cost approximately US$ 800.000. According to ICEIDA (2002), the objective of the overall objective of the project is to provide seafarers and fishermen in Malawi and from neighbouring countries with an essential tool crucial for safety of navigation, which would in turn improve operational and training efficiency. It is expected that the main outputs of the project will be as follows:

1. A set of 27 new nautical charts for Lake Malawi
2. Modern equipment available in Malawi to do Hydrographic and cartographic work
3. Trained personnel in Malawi to operate the equipment provided and in the whole sequence of surveying for and designing Nautical charts.

Malawi will provide all local facilities, including a Hydrographic Surveys vessel, needed for the project as well as all necessary local professional, technical and support staff. The Malawi contribution is estimated at 230.000 US$ or 29% of the total cost of the project.

ICEIDA will provide technical expertise and training in Hydrographic surveying and cartography. ICEIDA will further provide funds for capital expenditure and operation during the implementation of the project, ICEIDA contribution is to the tune of 560.000 US$ or 71% of the total estimated project cost.

6.1.8.2. *Lake Victoria.*

Also on Lake Victoria there is a project "*Enhancement of Safety of Navigation on Lake Victoria Project H03 RAF/97/106*" currently in progress which is co-funded by the French Government and IMO's Technical Co-operation (TC) Fund (IMO. Under this project, a Technical Assistant (Mr Fumbuka) a former WMU student has been recruited by IMO and seconded to the East African Community Secretariat in Arusha. The project covers aids to navigation, hydrography, charting and publications, maritime search and rescue and maritime legislation. (IMO,2002c)

CHAPTER 7

CRITIQUE OF THE MODEL REGULATIONS

7.1. Background.

According to the preamble, the International Maritime Organization (IMO), under a technical co-operation project PR267 TC02RAF/98/109 developed the Model Safety Regulations in recognition of the lack of uniform effective safety regulations for vessels operating on Africa's inland waterways. The model regulations provide a regional safety and pollution prevention standard for new vessels and barges and, as appropriate, existing vessels and convention-sized vessels that trade regularly and consistently on inland waterways and at sea on non-international voyages, and for personnel serving aboard them.

The basic standards in the regulations are derived from the existing regulations of the Participating Countries and the Amended proposal for a Directive of the European Parliament and of the Council amending Directive 82/714/EEC of 4 October 1982 laying down technical requirements for inland waterway vessels (2000/C 365 E/08) COM (2000) 419 final 97/0335(COD). They also have regard to the standards set out in the Tripartite Agreement on Inland Waterway Transport between Kenya, Uganda and Tanzania, made on 30 April 1998.

The provisions specified in the model regulations take into account, as appropriate, the spirit of the provisions of the following IMO Conventions:

(a) The International Convention for Safety of Life at Sea (SOLAS), 1974, as amended;

(b) The International Convention on Load Lines (LL), 1966, as amended;

(c) The International Regulations for Preventing Collisions at Sea (COLREG), 1972, as amended;

(d) The International Convention on Standards of Training, Certification and Watch keeping for Seafarers, 1978, as amended; and
(e) The International Convention for the Prevention of Marine Pollution from Ships (MARPOL 73/78).

The regulations contain footnotes, which refer for guidance, to a number of specifications adapted from the standards of the International Maritime Organization. Provision is also made for the acceptance by individual countries of other appropriate technical standards, which may be national or industry standards.

7.2. Non-convention vessel.

A non-convention vessel can be defined generally as a vessel to which major international IMO conventions are not applicable. It is important to define what a non-convention vessel is because of the confusion this term can cause. The confusion mainly arises because various conventions specify as to which types of vessels and sizes they are applicable which varies. It is therefore important that in developing regulations, the conventions not applicable are specifically mentioned to avoid any confusion.

7.3. Application of the Model Regulations.

The model regulations apply to vessels 4 meters in length or above and Chapter 10, which deals safety of navigation, applies to all vessels. The regulations also **do not** apply to sea-going vessels operating or based on tidal waters or temporarily on inland waterways that carry a valid national or convention certificate. The regulations do not apply to dugout canoes or similar vessels of primitive build.

7.4. Significance of the 4-meter length limit.

The limitation of the length to 4m is appropriate since it covers most of the wooden and GRP craft that constitute the largest numbers of the vessels operating in the inland waterways. Regulating standards on these vessels has always posed a big challenge to the Administrations because most of the owners are in remote areas and do not appreciate the essence of maritime safety. Further more, non-professionals without proper training mostly construct these boats devoid of prior approved drawings by the administration. It is therefore imperative that adequate attention is given by the administrations to regulate standards on these vessels.

The other trouble is that these vessels and sometimes even those vessels less than 4m in length at most times carry more than 12 passengers. While the definition of passenger vessel in the regulations is clear and in line with accepted international standards, it is worth considering specifying in the "application" that the regulations apply to vessels carrying more than 12 passengers regardless of length. This is has been done in other similar regulations worldwide. (see Nordic Boat Standard, 1990; Surveyor General's Organisation, 1993,p.6; Register Holland, 1992, p.9).

7.5. International Convention for Safety of Life at Sea (SOLAS), 1974.

7.5.1. Background to SOLAS 74.

The SOLAS 74 convention is the most important of all maritime instruments. The first SOLAS version was adopted in 1914 (following the Titanic disaster) and other versions were drawn up in 1929 and 1948. After that came the SOLAS 1960 version, which came into force on 26th March 1965, but no amendments came into force because of its difficult amendment procedures. The amendments were incorporated into the 1974 new version. This version introduced the tacit amendment procedure that enabled amendments to enter into force within two or three years of adoption. SOLAS 1974 entered into force on 25 May 1980 and its Protocol 78 and Protocol 88 came into force on 1 May 1981 and 3rd February 2000 respectively.

7.5.2. Application of SOLAS on the Inland waterways.

SOLAS 74 applies only to passenger ships and cargo ships of not less than 500 gross tonnage engaged on international voyages. Each chapter in SOLAS, more precisely defines the classes of ships to which it applies. The current problem in the region is how to apply the convention.

There are several passenger vessels and cargo vessels above 500 gross tonnage on the lakes involved in international voyages that are less than 600 miles. It may be correctly argued that SOLAS applies to all such vessels. However, care needs to be taken here since most of these vessels like the MV Ilala on Lake Malawi were built in 1951 and MV Victoria on Lake Victoria in 1960. In this case, some provisions of the SOLAS 1948 version should apply.

However, there are the many alterations and technological improvements that have been done on the vessels and its equipment over the years. Furthermore, in view of the increased requirements for safety on passenger vessels internationally, it would be unreasonable to limit the safety requirements on these vessels only to the 1948 SOLAS version. Some provisions and amendments in the SOLAS 74 version like regulation 8 also applies to old ships. It is therefore advisable to use both the SOLAS 48 and SOLAS 74 versions when surveying these vessels. The aim should be to apply as much of the current SOLAS 74 requirements as deemed reasonable and applicable.

In Malawi, despite the provisions of the Inland Waters Act, No 12 of 1995, the marine department has widely applied SOLAS 74 to its passenger vessels. While this has worked well for an individual country, it could pose a dilemma at regional level should each administration decide to apply SOLAS, as it deems necessary for shorter voyages than the 600 miles estimated in SOLAS. The Convention in Article VIII allows for provision for special rules drawn by agreement between all or some of the

Contracting Governments. It is therefore necessary for provisions in SOLAS covering such vessels to be ***agreed to explicitly between the states in the region*** to ensure uniform application.

7.5.3.Amendments to the Model Regulations.

A Tacit amendment procedure to the regulations needs to be provided for. Amending both the primary and the subsidiary regulations is a lengthy process, which cannot keep pace with the inevitable rapid changes in technology and international requirements. The procedure would be that proposed amendments to the regulations be deemed to have taken place if no participating country objects to them within a specified time.

7.6. Safety of Navigation provisions .

This Chapter and **Annex 7** is extensively based on, and provides a basic version of the International Regulations for Preventing Collisions at Sea (COLREG), 1972, as amended. The argument for this is mainly the universal application of collision regulations that has resulted in the regulations covering 96% of the world merchant tonnage (IMO News, January, 1998). Unlike other IMO conventions, they apply to all ships regardless of the zone of navigation (COLREG rule 1.a)

However, it may be worth making provisions in the regulations to allow individual states, based on accidents and other safety considerations, to adopt additional requirements, which may be necessary. These should be communicated to the other states. As stated in COLREG Rule 1.b. that local navigation requirements take precedents over COLREG provisions.

Boisson (1999, p351) cautions " though the supremacy of local regulations over international regulations is acknowledged, the ground for this situation remains

uncertain." He further argues that Rule 1.b applies only to the extent that general and local regulations conflict. If there is no such conflict, and the two sets of regulations correspond, the conditions of Regulation 1.b are not required, even though general regulations are added to local ones. It is also important that as stated in the model regulations, the administration referrers to the COLREG if it is required to interpret the provisions of the Model Regulations or determine appropriate technical standards for equipment specified therein.

7.7. Vessels of primitive build and Sailing vessels.

Although this term is used in SOLAS and in many regional regulations, it may not be as explicit hence a possible source of dispute. While it can be generally accepted regionally that dug out canoes qualify as "primitive build", care needs to be taken that dhows and similar craft should not be exempted from other chapters other than chapter 10 of the regulations for various reasons. There are 113 dhows still used on lake Victoria involved in international trade and on Lake Malawi a reasonable fleet on both the Mozambican and Malawian coast. Despite the government ban on their use due to many accidents, they are still used. Since most of the times they use sails and their size is considerable, a special section in the regulations covering sailing vessels could be introduced drawing from some of the provisions in the Register Holland rules for sailing vessels that could be adapted and applied.

7.8. Pleasure Craft.

Pleasure craft, except for pleasure craft operated for hire or reward or for any other kind of monetary consideration are excluded from the regulations. This provision is apparently adopted from SOLAS regulation 3, which provides an exception for pleasure yachts not engaged in trade. With the high potential of the tourism industry in the region, it is expected that many private owners will purchase yachts and pleasure craft. Care needs to be taken here since the practical application of this

provision could be problematic. Owners without the notification of the administration could hire out such craft at will. It is improbable that an administration can keep track of such sudden changes in the status of such craft. The alternative is to consider adding to the regulations a section on pleasure craft or making an annex of such regulations. Some of the provisions in the South African Sport and Recreation Regulations (REGULATIONS REGARDING SHIPS OR SMALL VESSELS USED SOLELY FOR SPORT OR RECREATION R. 2799, 1985) could be adapted. There is urgent need to improve safety for tourists who bring in a lot of foreign exchange to SADC. If there is lack of safety and safety culture, there is a risk these tourists will go elsewhere.

7.9. Tonnage Calculation.

The Model Regulations use length extensively as a measure of vessel size. As a guide to the application of the Model Regulations, the following table is provided with an approximate relationship between length, gross tonnage and deadweight.

Table 1: Relationship between Length, Gross Tonnage and Deadweight.

