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WORLD MARITIME UNIVERSITY

Malmö, Sweden

**SETTING STRATEGIES FOR MARITIME
EDUCATION AND TRAINING IN MALAWI
FOR THE MID-1990'S AND BEYOND**

By

Laston George W. Makuzula

Republic of Malawi

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

MASTER OF SCIENCE

in

MARITIME EDUCATION AND TRAINING

(Marine Engineering)

**Year of Graduation
1994**

DECLARATION

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

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

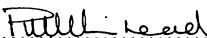
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ABSTRACT

The key to the success of any education and training programme in achieving its goals and objectives will depend upon how well the strategies for such a programme are formulated.

This study examines the current strategy for maritime education and training in Malawi and attempts to identify the areas of weaknesses and then suggest how these could be strengthened. The various elements which constitute an MET institution, like the physical structures, management structure, legal framework, teaching staff, training programmes, etc., are investigated.

The main section attempts to set strategic objectives which may be used as a blue print for future curriculum design and development at the MMTC. A brief SWOT analysis is used as a basis for formulating such strategic objectives.

Chapter 5 proposes curriculum policies which may be used in order to achieve the formulated strategic objectives. Models of curriculum are explored to highlight the need for a professional approach to the often neglected areas when designing and developing courses at MET institutions. The study is concluded by focussing on the need for MMTC to establish a broad based MET programme.

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3. ABBREVIATIONS.

IMO	International Maritime Organisation
MET	Maritime Education and Training
MLW	Malawi
MMTC	Malawi Marine Training College
MRLS	Malawi Railways Lake Service
NTC	Northern Transport Corridor
SWOT	Strength, Weaknesses, Opportunities and Threats
UNDP	United Nations Development Programme

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND TO THE STUDY.

Maritime Education and training in Africa has existed over the years on a very limited scale. Most of the African countries were under colonial powers for long periods of time and consequently did not need local marine officers. The few ships which some countries owned were manned by expatriate officers with local ratings who were trained on the job.

However, since 1960, African countries started gaining independence one after another. Many of them started building their merchant fleets and they soon discovered that they had to establish their own MET institutions to train the necessary manpower for their ships. The majority of these institutions were established on the basis of the old systems of the former colonial powers: Britain, France, Portugal and Germany. During the 1960's and 1970's the systems of maritime education and training underwent important changes in these countries while they remained nearly unchanged in Africa.

The International Maritime Organisation (IMO) has now extended its technical assistance to most African MET institutions. It has provided a number of fellowships to train the local teaching staff, fielded experts to develop the programmes and supplied some important training equipment. Malawi is one of the countries that have benefited from IMO's Technical Assistance Programme. Thus some progress has been achieved regarding the provision of basic infrastructure.

However, certain problems still exist in almost all the MET institutions in Africa and these could be summarized as follows:

- . The need to modernise the programmes of education and training so that they are in line with the provisions of the STCW 1978 Convention.
- . The need to integrate the institutions in the shipping environment which will enable the courses offered to be relevant and the institutions to be accountable and responsive to changes within the environment.
- . The need to reorganise the examinations for the certificates of competency and to establish the legal framework of certification.
- . The need to upgrade and retrain the teaching staff and the examiners.

- . The need to supply the institutions with the relevant and modern training equipment.

In March, 1993, IMO's STW sub-committee began to undertake a comprehensive review of the STCW 1978 Convention at its 24th session. The revision of the Convention will result in a number of steps being taken to improve safety of life at sea and the protection of the marine environment. The scope of the changes are still unknown but it is expected that the changes will have important consequences for MET institutions. The degree of these consequences will depend to a large extent on the efficiency and the quality of the education and training that MET institutions are currently providing.

In line with this review and the problems outlined above which Malawi is also experiencing, it is the purpose of this study to highlight the importance and benefits of strategic planning in maritime education and training and its role in enhancing the contribution of the Malawi Marine Training College (MMTC) in the national economy. In many developing countries, including Malawi, MET institutions are only putting great emphasis on the education and training for the certificates of competency. Their concern is mainly to provide an adequate supply of qualified officers for their national

merchant fleets. This concept has led to most institutions not being integrated into the national educational systems and consequently sea-shore interchange has not been possible.

However, the training of merchant marine officers is usually affected by changes in industry and society. Examples from Britain, Germany and other countries have taught us that proper diversification is required if MET institutions have to be worth their investment. Changes in industry and society have forced some MET institutions to close down and others to continue to struggle against being closed. Properly formulated maritime education and training strategies and policies will not only give life to the institutions but they will also ensure employment mobility of the graduates.

1.2 IMPORTANCE OF THE STUDY.

MET institutions are not to be viewed as merely passive providers of training services which often react as directed. They should have the same impact as any corporate organisation would have in the social-economic development of the country. This concept calls for proper strategic planning for the entire education and training required from entry to the highest qualifications.

Strategic planning involves identifying the mission of the institution, recognising the internal and external forces that impact the institution, analysing those forces to determine the effects they have on the institution's ability to accomplish its mission and developing strategies for dealing with them. The strategies include a framework for improvement and restructuring of programmes, management, participation and evaluation. They also include action plans to carry out those strategies and achieve the institution's mission.