Length	15m	24m	35m	45m	80m	100m	150m
Equivalent gross tonnage	20	150	300	500	1800	3000	7000
Equivalent deadweight	35	100	225	400	1250	2000	5000

Source: Model Safety Regulations for inland waterways vessels and non-convention craft, including fishing vessels operating in Africa, 2002 p.ix.

The regulations state that individual Administrations may wish to apply alternative conversion factors, based upon the characteristics of their national fleets. The author suggests that the *Simplified tonnage calculation for existing ships that do not have their gross tonnage determined in accordance with the 1969 Tonnage Convention* (MSC/Circ.653, June 1994) be used to determine the tonnage of ships. Using tonnage

is the most common way all over the world. The formula is simple and user friendly. That means, that just anybody would be able to do the tonnage calculation.

7.10. Pollution Prevention.

With no doubt, this is an area that will cause a lot of resentment and reluctance by the countries in the region to legislate. At present, in the SADC, only Malawi and South Africa are parties to MARPOL 73/78 Convention and all its protocols. This means that Malawi is the only country bordering the major inland waterways that is a party to the Convention. Current scientific evidence suggests that the major source of pollution on the lakes comes from land based sources.

7.10.1. Lake Victoria.

Population pressure has contributed to the existence of "hot spots", caused by human waste, urban runoff, effluent discharges from such industries as breweries, tanning paper and sugar and fish processing. Another major source is the inflow of residues from use of chemical herbicides and pesticides, and to a limited extent heavy metals resulting from gold mining operations. (LVEMP, 2001).

The other biggest problem to navigation is the hyacinth which blocks waterway traffic, causing water in the lake to stagnate. Hyacinth grows around the edge of the lake and creates a snake-like web of roots in the water. It impedes fishing boats from going out. The hyacinth is also blocking waterway traffic, resulting in a disastrous trade blockage between already isolated regions.

Accidental oil spills have become a common feature in all oil terminals/stations along roads and railway lines (LVEMP, 2001). A good example is the oil spill from MV. Bukoba accident of 1995, in Mwanza, Tanzania. The disaster caught everyone off guard, leading to a very slow response. Currently there are over 25 ships and

ferries plying Lake Victoria regularly. Also a number of oil terminals and depots have mushroomed in numerous locations along the shores and within the catchments area of Lake Victoria further increasing the risk of pollution.

7.10.2. Measures being taken on Lake Victoria.

On 2nd March 2001 in Entebbe, Uganda, the Regional Policy and Steering Committee launched the study to prepare a Toxic Chemical/Oil Products Spill Contingency plan on Lake Victoria The main objective of the study is to prepare a contingency plan for Lake Victoria in order to minimize damage resulting from release of oil or hazardous substances, pollutants or contaminants. The study, which covers Kenya, Tanzania and Uganda, commenced on 12th March 2001 and will run for a period of 12 months. (LVEMP, 2001). The need for a toxic chemical/oil spill study was envisaged during the preparatory phase of Lake Victoria Environmental Management Programme.

7.10,2. Lake Malawi.

Lake Malawi is regarded as the world's cleanest fresh water lake from which the population in its catchment area mostly drink water directly (Chilalika, F. 1992; Nyambose, 1997). According to the International Environment Committee (ILEC 2001) there are no immediate hazards to the lake environment. There is no major human settlement activity producing significant pollution, no toxic contamination, no eutrophication and no damage due to siltation. However this contradicts the findings of the Lake Malawi Biodiversity Project (see Table 1), which noted sedimentation as the main source of pollution due to deforestation. No doubt then that the Government's priority is not in controlling pollution from ships but land based sources. Such contradictions in research may lead to complacency or confusion. The author believes that pollution from ships cannot be ruled out since no research has been done on the subject. It is important that research be done to ascertain the levels of pollution by ships.

Table 2: Sediment discharge into Lake Malawi by major rivers

River Catchment	Size ('000 ha)	Sediment discharge (t ha^{-1} yr^{-1})
Linthipe	864	3.28
North Rukuru	209.1	0.45
Songwe	880	2.59
Ruhuhu	1723	4.97
Bua	1065.4	0.18
Dwangwa	770	0.40
South Rukuru	1190	0.26

Source Kingdon *et al.,* (1999, p 52)

7.10.4. Provisions in the Model Regulations.

The provisions are comprehensive and cover all the important issues like contingency plans, training and equipment and oily water separating equipment. They also provide precautions to be observed when loading or transferring oil, bunkering or discharging oil mixtures.

The provision relate only to control of pollution in designated waterways. **Chapter 14** includes a definition of "designated waterway", which provides a mechanism for associating the Model Regulations with other national environmental protection legislation having effect on particular waterways. According to the explanatory notes, the provisions of the Model Regulations relating to environmental protection do not necessarily reflect other environmental protection legislation that has been enacted by African countries. It is suggested in the notes that an Administration implementing the Model Regulations "*may wish*" to ensure that the relevant provisions are consistent with any such other environmental protection requirements enacted in its country.

Under **regulation14.5** The Administration is required to undertake to ensure the provision of adequate reception facilities at inland waterway ports and terminals for the reception from vessels of oily waste, sewage and garbage without causing undue

delay. The master of a vessel that has oily wastes or other wastes, sewage or garbage to discharge is required to provide advance notice to a port or harbour that is to be requested to provide reception facilities. Oily wastes, other wastes, sewage and garbage are only to be discharged from a vessel into appropriate facilities.

7.10.5. Comment on the provisions.

While the provisions are adequate, it is doubtful if the region can implement them fully especially the provision of reception facilities without massive help from the donor community and IMO. At present some of the ships like the passenger ship MV Ilala and MV Nkhwazi have no sewage plants. Disposal is direct from the toilets into the lake. This is a problem in port where the vessel often stays for long hours. However, it is unlikely that such vessels will be scrapped in the near future.

As stipulated in the OPRC Convention, the countries sharing a common lake need to cooperate in developing oil spill plans. The plans should ensure technical cooperation between parties and should be active in the fields of training, planning and research. Strike teams should be formed from the countries, which should conduct annual joint exercises and drills as done under the Copenhagen Agreement (Hans, 2001). Much effort should be made to use local natural resources like poultry feathers, bamboo, timber, wire and rice straw sobernt as suggested by Chilalika (1992,p.106) and ITOF (1887,p.107).

7.10.6. Precautionary Principle.

While it may be argued that at present there is no scientific proof of the extent of damage caused by pollution from ships in the inland waterways, it is important that the region adopts the precautionary principle that states, "***Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as***

a reason for postponing cost-effective measures to prevent environmental degradation."

The regional states should apply the principle widely according to their capabilities by taking action (regulatory or fiscal) in advance of full scientific proof and leaving a margin of error open. The states should balance the risk of inaction against the costs of action while continually striving to improve scientific certainty, in the knowledge that such certainty is impossible. In addition, it is frequently impossible to trace damage to a specific source of environmental pollution, or to prove future damage. Most importantly, the Administrations in SADC must take account of the probability of serious environmental harm even if it is not demonstrated by conclusive scientific data since environmental degradation is often irreversible.

7.11. Safety Management.

Regulation 1.11 of the Model Regulations makes the Company and the master responsible for safe management and environmental protection on board a vessel, but the regulation does not specify the way in which safety management should be achieved. The explanatory notes suggest that the "Administration's requirements, coupled with the reference to the International Safety Management Code, provides an avenue for Administrations to introduce more formal procedures for the management of safety and environmental protection at an appropriate time." The author feels that **now** is the time to promote a safety culture in the industry. The Administration must produce guidelines to the companies (A. 788(19)). The ISM Code is not prescriptive but acts as guidance and can be applied widely. A good example is Sweden, which issued a statute book, SJÖFS: 2001:8 "*Swedish Maritime provisions on the safety organisation of shipping companies.*" It is important to note that compliance with ISM goes much further than mere certification but quality of enforcement by companies and monitoring by the administration.

7.12. Other considerations.

Regulation 1.9 of the Model Regulations that requires reports of casualties and incidents to be made to the Administration and **Annex 6**, which provides guidance on the content of the report required must be made mandatory. This will be in the interests of effective accident reporting, which is essential to provide the Administration with information on which to base improvements in the regulations.

Regulation 1.7 of the Model Regulations makes provision for the classification of inland waterways for the purpose of applying safety standards consistent with the additional risk that may apply to operations on certain waterways. This is as a consequence of the severity of the wave/weather conditions that may be encountered in particular locations or at particular times of the year. The classifications adopted are "open" waters and "sheltered" waters. The writer feels this provision is unnecessary on the lakes. Safety standards ought to be uniform on all parts of the lake. In implementing the Model Regulations Administrations may find difficulties to identify waters on which their vessels operate in terms of these classifications. Above all, it is difficult to monitor the movement of small vessels. In Malawi for example small outboard engine boats operate on long distances without the administration knowing.

CHAPTER 8

POSSIBLE AID AND TECHNICAL COOPERATION.

"...to help developing countries improve their ability to comply with international rules and standards relating to maritime safety and the prevention and control of marine pollution, giving priority to technical assistance programmes that focus on human resource development, particularly through training, and institutional capacity-building".

Assembly resolution A.901 (21)

"Objectives of the Organization in the 2000s".

8.1. Introduction.

The adoption and implementation of the Model Regulations needs to be done within the framework of SADC, which is detailed in Appendix A. A comprehensive project needs to be launched. It should encompass the adoption and implementation of the Model Regulations, the provision of aids to navigation and setting up a regional search and rescue organization. Aid can be sought from donors either directly or preferably through the IMO Integrated Technical Cooperation Committee. This chapter attempts to look into the scope of such a project and its implementation. It also cautions against heavy reliance on aid, "*Aid Dependency Syndrome*".

8.2. The advantages of seeking IMO Technical Assistance

The Model Regulations were developed by the IMO under project PR267 TCO2RAF/98/106, which has access to the very experts that developed them. These experts are the ones who can most effectively provide advice on how to implement and

enforce the regulations. The IMO has experience in implementation and enforcement of similar regulations in other regions of the world discussed in Chapter 3. IMO has impartiality and universality by virtue of its status as a specialized agency of the UN System and has a global operational outreach through the UN Resident Co-ordinators in all developing countries. Furthermore, the IMO has direct access to a global network of development assistance and has capacity to leverage additional resources to increase the effectiveness of small-scale projects. The IMO also has rapid response and programme flexibility. Most importantly, it has excellent technical as well as legal expertise (IMO, 2000c).

As a result of its partnership-building activities, IMO can mobilize financial, human and logistic resources for its maritime assistance projects from a wide variety of sources, including: IMO's Technical Co-operation Fund; International funding agencies; regional development banks; donor countries; recipient countries; the private sector (shipping and port industries); non-governmental organizations involved in maritime and port activities and individuals (IMO, 2002c).

With IMO, the ownership of the project development and implementation process rests with the recipient countries themselves. ITCP promotes the development of human and institutional resources in the maritime sector, on a sustainable basis. Furthermore, the ITCP promotes regional collaboration and technical co-operation among developing countries (TCDC). It also builds partnerships with Governments, industry and international development aid agencies to ensure appropriate funding for the ITCP.

IMO ensures mobilization of regional expertise and resources for technical assistance activities and co-ordination with other development aid programmes in the maritime sector. It also allows feedback from recipients on the effectiveness of the assistance

being provided, in accordance with paragraph 6 of resolution A.873 (20). *Monitoring systems and impact assessment*, so that programme targets are met and lessons learned are transferred back to the programme-building process (IMO, 2002c).

The SADC region may wish to note that for 2002/2003 bienniums, under regional programme 3, with an estimated cost of US$5000,000, there is provision for advisory missions to review/update national maritime legislations on request.

8.2.1. *Regional Co-ordination and Delivery*

At present, IMO has three regional co-ordinators for Technical Co-operation activities in Africa, one in Kenya, one in Ghana and one in Côte d'Ivoire. The office in Kenya is located at the United Nations Office in Nairobi (UNION) complex. The Regional Co-ordinator is Mr. John Paul Muindi, a former WMU graduate. The office is responsible for the implementation and coordination of IMO projects in the SADC region.

8.3. The Integrated Technical Cooperation Programme (ITCP).

8.3.1. *Mission Statement of IMO's Technical Co-operation Programme*

The mission of the programme is to help developing countries improve their ability to comply with international rules and standards relating to maritime safety and the prevention and control of maritime pollution, giving priority to technical assistance programmes that focus on human resources development and institutional capacity building. (IMO, 2002C)

8.3.2. How to contact the Technical Co-operation Programme

The request by SADC must be forwarded directly to the Director of the Technical Cooperation Division. IMO's technical and development co-operation experts, both at Headquarters and in the field, will initially examine the requests for technical assistance. The required technical assistance activities will then be identified and implemented in co-ordination with the SADC and other development partners.

8.3.3 Priorities for the future of the IMO – ITCP.

The SADC region should strategically plan any of its future programmes taking into account the priorities for the future of the ITCP. These were adopted trough A.901 (21) as a comprehensive policy statement on technical cooperation. These priorities are meant to ensure sustainable maritime development, efficient and safe maritime transport services, as well as effective environmental protection. According to TC 49/4 these are:

a) ***Advocacy of global maritime rules and standards***:
   - Making sure that international treaty instruments are being ratified and implemented in national legislation.

b) ***Institutional capacity building.***
   - Ensuring that the public sector departments are capable of ensuring the effective exercise of flag, port and coastal state jurisdiction.

c) ***Human resources development.***
   - Ensuring the training of male and female experts to develop and manage national programmes for:
     - Maritime safety administration
     - Maritime environmental protection
     - Development of maritime legislation

- Facilitation of maritime traffic
- Technical port operations
- Training of seafarers and shore-based personnel.

8.3.5 Project Identification/specification.

In the author's opinion, the scope of the projects in the SADC should be as follows.

- Converting the Model Safety Regulations for inland waterways vessels and non-convention craft, including fishing vessels operating in Africa into a regional maritime legislation.
- Provision of aids to navigation on the inland waterways.
- Setting up maritime search and rescue (SAR) organisations.
- Training of personnel at the World Maritime University, International Maritime Law Institute and International Maritime Academy.

8.3.6. Project Implementation.

8.2.6.1. Establishment of a special unit at SATCC

For the purposes of implementing the projects, there is need to establish a special unit at the SATTC headquarters in Mozambique. A coordinator, programme manager or consultant from any of the member states who should be an expert in maritime affairs should be appointed to manage the unit. The importance of having such a unit is to ensure the most appropriate and expeditious manner of achieving the objectives of the treaty and protocol of improvement of maritime safety in the region. In addition to simplifying the consultation process between governments, the Unit would ensure uniformity of any rules and procedures for the improvement of maritime safety. The unit will easily follow up all decisions made by member states that are specific to the Model

Safety Regulations. It will also be charged with both drafting the safety regulations and drawing up proposals for implementing the draft model regulations. The SATTC will be in the best position to interface the projects where possible with other projects on behalf of the participating countries and give wide publicity to the project

8.3.6.2. Memorandum of Understanding.

A Memorandum of Understanding with regards to the Model Regulations should be signed at high level between all the SADC states and the SATTC secretariat. This should either be at Summit or Ministerial Council level. This understanding should clearly define the limit of authority delegated to the secretariat and the process of consultation between SATTC and the governments in implementing the projects.

8.3.6.3. National contacts points

The second step could be the designation of national focal points manned by national officials for each of the countries to work in liaison and consultation with the coordinator of the Unit at SATTC headquarters. The consultation among other things should take full account of the technical expertise available in the region and the need for the projects to be sustainable using the local personnel and resources. Needless to emphasise that for success, the project will require maximum commitment from the member states.

8.3.6.4. Duties of the Coordinator/Consultant/Manager.

The coordinator/consultant/manger should be posted on contract terms for a specified length of time. He would then draw up comprehensive plans of action, timetables, priorities, project phases, estimated investment costs, options and proposals for funding.

He would also be tasked to consider sustainability of the project, training needs and a framework document for implementation. The formation of a task force with membership of all the states can also be considered. The coordinator would also serve as a repository on the information of the project and act as a dedicated desk officer at the SATTC secretariat. He should then develop national and regional plans including a time frame for completing the project. One of his tasks would be to establish a working relationship with government officials in all the countries as soon as he is appointed.

8.3.6.5. Role of the secretariat.

The secretariat should identify possible donor countries that can assist to fund the project. It should also develop terms and references for the project, which should act as a guiding principle in its implementation. The number of staff required for the project will also be determined by the secretariat.

8.3.6.6. Maritime Legislation.

He would start by an office-based review of the inland waters legislation in the SADC region as well as the model safety regulations. The coordinator would then prepare basic draft legislation for the region to enable the incorporation of the model safety regulations. The draft will be circulated to member states for scrutiny and feedback sent back to the coordinators office for final drafting. A workshop will then be held involving all stakeholders to adopt the legislation by all the member states.

8.3.6.6. Aids to navigation.

As regards aids to navigation, special projects have to be initiated for each of the inland waterways. The projects could also be coordinated through the coordinator and national

focal points would evaluate options for consideration by Southern African Transport and Telecommunications Commission for maintenance and for ensuring sustainability of aids to navigation on the inland waterways. The evaluation should include:

- Review of relevant documents and files relating to the provision of aids to navigation in the related countries
- The training needs analysis to bring the present staff up to the required level of expertise.
- Proposing means and ways of collecting revenue for the purpose of maintenance of aids to navigation. E.g. port tax, cargo levies and contributions from the member states.
- Consideration should be to other means of position fixing such as GPS that could reduce reliance to terrestrial means of position fixing. This would determine the number of lighthouses required on the lakes. The project will also need to establish the current existence or non-existence of markings like marine beacons.
- The project coordinator may liase with the International Association of Lighthouse Authority on all technical matters and advice as and when required.

8.3.6.7. Search and Rescue Services (SAR)

- Radar transponders as a requirement on all passenger ships in accordance with **regulation 9.3** to help locate the ship at night or day in all weather. These have the advantages of being activated by receiving the radar pulse and then automatically send out a series of pulses that can be displayed on the interrogating ship or aircraft. This identifies the transponder position making it easier for SAR units to reach the spot quickly.
- The project should be responsible of establishing a regional Search and Rescue organisation (SAR). It should also plan for the training of national SAR

personnel to bring the staff to the required expertise by conducting a training needs analysis.

- The updating of communications legislation in the member states should be given a priority.

8.4. Role of the SADC member states as recipients of ITCP aid.

According to TC 45/9 (Annex p.5), for the project to succeed, the SADC states as ITCP aid recipients need to do the following:

- Prioritise maritime safety and marine pollution prevention programmes within their national development strategies.
- Actively participate in regional bodies representing maritime and shipping sectoral issues;
- Active participation in the programming and Prioritisation process within IMO through the technical Committees and through the Technical Co-operation Committee;
- Ownership of the programming process at the country/regional levels;
- Co-ordination of UN system and other donor inputs at the country/regional levels;
- Implementation of technical recommendations arising from advisory missions;
- Provision of feed-back information on project impact and follow-up activities;
- Identification of country-level sources of funding;
- Participation in the securing of co-funding partners in correlation with TC Fund projects;
- Joint participation with IMO in securing project funding, taking into account the bottom-up approach favoured by the international donor community;
- Active lobbying through the UNDP Executive Board and other UN bodies for the inclusion of the maritime sector as a priority funding issue;

- Establishment of requisite national infrastructure so as to ensure the long-term sustainability of project development aims at the conclusion of the project activities;
- Utilization of improved national capabilities and human resource skills in the maritime sector.

8.5. The Dangers of "*Aid Dependency Syndrome*" in Africa.

As noted in Appendix A SADC depends on donors for 80% for its Program of Action. This is worrisome and needs to be addressed. The region needs to find ways of raising funds locally to manage and fund its projects.

The hazards of dependence on aid are well documented. According to Africa Recovery-United Nations (2002), aid has established a poor record in Africa. The causes vary, including, "the lack of recipient ownership," ineffective aid management, "the prevalence of donor-driven programmes," poor aid coordination, poor policies, and "a shortage of resources for recurrent operations and maintenance. Donors have tended to confuse "bad aid" with "aid dependence", leading to a view among some circles in donor countries that Africa might be better off receiving less aid in part by enhancing their own revenue collection and reducing unnecessary expenditures.

On this issue, Bräutigam, D. & Botchwey, K. (1999) in their article, "*The institutional impact of aid dependence on recipients in Afric*a" written for the Michelsen Institute in Bergen, Norway (CMIIn) make interesting observations. They state that heavy aid dependence can have significant effects on institutions and governance. In SADC only in Botswana, levels of aid reinforced local capacity, enabling it to 'graduate' from most aid. But in many countries, the costs of aid dependence have been high. Further more, aid dependence can overload institutions and weaken capacity and ownership, create

revenue instability and fragment budgets. It can also lower tax effort, and undermine accountability and democratic decision-making.

Michael Okemah (2000) writing in the east African "*Has Donor Aid Created Perpetual Beggars*?" observes that in Africa projects continued as long as funds flowed and were abandoned the moment aid ceased. This approach, he cautions, has led to the "beggar culture". Donors realised this and have since concentrated on projects that promise to be self-sustaining.

8.6. Lessons from other projects in SADC.

The IFAD (2002) evaluation of multi funded projects in SADC and East African countries documents many lessons learnt by theme and region in project implementation. It observes that various ministries were given responsibility as the main implementing agency for projects in the region, which was supposed to be realized by means of coordinating committees and then, at the field level, by respective line agencies. However, in practice, this coordination function was invariably ineffective.

Many of the projects relied on project management structures, which were either substantially aided or completely controlled by expatriate technical assistants. This contributed to a lack of integration of project implementation into the national institutions and structures and worked against sustainability and continuity.

Lack of coordination was probably the root cause of many project delays and failures. Short of quality project management, in terms of experience, qualifications, managerial capacity, authority and continuity was also an important factor in project failures.

Over-ambitious project targets in the design can lead to raised expectations of project participants and staff, which cannot later be fulfilled. This causes frustration and failure of the project.

CHAPTER 9

CONCLUSIONS AND RECOMENDATIONS.

9.1. Introduction.

The discussions in the previous chapters presented issues while at the same time expressing observations and opinions on how some of the problems identified in the study could be addressed. The author hopes that the reader will refer to such opinions and observations in addition to those presented in this chapter. In so doing, the author hopes to eliminate the risk of redundancy and repetitions.

9.2. Maritime Administration.

There is an urgent need for regional states which have not yet established Maritime Administrations to do so. The choice of the type of administration will depend on the factors mentioned in the study. It is unlikely and not practicable that adequate staff can be available within the administration to cover all the necessary functions. Some of the functions can be distributed across several departments and ministries. Sources of funding for the Administrations must continue being identified though creativity and ensuring that the fees charged realistically reflect the cost of performing the services being offered. The Administrations should institute cost recovery and avoid heavy reliance on donors. There needs to be improvement in data collection and management. Staff training, recruitment and appraisal should be given priority ensuring that the administrations have strong policy, executive and support staff. There is need to measure performance by instituting a Quality management system.

9.3. Policy Development to Implement the Regulations.

The policy development to implement the Model Regulations should be adequate with time frames indicated and stated in a key policy statement. The statement should show dedication by the Administration to ensuring the safety of ships, the protection of life and property and the marine environment.

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9.4. Regional Approach: The best way forward.

A unilateralist approach is not the best way to adopt and implement the Model Safety Regulations. A regional approach is the best way forward as it has many advantages elaborated in the study. According to the observations in the study the main issue for maritime safety on the region's inland waterways is directly related to the vessels and craft themselves and the conditions under which they are operated. Since many vessels and boats are mainly operated by the private sector, it is vital that the Member States of Southern African Development Community set up a common regulatory framework and an organization in charge of ensuring the proper application of these regulations. There is an adequate legal basis and institutional framework within the SADC, which is not being exploited, to cooperate and form such an organization.

The States must carry out in good faith their obligations under the SADC Treaty regarding maritime safety and environmental protection. What is needed is to put in place appropriate mechanisms capable of translating the high degree of political commitment to shape the scope and scale of community building through regional integration. This implies delegating authority and strengthening the capacity for decision-making to the relevant agencies. The council of ministers should in accordance with its mandate prioritise the enhancement of maritime safety and take necessary action. A Commission could be set and a Sector Coordinating Unit from staff of the Administration of the chosen state established to guide and coordinate policy. National

contact points as focal points should be established in member states. Additionally at grass root level sectoral contact points must be established. The adoption of the regulations must be placed under the SADC Programme of Action to ensure that they are given priority

Adequate institutional reforms must be carried out to enable the effective full transformation from SADCC (Coordinating Conference) to SADC (the Community). Furthermore, the resource provision and the management system should be adequately addressed within the organisation.

9.5. Communications Search and Rescue.

In the area of telecommunication, search and rescue, the needs are of institutional framework, mobilization of expertise and proper organization. There is need for direct physical investment in infrastructure. A radio plan should be considered accompanied by the promulgation of local legislation to require vessels operating on the Lake to carry communication equipment complying with the requirements in the Plan. In each country, an independent authority should manage the radio network. This responsibility should rest with the national telecommunications departments. Another solution may be to create a specific regional structure, at the level of the SADC, which could also be in charge of Search and Rescue. There should be mandatory carriage of VHF set and watch keeping on channel 16 on all ships. It would be nice if radio broadcasts were done on the national radio twice a day

9.6. Aids to Navigation and Navigation Aids.

The safety of navigation more or less depends on the navigational equipment on board the ships. The compasses would be reliable only if a competent person properly adjusts

them. The GPS could help in cutting costs but at present with outdated charts it is unreliable. GPS courses have to be used with caution. The radar is by far the most reliable aid despite the high cost of maintenance. Radar enhancing reflectors must be provided on major targets including wooden vessels. It is imperative that the region cooperates in the provision of aids to navigation to share costs and expertise. The projects currently underway should be extended to cover other inland waterways particularly Lake Malawi where only a project of charting is taking place. Floating aids to navigation should not be relied upon. This could be solar powered lighthouses and beacons. The old obsolete gas powered lights have to be replaced. The other consideration could also be the creation of an institutional requirement concerning the creation of a regionally funded organization in charge of servicing and maintenance of the lights in the inland waterways. This could be designated to one of the countries under the SADC sectoral programme. There is need for technical innovation like providing metal cages for effective protection against theft and vandalism.

9.7. Flag state implementation

The Flag states should be aware of their roles and responsibilities elaborated in the study and most importantly investigate incidents of non-compliance to regulations even those reported to it by other states. Surveyors need to have good formal education, properly qualified, experienced and supported in order to carry out their duties effectively. They must be encouraged to join professional organisations. Proper documentation, procedures should be followed during surveys and inspections. Telephone surveys must be stopped and verifications physically done. Delegation of authority should be done following the recommended procedures and contracts made detailing the extent of delegation. Administrations must monitor the organisations. Surveyors must use both the SOLAS 48 and SOLAS 74 versions when surveying old vessels as appropriate. The aim should be to apply as much of the current SOLAS 74 requirements as deemed

reasonable and applicable. Effective accident and incident reporting as provided in regulation 1.9 and Annex 6 must be made mandatory in any future legislation to provide the Administration with information on which to base improvements in the regulations.

9.8. The Model Safety Regulations.

Adequate attention is given by the administrations to regulate standards on small vessels, which currently constitute a major hazard to safety and also carry passengers. A tacit amendment procedure needs to be incorporated into the Model Regulations. The proposed amendments should be deemed to have taken place if no participating country objects to them within a specified time. Care needs to be taken that dhows and similar craft should not be exempted from other chapters other than chapter 10 of the regulations. There is need to consider adding to the regulations a section on pleasure craft or making an annex of such regulations to improve safety on these craft which are vital for promoting tourism. The *Simplified tonnage calculation for existing ships that do not have their gross tonnage determined in accordance with the 1969 Tonnage Convention* (MSC/Circ.653, June 1994) be used to determine the tonnage of ships since it is easy to use and a universal accepted practice. It is important that the region adopts the precautionary principle to according to their capabilities by balance the risk of inaction against the costs of action noting that environmental degradation is often irreversible.

9.9 Need for further research.

There is need for further investigation into the subject especially in matters of pollution prevention. There is also need to scrutinise further the applicability to Africa of some of the provisions in the Model Regulations.

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APPENDIX A

THE SOUTHERN AFRICAN DEVELOPMENT COMMUNITY (SADC) AND ITS NAVIGABLE INLAND WATER WAYS..

"Addressing national priorities through regional action."

A.1. Introduction..

Originally known as the Southern African Development Coordination Conference (SADCC), was formed in Lusaka, Zambia, on 1 April 1980, following the adoption of the Lusaka Declaration " *Southern Africa: Towards Economic Liberation*" by nine Southern African countries of Angola, Botswana, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Zambia and Zimbabwe.

It was initially formed as a political grouping of Frontline States, to advance the political struggle of liberating South Africa. It was then felt that this political struggle had to be translated into broader co-operation in pursuit of economic and social development (SADC, 2002).

A.2. Establishment.

The Declaration and Treaty establishing the Southern African Development Community (SADC) was signed at the Summit of Heads of State or Government on 17 August 1992, in Windhoek, Namibia.

A.3. Significance of the treaty

The establishment of Southern African Development Community (SADC) offers the legal basis and an opportunity on a regional level to adopt and implement the Model

Safety Regulations. It offers the region a legal opportunity to change its strategy and take an initiative to avert maritime accidents. It also provides a legal basis for a concerted and cooperative regional effort to improve maritime safety and enhance environmental protection

A.4. Composition of the Southern African Development Community.

The Southern African Development Community (SADC) comprises the following 14 countries: Angola, Botswana, Mozambique, the Congo, Mauritius Seychelles, South Africa, Namibia, Malawi, Tanzania, Zambia, Zimbabwe the Kingdoms of Lesotho and Swaziland (see figure1). SADC's total land area is 9,304,000 sq km, which is approximately about 30% of the African landmass. It has a population of about 193 million. (SADC, 2002). Tanzania, which borders most of Lake Victoria and Lake Malawi, is a unique member of SADC because it is also a member and the headquarters of the East African Community (EAC). This is a regional intergovernmental organization of the Republics of Kenya, Uganda and the United Republic of Tanzania. The working languages of SADC are English and Portuguese.

A.5. Transformation from Conference to Community

The aim of the transformation was to give the Organisation a legal and more formal status. There was also a need to shift the focus of the organisation from co-ordination of development projects to a more complex task of integrating the economies of member States (SADC, 2002). This was to ensure a high degree of harmonisation and rationalisation and enable the pooling of resources to achieve collective self-reliance.

A.6. Objectives of the Community.

The author will hereby only mention those that are relevant to the adoption and implementation of the Model Safety Regulations at a regional level. These are:

- Promoting self-sustaining development on the basis of collective self-reliance, and the interdependence of Member States;
- Achieving complementarities between national and regional strategies and programmes;
- Promoting and maximising productive employment and utilisation of resources of the Region;
- Achieving sustainable utilisation of natural resources and the effective protection of the environment;

A.7. Institutional Framework and Organisational Structure.

The organisation places emphasis on a decentralised institutional arrangement that ensures that member States are the principal actors in the formulation and implementation of policy decisions. Refer to figure 2)

A.7.1. The Summit

It is made up of Heads of State and/or Government and is the ultimate policy-making institution of SADC. It is responsible for the overall policy direction and control of functions of the Community.

A.7.3. *Council of Ministers*

The Council of Ministers consists of Ministers from each Member State, usually but not only from the Ministries of Foreign Affairs and Economic Planning or Finance. The Council is responsible for overseeing the functioning and development of SADC and ensuring that policies are properly implemented. The Council advises the Summit on policy matters and approves SADC policies, strategies and work programmes. One of the major tasks of the Council is to decide upon sectoral areas

of cooperation and the allocation of responsibility for carrying out these sectoral activities.

A.7.4. Sectoral Committees and Commissions

SADC has established Commissions and Sector Coordinating Units to guide and coordinate regional policies and programmes in specific areas. The sectors are allocated to individual member States to coordinate and provide leadership. Sectoral activities are supervised by Sectoral Committees of Ministers. The Minister representing the sector coordinating country chairs the Sectoral Committee of Ministers. Sectoral Commissions may be established as and when necessary, through a convention or other instruments approved by the Summit and ratified by member States. Commissions are regional institutions, supported by all member States whereas Sector Coordinating Units are part of national governments staffed mainly by civil servants of the sector coordinating country. Sectoral Committees and Commissions report to Council.

A.7.5. Standing Committee of Officials.

A Permanent Secretary, or an official of equivalent rank represents each Member State. The Standing Committee acts as a technical advisory committee to the Council to whom it also reports. Members of the Standing Committee have a dual responsibility, as they are also National Contact Points.

A.7.6. National Contact Points.

These are located in the Ministry responsible for SADC matters and act as a vital link between other agencies of government and SADC organs. The National Contact Points' responsibility also includes regular consultation with and briefings of relevant

government institutions, the enterprise community and media on matters relating to SADC.

A.7.7. Sectoral Contact Points.

These are the grassroots level in the SADC organisational structure. All government ministries with line responsibilities for SADC sector(s) are Sectoral Contact Points and work closely with the respective Sector Coordinating Units in the preparation of sectoral policies and strategies, and formulation of project proposals.

A.7.8. Secretariat.

As the principal executive institution of SADC, the Secretariat is responsible for strategic planning and management of SADC programmes. Headed by the Executive Secretary, who is appointed by the Summit, the Secretariat is charged with the task of implementing decisions made by the Summit and the Council. The Secretariat organises and manages SADC meetings and is responsible for the financial and general administration of the Community. Diplomatic representation and promotion of SADC is also undertaken by the Secretariat (SADC, 2002)

A.7.9. *SADC Programme of Action.*

Of relevance and interesting to the theme of this dissertation is that over the years, SADC has developed to become an organisation that has a Programme of Action. This covers several broad economic and social sectors including Transport and Communications.

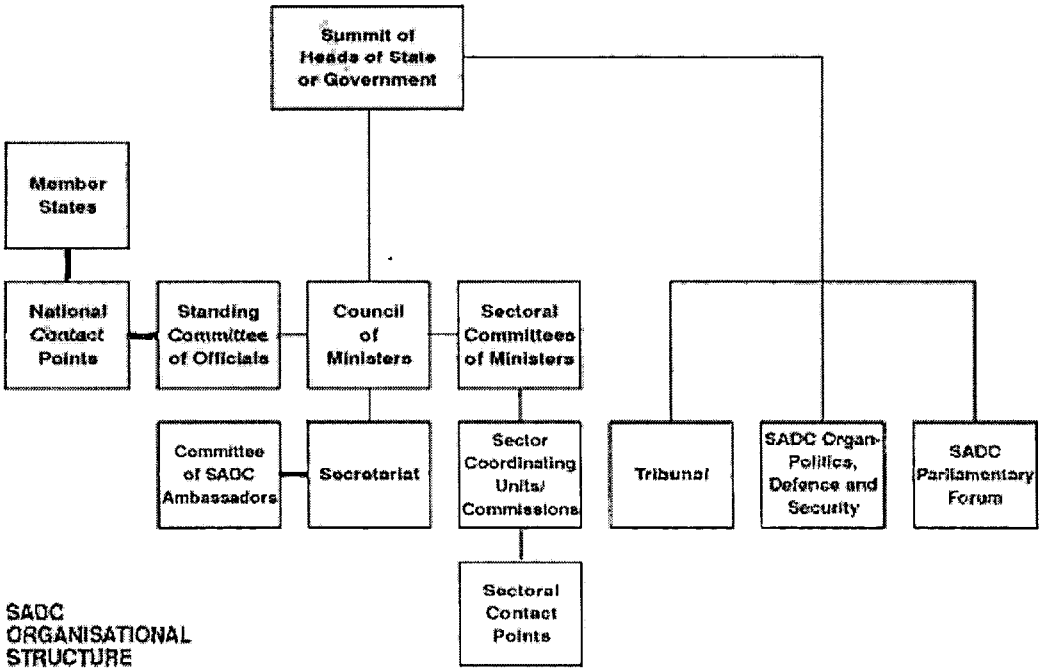


Figure 1. The SADC Organisational Structure.

A.7.10. Problems of the current institutional framework and structure

The author would like to bring to light problems that have been noted by the organisation itself. These are problems that inhibit the efficient and effective performance of the current structure (see SADC, 2002). These problems if not addressed, will impact negatively on any proposed regional program to improve maritime safety and environmental protection.

There is inadequate provision of resources and staffing by member States. This has led to inequitable distribution of responsibilities and obligations. The countries have different management and administrative procedures and rules. Presently, there are varying standards, qualifications and performance criteria for staff involved in the management of the Regional Programmes.

There has been a rapid increase of sectors and therefore an excess of priorities and activities that are dependent on limited resources. This has led to a proliferation of meetings and an increase in associated costs. Under the current structure and circumstances, the Secretariat has been unable to execute its mandate as provided for in the Treaty, especially that of undertaking strategic planning and management.

There is lack of an institutional framework in which Ministers in the SADC region could discuss and adopt common positions on matters pertaining to the organization in various international fora.

A.7.11. *Reforms needed for the smooth adoption of programs.*

There is need to continue the synchronization of the objectives and strategies of the Treaty on one hand and the existing SADC Programme of Action (SPA) and the institutional framework on the other. (see SADC, 2002).

Presently, there is limited capacity to mobilize significant levels of the regions own resources for the implementation of its Programme. This has resulted in the financial over dependence of the SADC Programme of Action (SPA) on donor aid to the tune of more than 80 percent. This surely compromises the Programme's sustainability.

A.8. Legal status of SADC.

SADC is a treaty contract between member states hence the Vienna Convention on the Law of Treaties that entered into force on 27 January 1980 governs its nature and functions. Both the SADC Treaty and its Protocol on Transport and Communications and Meteorology, satisfy all the requirements of a treaty. They are agreements between states in a written form and governed by international law. (VCLT, 1980 Article 2)

A.8.1. Binding obligations of the SADC Treaty.

According to Article 31 (1) of the Vienna Convention, a treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in the context and in the light of its object and purpose.

The SADC Treaty ought to be taken very seriously. In nearly all cases, the object of a treaty is to impose binding obligations on the states that are parties to it. Following this reasoning, the SADC States must carry out in good faith their obligations regarding maritime safety and environmental protection. These are obligations they have assumed under the SADC treaty and its Protocol. Most importantly, it is worth noting that parties may not invoke the provision of their internal law as a justification for failure to perform a treaty. (Article 27, Vienna Convention, 1980)

A.9. Implementing the Model Regulations in SADC

The preamble to the Model Regulations calls on African countries to cooperate as formal regional organisations with a view to harmonise the inland waterways regulations among themselves. The SADC treaty states that SADC shall create appropriate institutions and mechanisms for the mobilisation of requisite resources for the implementation of the programmes of SADC. The appropriate institution within SADC to manage the implementation of the Model Regulations is the SATTC – TU (Southern African Transport and Telecommunications Union – Technical Unit. The SADC Protocol on Transport, Communications and Meteorology created this unit.

A.9.1. *The legal framework: the SATCC Protocol.*

The SADC protocol on Transport and Communications and Meteorology was signed by the heads of state of 11 member states in August 1996 and has been effective since July 1998. The Protocol gave a legal framework for the Technical Unit (SATCC-TU). Regional cooperation in the maritime and inland waterways sub sector is a stated objective of the protocol (SATCC MARITIME SCOM TOR, 1999 p. 6).

A.9.2. *Through the SADC Sectoral Responsibilities.*

Within SADC, each Member State has been allocated a sector to coordinate. This involves proposing sector policies, strategies and priorities. The coordinating state also processes projects for inclusion in the sectoral programme. It is also responsible for monitoring progress and reporting to the Council of Ministers. This approach aims at addressing national priorities through regional action.

The adoption and implementation of the model regulations therefore, can also best be done through the framework of SADC sectoral responsibilities and the SADC Programme of Action. Since the SADC Programme of Action is made up of all the programmes and projects approved by the Council of Ministers, this approach would give the adoption and implementation of the model regulations the high profile that they deserve.

A.9.3. Through the Southern African Transport and Communications Commission (SATCC)

The Southern Africa Transport and Communications Commission (SATCC) was established in July 1981 as the first Commission of the Southern Africa Development Co-ordination Conference (SADCC It placed top priority on Transport and Communications. It is a regional inter-governmental body of SADC with the responsibility of coordinating policy, planning and monitoring of the region's transport and communications systems and meteorological services.

A.9.3.1. Mandate and Objectives of SATCC

According to SATCC (2002) (Article II) the SATCC provides co-ordination in overcoming transport and communications problems. SATCC also aims to achieve self-sufficiency in technical manpower training and development. It encourages the

efficient utilisation of available resources for the improvement of transport and communications within the region.

It is also concerned with the potential impact of transport and communications operations on the environment, particularly the marine, lucastrine and riverine environments. However it is important to note that where most of the industries supporting transport and communications are concerned, SATTC does not have regional coordinating responsibilities and therefore works closely with the SADC bodies that have those coordinating responsibilities.

A.9.3.2. Organs and Structure of SATCC

The supreme body of the SATCC is the Committee of Ministers comprising one member from each SADC State, generally being the Minister responsible for transport and communications. The Co-ordinating Committee, usually made up of Permanent Secretaries or senior government officials from the same ministries of transport and communications, advises it. The Committee of ministers normally only considers issues, which have been scrutinised by the Co-ordinating Committee.

A.9.3.3. Organisation and Management

In accordance with the organisational structure of SADC, Mozambique was nominated as the coordinating country of transport and communications in the region, and Maputo is therefore the host to the Commission's Technical Unit. The Unit comprises Technical Experts recruited from the region and is headed by a Director who reports to the chairman of the Coordinating Committee.

A.9.3.4. Functions of SATCC-TU

The main function is the provision of technical, implementation and monitoring support to all the agencies. It is also involved in the implementation of the

provisions of the Protocol and monitors compliance by Member States (Articles 13.9 to 18). It also provides secretarial and administrative support to the SATCC.

A.9.3.5. The Maritime and Inland Waterway Committee.

This is one of the eight sub-sector committees (SCOMs) of SATCC-TU that was formed as a result of institutional reforms specified in the SADC protocol in order that SATCC effectively takes a lead role in all other aspects of Protocol implementation (SATTC, 1999). The Protocol specifies that the SCOMs shall comprise senior officials and technical experts responsible for policy development and technical co-ordination in the sub-sector concerned .

A.9.3.6. The Inland waterways Sub – Committee

The Inland Waterways Sub committee is responsible for regional agreement on transport safety on the navigable waterways. This extends to vessel construction, condition and equipment standards. The committee also monitors vessel officer and crew qualifications. It also looks at traffic control regulations and their enforcement, aids to navigation, SAR arrangements, ship to shore communications, charts and hazards to navigation. It facilitates regional agreement on "Action Plans" for each of the navigable waterways to ensure that transport operations are made as safe as possible within the constraints of available resources. The committee is supposed to monitor implementation of the agreed plans and analyse any impediments to their implementation and developing recommendations.

At its last meeting in March 2002 the committee considered the draft Model Regulations and agreed that Member States needed time to consider them for possible adoption by the region. The Committee is due to meet again in March 2003 when a decision on the regulations will be made.

A.10. The navigable waterways in SADC

The SADC region has five of the word's major waterways. Portions of these waterways form borders between SADC member states. According to the SATCC Comprehensive Border Waterway (COWBOW) an element of the a larger project, the Navigable Waterway Management Development Fund, the five major navigable waterways in SADC are as follows (see also International Lake Environment Committee, 2001)

A.10.1. Lake Victoria

Lake Victoria with a surface area of 69,484 square kilometres is the second largest fresh water lake in the world. Its maximum north-south distance is 400 kilometres and its maximum east- west distance is approximately 240 kilometres. It has a maximum depth of 82 meters. Approximately the southern half of the lake lies within Tanzania whilst most of the northern half lies within Ugandan territory. A small area of the lake along its northeastern shores lies within the territory of Kenya.

A.10.2. Lake Tanganyika

Lake Tanganyika with a north-south distance of 676 kilometres is the longest freshwater lake in the world and the second deepest with a maximum water depth exceeding 1.4 kilometres. The lake's east-west distance is 48 kilometres only. The lake has a surface area of just under 32, 900 square kilometres. The international border between Tanzania and the DRC runs through the middle of the lake for most of its north- south distance, but the southern tip of the lake lies within Zambia and the far north-eastern shores within Burundi territory.

A.10.3. Lake Malawi

Lake Malawi (also called Nyasa or Niasa) has a surface area of 28, 749 square kilometres, a maximum north-south distance of 563 kilometres and a maximum east-west distance of 80 kilometres. Though the maximum depth of the lake is 700 meters, which is half of that of Lake Tanganyika, it is still one of the deepest in the world. Most of Lake Malawi lies within Malawi, and the lake's north-eastern shores forms the border between Malawi and Tanzania. A portion of the lower half of the lake lies within Mozambique. The navigable Shire and Zambezi rivers connect Lake Malawi to the Indian Ocean.

A.10.4. Zambezi River

The Zambezi River is Africa's fourth longest, extending for 2,736 kilometres from near the Angola-DRC border to the Indian Ocean, through central Mozambique. The river forms the border between Zambia and Zimbabwe, and for short distances forms the border between Botswana and Namibia. Along the river, two man made lakes have been formed namely Kariba, lying along the along a portion of the Zambia – Zimbabwe borders and the Cabora Bossa in Mozambique. The river drains an area of about 1.3 million square kilometres.

A.10..5. *Congo River.*

The Congo River, second only to the Amazon in the volume of water it carries is the fifth longest river in the world extending 4, 667 kilometres and drains an area of 3.6 million square kilometres. It lies mainly in the DRC but for one stretch of 800 kilometres, it forms the border between DRC and Congo (Brazzaville).

A.11. <u>The Fleets on the navigable inland water ways.</u>

A.11.1. The Malawi fleet.

There is presently no database to indicate accurate figures of registered vessels at the maritime administrations bordering this lake. This has resulted in inaccurate and conflicting data. The Malawi fleet however, consists mainly Malawi Lake Services vessels the details of which are in Appendix K.

The average age of these vessels is estimated to be between 22.4 and 27 years (see Singini, 1994,p.28; Mulilima (1998,p.6). There are estimated to be around 10,000 small wooden passenger boats (<4 meters) plying the lakes and rivers. There are also several fishing trawlers, fish carriers mainly owned by Maldeco Fisheries (see Appendix), the Fisheries department and several private fishing companies (see Makuzula, 1994,p.18; Msowoya, (1985, p.41); Mlilima, (1998, p.5). There are also many pleasure craft and small cruise craft owned by hotels and private owners.

A.11.2. The Mozambican and Tanzanian fleets on Lake Malawi.

The Mozambican fleet consists of many locally made wooden open-topped boats with a carrying capacity of 5 to 40 passengers and up to 4.5 tonnes of cargo. The Tanzanian merchant fleet consists the MV Songea (250 passengers and 40 tonnes cargo) and the MV Iringa with a much smaller capacity.

A.11.3. The Lake Victoria Fleet.

Likewise, there are neither databases nor accurate records at the registries of the administrations bordering lake Victoria. According to the East African (May 13, 2002) there are about 65,000 small vessels operating on the Tanzanian side of Lake Victoria. However, Fumbuka, (1999, p. 19) puts the numbers of the smaller craft as comprising 14500 small vessels, 113 dhows and 3500 fishing vessel. There are also more than 100 ships of or more 50 gross tonnage owned by Tanzania Railway Corporation (TRC). The total tonnage of this fleet is estimated at 42870 tones with

an average of 429 tons per vessel. The company also has tankers like M.V Umoja, M.V. Kakalenga and M.V. Mother Teresa.

A.11.4. Fleets in other inland waterways

There are apparently numerous small boats both private and commercial on the different inland waterways records of which could not be accessed for the afore-mentioned reasons. On lake Kariba where tourism is booming for example, there are many commercial and private owned tourist cruise boats.

A.12. Traffic Density.

Generally there isn't much commercial traffic density on the inland waterways. However, there are a lot of small fishing boats along the routes. This is a real challenge to the navigators at night since some of these boats are often engaged in pair trawling. The main problem lies in the fact that these boats most often do not indicate any navigational lights and they always erroneously assume that the navigator on a bigger ship sees them.

A.13. Economic importance of Lake Malawi. Lake Victoria.

Lake Malawi is part of the Northern Transport Corridor (NTC), the multi-modal transport route which links Malawi and the port of Dar-es-Salaam in Tanzania. The NTC provides an alternative gateway for the country's imports and exports and reduces Malawi's economic dependence on its southern routes.

As a landlocked country, Malawi needs to maintain viable trade routes. The lake offers more economic and cheaper means of transport for interconnection to the national, regional and international network. Lake transport is also the only mode of transport available to certain lakeshore communities for access to markets. Efficient ferry services are therefore an essential social requirement as well as fundamental to

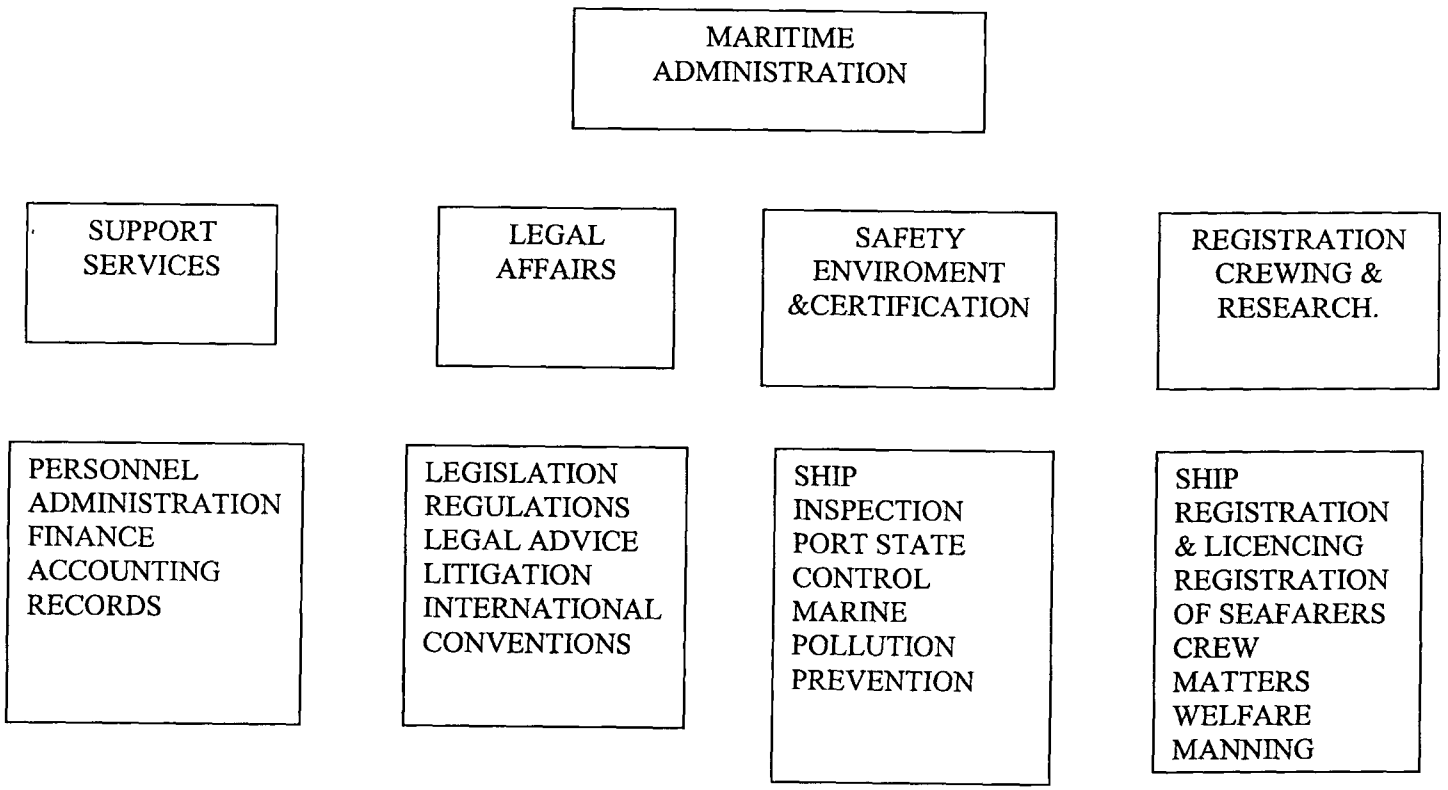
the trade links for these rural areas. The fishing industry also represents an important economic factor to lakeshore communities both in terms of trade and of essential food supplies.

Lake Victoria and its catchment support about 30 million people. This constitutes about one third of the population of Kenya, Tanzania and Uganda. The lake and its catchment area provide fish, transport and communication, tourism, water for domestic agricultural and industrial use and recreation. Tourism is also a booming industry on the lake, which attracts many tourists from abroad and brings valuable foreign exchange to the states.

APPENDIX C

PROPOSED MARITIME ADMINISTRATION BY FUNCTION.

Hubbard, M. J. (Canada) IMO Consultant
Hoppe, H. Technical Officer, IMO



APPENDIX D

NAVIGATION ON THE REGION'S INLAND WATERWAYS.

D.1. Dead reckoning:

Dead reckoning is derived from the phrase *deduced reckoning*, and estimates the approximate position of a craft solely from its course and speed. Generally it is accepted to use the speed and course steered through the water. However, to get the estimated position, which is more accurate, the speed and course expected to be made over the ground is used thus making an estimated allowance for current and wind. This method depends on the accuracy of the compass and correctly estimating the effects of wind and current.

D.2. Pilotage

This is navigation involving frequent or continuous accurate determination of position or a Line of Position (LOP) relative to geographic points or aids to navigation and by use of sounding. This method is dependent on the proper functioning of lighthouses. Piloting is the most exacting form of navigation because it entails the movement of ships under many potentially dangerous conditions. It requires good judgement, constant attention, and alertness by the navigator, especially when near hazardous areas. With almost all lighthouses not functioning, the available option is to use geographical points like mountains and other conspicuous features. In poor visibility and during the night, this method is futile unless the ship has adequate navigational aids on board. Pilotage also requires good judgement, skill and close attention to the vessel's draft with respect to the available depth of water.

D.3. Magnetic compass.

The compass probably remains the most used navigation instrument on the inland waterways. Amazingly, the magnetic compass is also supposed to be the most dependable of on-board navigational tools.. (Tetley, A. & Calcutt, D., 1991)

The magnetic compass does not require any electrical power to function (except for night illumination), therefore is not affected by loss of power. Heading display is analog, which is preferred by many mariners. Can be compensated for magnetic deviation by the use of adjusting magnets.

Lack of digital output makes compass inappropriate for interface with electronic navigation devices (although some magnetic compasses can be fitted with special electronic pickoffs to interface with an autopilot). The second (backup) magnetic compass required by the Model Safety Regulations cannot be located close to the primary magnetic compass. The two compasses will interfere with each other, making both inaccurate. Magnetic compasses sometimes can be rendered inaccurate by a lightning strike on the vessel, or by arc welding in its close vicinity. In the region there is no need to correct it for magnetic variation because it is negligible.

D.3.1. Compass Adjustment.

Regulation 10.2.3 of the Model Regulations states that magnetic compasses required by **10.2.2** shall be properly adjusted to the Administration's requirements and their table or curve of residual deviations shall be available on board at all times.

However, it does not specify at what interval the compensation of the compass and the table or curve of residual deviations should be made. Bearing in mind the importance of the compass in navigation on the inland waterways, the author recommends that it should be done initially at least every two years and later the

requirement amended to annually. In steel vessels, it should be possible to correct the compass for co-efficient B, C and D and heeling error.

An expert approved by the Administration must carry out the compensation of compass. This requirement though desirable could be a problem to meet due to lack of expertise. In Malawi for example only one person is known to be competent and in as far as the author can recall, there has been no compass adjustments on ships for many years. This is worrying considering that due to lack of charts and negligence, navigation on the lakes is mainly based on reciting previous compass courses extracted from previous logbook entries.

It may be worth mentioning that during an accident investigation on the stranding of the MV Ilala 3 miles off Mlowe, the author established that the ships compass had a westerly error of 20° W denoting a deviation of 13°W (variation on the lake is 7°W). During the inquiry, it was established that the master was unaware of the compass error and the compass had not been adjusted for many years.

D.4. The Gyrocompass.

Some of the new vessels on the lakes are fitted with a gyrocompass that is becoming very popular. **Regulation 10.2.4** of the Model regulations exempts vessels fitted with a gyrocompass from carrying a spare magnetic compass. The gyrocompass is essentially a north-seeking gyroscope encased in a housing fitted within various electronic components. These components keep the spin axis of the gyro aligned with terrestrial meridians, and sense the angle between the ship's head and the gyro spin axis. (Tetley, A. & Calcutt, D., 1991).

D.5. Satellite Navigation

Most of the newer vessels are currently fitted with Global Positioning System receivers for navigation. **Regulation 10.2.6** in the Model Safety Regulations requires vessels 10m and above in length to be fitted with a Global Positioning System receiver, where required to do so by the Administration. It is advisable for the regional administrations to consider incorporating this requirement in their national legislation.

D.5.1 The Global Positioning System (GPS)

This is a navigation system based on a network of satellites that send out radio signals. The GPS receiver computes it's position on the surface of the earth usually expressed as a coordinate in latitude and longitude, or the 'horizontal coordinates' and referred to as 2D coordinates. If we include the GPS height our position is called a 3D coordinate. The system is owned, operated, and controlled by the United States Department of Defence (DoD) but can be used around the world by anyone free of charge. (DoD, 2002)

D.5.2. Use of satellite navigation on the inland waterways

The reliance on satellite navigation on the lakes should be done with caution considering that the charts in use are obsolete. Since GPS in general gives position in longitude and latitude, it requires correct up-to-date charts to accurately determine the ship's position. The level of accuracy of the 'differentially corrected' positions (0.5 m and 5 m.) could be ideal for the inland waters where navigation involves passing through narrow straits and very confined waters. However, the cost factor would be the major bottleneck. As stated earlier, the system requires either 2 GPS receivers or one roving receiver and data from a second 'base' source. In either case, this is expensive, not as simple to use and requires some practice or some training to

get the most of the system and use the GPS hardware (the receiver) equipment and software properly.

The system should at the present time only be used in open waters together with other methods to give an estimated position of the vessel until the present charting projects are finalised and charts produced. The region may wish to seek initiate projects for the DGPS system for use in future.

D.5.3. The use of GPS Courses on the lake.

Some modern boats in Malawi rely on GPS courses and there have been calls promoting the use and reliance on GPS courses on passenger vessels. Usually the GPS receiver is programmed to calculate a course of the vessel from a series of positions. The operator can select TRUE or MAGNETIC course. For the course to be of any accuracy and value the GPS receiver must be locked on and receiving accurate satellite information, and the vessel also must be travelling in a straight line (when the vessel is tied to a dock, anchored or otherwise not moving, any course provided by GPS is meaningless) as Marvin L. Schenker, M. L. (1996) cautions:

> The navigator must realize, when using GPS course information, that the GPS course can be quite different from the compass course. GPS course is "course over the ground", whereas compass course is "course through the water," also known as "heading". When in a cross wind or current, especially at the low speeds at which many vessels travel, the "set and drift" will be included in the calculated GPS course, but will not be known to the compass.

D.6. Radar Navigation.

This involves the use of radio waves to determine the distance and direction of the object reflecting the waves to the transmitter. This is widely used on lake Victoria

(IMO, 200). On lake Malawi most installations on board vessels are out of use due to lack of spare parts and technical expertise to repair them.

D.6.1 Maintenance of radar installations.

The choice of radar design or model must take account of the limit of the maintenance skills that are set by the capacity of the present personnel in the country or company. Consideration must be taken of the reasonable amount of training they may need or be spared to take. A set that cannot be kept in efficient working condition by the officers and the company is not worth having. It is essential that the set should secure a certain amount of routine maintenance. The users should ensure that their sets are well maintained and brought regularly to a high level of performance. The users should give all the necessary assistance to the maintainer, by the description of the nature of faults and of the behaviour preceding the breakdown.

It seems ships in the SADC region depend entirely on shore maintenance other than using shore workshops for the replenishment of spare parts. In short voyage ships like on the lakes, the hope and prayer is that the set should never break down. There is no duplication of parts as this would be unaffordable to many ship owners. Furthermore, many types of equipments on board have an incidence of faults that is too high, and very often faults for which it would be unreasonable to carry replacements? The alternative would be to train the chief engineers basic troubleshooting and basic simple maintenance and (RIN, 1982p. 257) recommend that the vessels carry a multi-range meter of the AVO type and an instrument capable of measuring insulation resistance up to several megohms.

D.6.2. The Future of radar in the region.

Despite the radar's unique potential contributing role to safety, the cost will now and in the near future be the holding factor. Ship owners often keep the radar to what

they conceive, sometimes wrongly, to be the essential safe minimum and manufactures are worry of developing revolutionary equipment for a comparatively small and hesitant market. (RIN, 1982, p. 259). Small ships navigation is on the whole more intricate and will continue to demand quality in radar. It is important to make the ship owners appreciate that the radar is a very small part of the cost of any ship that it might be instrumental in saving from total loss. On the other hand the best radar will be wasted in a ship, if it requires more man-hours than can be made available.

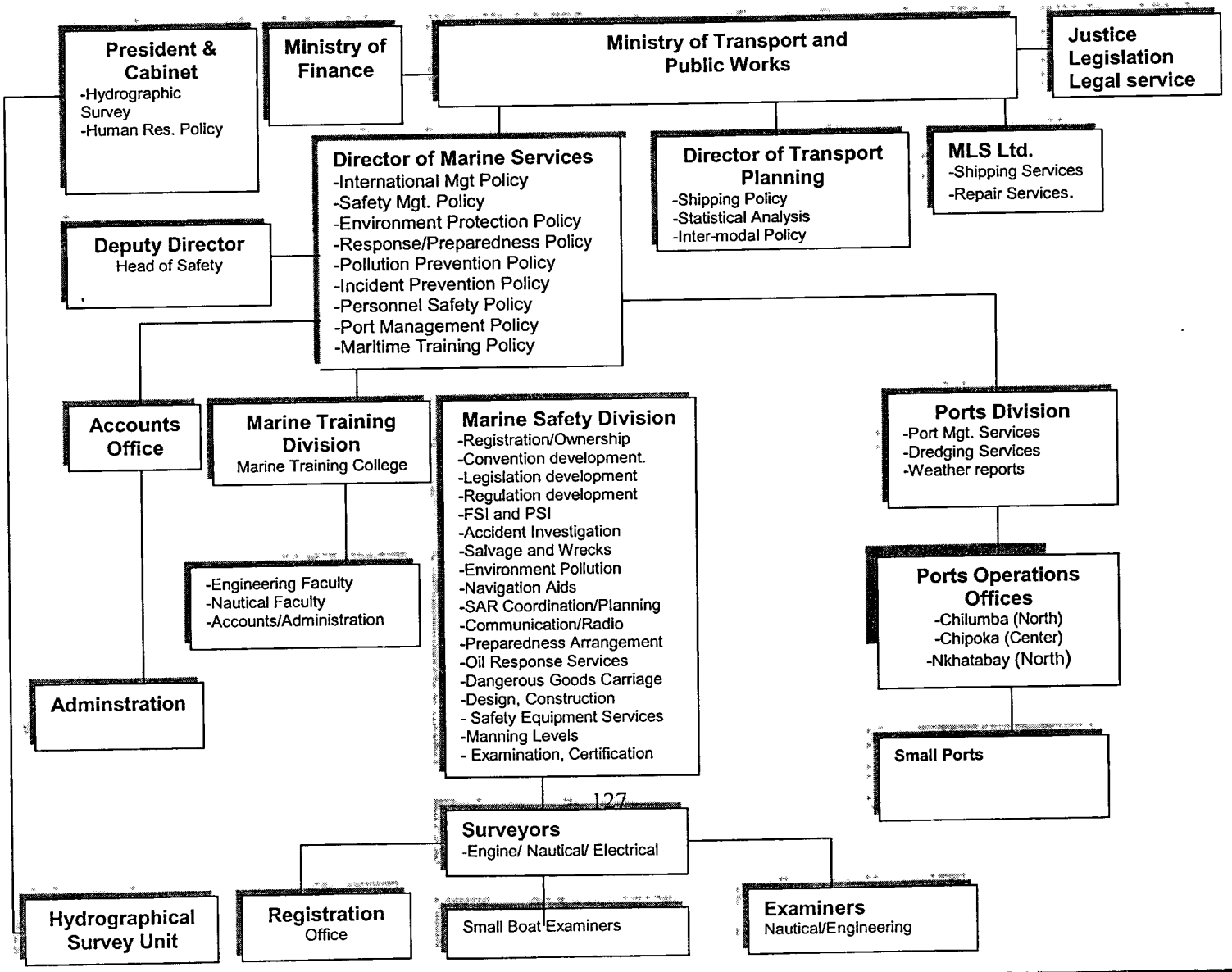
D.6.3. The radar efficiency required.

The Model regulations require sets to operate at 9 GHz frequency band. Generally, it is of great importance that objects such as small buoys should be detected at not less than two miles and it is very desirable that really poor targets such as sand banks, should be detected at say a mile. (Whyle, F.J. 1982). The author feels that the provision of ancillary devices like radar reflectors, appropriately positioned and on wooden vessels should be considered to make the use of the radar more reliable and comprehensive.

D.7. Sonar Navigation on the lakes.

It includes the use of echo sounder for piloting. **Regulation 10.28** of the Model Regulations states that where required by the administration, passenger vessels and cargo passenger vessels 15m above in length should be fitted with an echo sounder. Considering the need for frequent anchorages even during the night on the lakes, and frequent groundings, there is a compelling need to make this requirement compulsory for passenger vessels.

. The Marine Department Organisation Chart: 2001



APPENDIX F

From : "Chriss Marrow" <malawilake@malawiditect.com>

To : "Tasiyana Tenganawo Wisdon KAMANGA<s02061@wmu.se>

Subject: Re: Status of Aids to navigation on Lake Malawi.

Date sent Mon, 24 Jun 2002 14 :29 :15 + 0300.

Dear Tasiyana,

Thanks for your email. All lights on the Lake are currently extinguished, with the single exception of the light off Chilumba. Ilala ran aground two weeks ago at night immediately under the light on Chizumulu, but fortunately she came off easily enough and is currently undergoing repairs. Those not working are: Monkey Bay Zimbabwe, Cape Maclear, Katenga Light, Chipoka Livingstonia Beach Kambwe, off Karonga (no longer needed by MLS) :Benje Island Nkhotakota Buoy Chizumulu Nkhata Bay

We could do with:
Chilinda rocks opposite Chinyankhwazi
Cape Ngombo, Makanjira
Fort Maguire Point, Makanjira
Chindunga Rocks, Chipoka
Ndumbi Rocks at Likoma
Mangwina anchorage entrance
Mara Rocks, Usisya
Rukuru Pont, Mlowe
Kambwe, replace buoy
Crocodile Rocks, Boadzulu
End of jetty at Chilumba (Leading lights?)

In addition there may be need off the Mozambique coast - Metangula, Cobué, Ngo, Meponda

I don't think Lake Services were ever responsible for the maintenance of lights and buoys. That fell to Marine Services, who may well have used MLS to undertake the work for them. The whole matter is being discussed at the moment as part of discussions into privatisation of Lake Malawi Ports. Solar panels are needed, set inside cages to avoid theft.

I hope this helps you.

Chris Marrow
GM

APPENDIX G

MSC/Circ.653. Simplified Tonnage calculation.

MSC/Circ.653, June 1994

Simplified tonnage calculation for existing ships that do not have their gross tonnage determined in accordance with the 1969 Tonnage Convention.

1 The Maritime Safety Committee, at its Sixty-third session (16 to 25 May 1994), agreed that provisional gross tonnage (GTp) of ships not holding an International Tonnage Certificate (1969) or a preliminary document replacing, for a short period of time, the International Tonnage Certificate (1969) on or after 18 July 1994, may be calculated by a Contracting Government to the 1969 Tonnage Convention according to the following simplified formula:

GTp = VE x a

Where:

VE = L x B x H

L = length according to the International Load Line Certificate (1966), in metres

B = moulded breadth, in metres;

H = height at side from the bottom up to the uppermost complete deck (upper deck), in metres; and

a = f (VE) to be determined by linear interpolation according to the following table:

VE	**a**
up to 400	58
1000	43
5000	35
10000	34
25000	33
50000	32

100000	31
150000	29
200,000 250000 and over	28

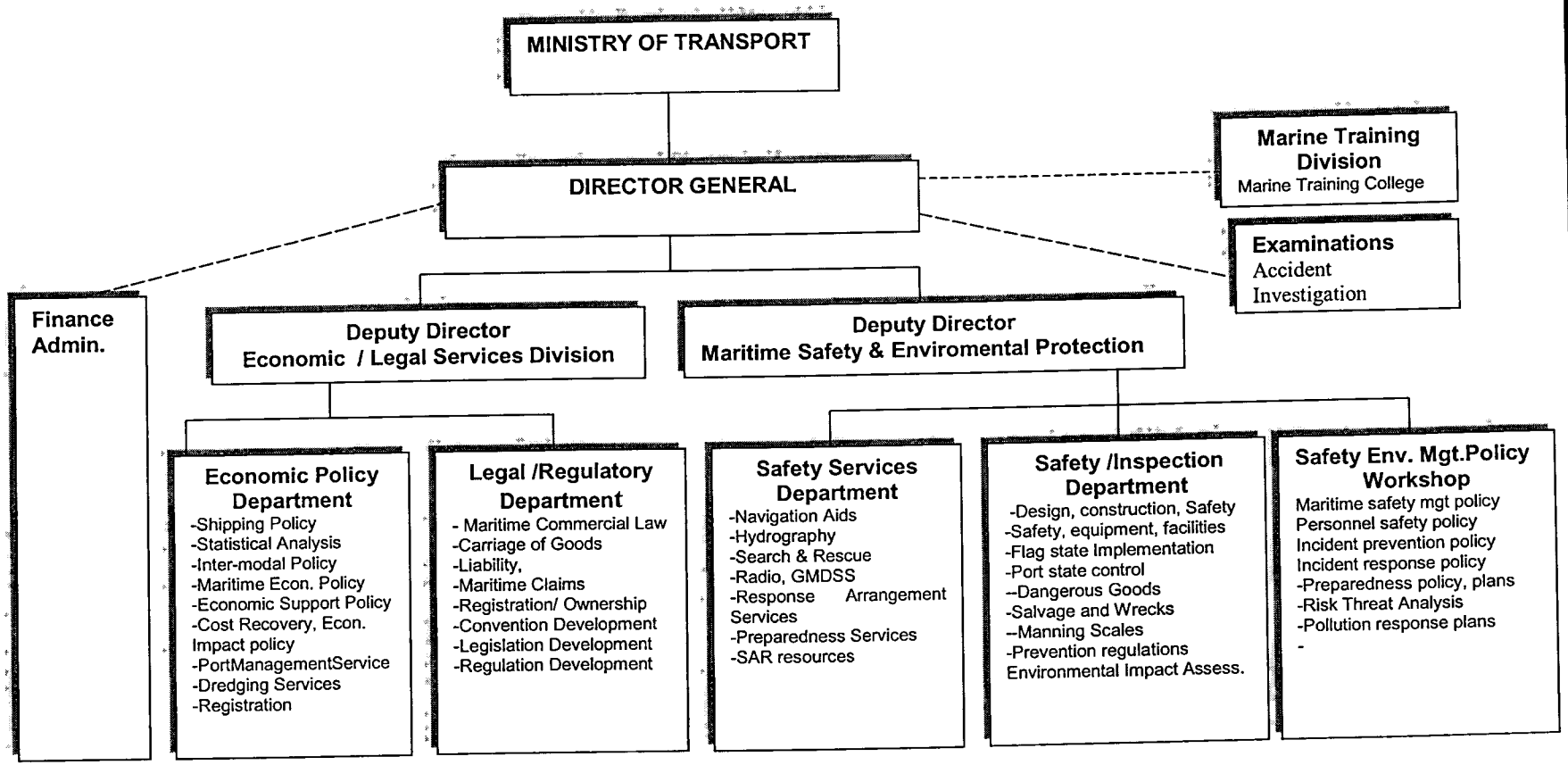
2 If a net tonnage is required additionally, then a provisional net tonnage (NTp) may be taken as:

NTp = 0.6 x GTp

3 The provisional gross tonnage calculated according to the above-simplified formula should only be valid for harbour and other dues. It may be used in lieu of the gross tonnage to be shown in an International Tonnage Certificate (1969) or a preliminary document replacing the International Tonnage Certificate (1969) for a short period of time.

4 As the above-simplified formula shows good results only for normal cargo ships, special types of ships (e.g. car carriers, passenger ships, etc.) that have large superstructures/erections should be considered individually at the discretion of the Administration.

APPENDIX I



Appendix I. Recommended Organization Chart For Marine Administration

Source: Adapted from:
Malawi Marine Department.

Liljedahl, J. (2001). *Danish Maritime Authority*
Jönsson, J. (2001). *Swedish Maritime Authority*
Xin, G. (2001).*Chinese Maritime Administration* :
Hodgson, F.R. (2001): *Ideal Maritime Administration.* Lecture Notes to MA/MSEP Class

List of Malawi Lake Service Vessels.
Source: Malawi Lake Services,2001

LIST OF MALAWI RAILWAYS VESSELS

No.		Length		Breadth	Depth	Draft	carrying capacity			Passenger			Clew	Speed	Power		Fuel	Frsy	yew	Yard
		LBP	over All				tdw	Displ.	Hold Cap.	1 .	II	10		knots	main	eux.			built	
		(m)	(m)	(m)	(m)	(m)	is metric	is	cbm						kW	kW	cbm	ebm		
1	Mtendere	48	60.7	9.3		2.4	45	324	90	0	120	300	44	12	2 x 380	2 x 220	60	24	4 p 1	~ 5 C~ ~ r.l p p ~2 G
2	Ilele	48.8	52.4	9.3	3.35	2.24	183	630	218	1t	28	320	42	12	2 x 420				1961	`(/-)P~p~.l 4~~5 4 ~-!
3	Cf>auncy Maples		38.4	6.1		2	20	250	76		40	142	34		240				1899101	ABey+Mc LeHanIGlocgow
4																				
6	Nkhwezi	32	34.8	8.23	3.1	2.2	200	295	282				27	9	280	2 x 30			1956	YerrowlGlargow
8	KeronQs	41.45	43.1	7.4		2.1	3001oi180)	545	18.6+205.5				12	8	188	20			1976	Krupp ft
7	Ufulu(Tanker)		45.85	8.5	3.5	2.8	o'i(300+30	424					14	'.0.5	2 x 380				1982	Deppsndarier
8	Mpsse flayed up)		32	8.7		2.4	200 ?	225					22	8	eppr.				1935	Hand+WoHlGhspvw
9	Viphys (Tug)		18	8		2.2							10	8	533	2 x 30			1975	Krum
10	DowefTug)																			
11	Mulange (Tug)		15	3		1.2				-			4	7	60				1947	
12	Thyolo (Tug)		15	3		1.2						~	4	7	80				1947	
13	Ncheni (Tug)		15	3		1.2						12	4	7.50	2 X 37				1967	Bewich Shipyard
14	Cargo Barge 201		18.3	4.8		1.8	25												1958	
15	Cargo Barge 300		18	8	1.38	0.9	60		116										1988	
18	Oil Barge OP 1		13.8	3.04	1.4	1.4	24													
17	Viphya,Carpo and		63	12	28	1.66	800		25 TEU										1976	Krupp
	Oil Barge																			
18	Seecsrs,		12.8	5.4		2													1971	Dredge + Merrx LTD
	CutterlDredger																			
19	Rooting Dock	49	44.5	16.6	8.8														194814	H6 _