This study looks at the strategies of maritime education and training in Malawi which comprise the provision of education and training at three levels as follows:

- . Basic training: this encompasses the training of all personnel on board vessels of the merchant, fishing and patrol fleets.
- . Training for certificates of competency: which encompasses the training of seafarers right up to the levels of Master and Chief Engineer.
- . Specialised training: this includes the provision of training through short courses or seminars to complement basic training and upgrade skills.

The study has the following objectives:

1. To give a detailed overview on the present system of maritime education and training in Malawi, highlighting its shortcomings and the consequences thereof.
2. To propose a diversified strategy which will incorporate the education and training for all the maritime and maritime related sectors at the Malawi Marine Training College.
3. To develop curriculum guidelines for submission to the Malawi Government authorities (as they are in the process of developing comprehensive training programmes at the Malawi Marine Training College to meet the international standards for training personnel of various categories for Malawian inland waters).

1.3 SCOPE AND METHODOLOGY OF THE STUDY.

The approach to this study has been from a strategic point of view. Several aspects of maritime education and training have been dealt with. However, the study does not specifically prescribe any particular system of maritime education and training, only guidelines regarding various policies are formulated.

In order to give appropriate recommendations, a SWOT analysis of the Malawi Marine Training College (MMTC) has been carried out. The scope of the analysis has been limited to only those facets that have the most direct and significant impact on the MMTC. An assessment of the weaknesses of the sea training programme at the MMTC has also been tackled and suggestions have been made to strengthen this missing link.

The sources of information used in this paper include the materials collected from the Ministry of Transport and Communications, Department of Personnel Management and Training and the interviews that the author had with Malawi Railways Lake Service and Department of Fisheries officials during the Christmas vacation. Observations and discussion notes made during field studies to various MET institutions and other organisations were also a major source of information. Some concepts and materials are based on the various lectures that the author attended during his studies at the World Maritime University.

Having gone through a technical-teacher education and training programme, worked as a teacher and as a maritime college principal, the author has attempted to reflect on these experiences throughout the study. The contents of this paper have also been widely discussed

with colleagues some of whom are officers from shipping companies, MET institutions and maritime administrations, their influence in certain areas is therefore reflected.

CHAPTER 2

2.1 THE IMPORTANCE OF LAKE MALAWI IN THE NATIONAL ECONOMY

Malawi is situated along the southern part of the East African Rift Valley lying between 9 and 17 degrees south of the equator. It stretches about 837 kilometres from north to south, and about 80 kilometres at the narrowest point and up to 160 kilometres at the widest across east to west. It has a total area of 119,140 square kilometres of which 20 per cent is water.

Malawi is a land-locked country and is bordered by Zambia to the west, Tanzania to the north and north-east and Mozambique to the south and east. It has a high population density with a total population of 7,982,607 (1987 census) and growing at 3.2 per cent a year. However, the population is unevenly distributed. The southern region, where most of the industry is located, is the most highly populated, followed by the central region and then the northern region.

The country is blessed with abundant water resources. The following water masses have been declared as inland waters under section 23 of the Inland Waters Shipping Act: Lake Malawi, Lake Chirwa, Lake Malombe, the upper Shire and the lower Shire river. Lakes Chiuta and

Kazuni are not designated inland waters. Except for the upper Shire and lake Malawi, there is no navigation on the other inland waters save for fishing and fisheries' purposes.

Lake Malawi is unique in that it runs almost practically the entire length of the country (see Fig.2.2). It is the third largest lake in Africa, and the eleventh largest in the world. It has a length of 568 kilometres and varies in width from 30 kilometres at the narrowest point to 75 kilometres at its widest. The deepest point in the lake is about 800 metres from the surface to the bottom. It is a fresh water lake and non-tidal.

It has been contended by many experts that owing to its size and the rough conditions during some months of the year, lake Malawi can appropriately be described as an inland sea. The conditions on the lake during some months can be as bad as those of any sea with up to gale force 8 to 9 winds. It is on this basis that Ademuni-Odeke (1988, 21) argues, " Therefore the requirements as to safety, training and navigation that applies to sea and ocean going conditions can justifiably be applied to the lake."

Fig.2.1 shows Malawi's main international trade routes to the Indian Ocean. However, following the closure of the Beira and Nacala routes because of the Mozambiquean war, the World Bank carried out a survey which led to the formulation of the Northern Corridor Project in 1985. This provides a multi-modal route from Malawi to the port of Dar-es Salaam in Tanzania and Lake Malawi forms one leg of the multi-modal route.

The Northern Corridor Project offers an opportunity for Malawi to improve both its internal and external transport system. The Project has assisted in the improvement of the port of Dar-es-Salaam, the establishment of dry port facilities at Mbeya for handling of Malawian goods from rail to road transport, and the upgrading of the road from Mbeya to Karonga within Malawi and on to the Northern lake-head port of Chilumba.

Although the current level of Malawi's export/import traffic on the corridor is small, substantial traffic growth is anticipated as the project is fully implemented. Table 2.1 below shows the World Banks commodity breakdown of future Northern Corridor traffic.

**Table 2.1: Forecast of the Northern
Transport Corridor Traffic.**
('000 Tonnes).

Exports	1990	1995	2000
Tobacco	30	33	36
Tea	15	20	25
Others	66	72	80
Subtotal	111	125	141
Imports			
Fuel	43	55	70
Fertilizer	57	74	95
Others	44	47	50
Subtotal	144	176	215
Total NTC Traffic	255	301	356

Source: World Bank Report; January, 1988.

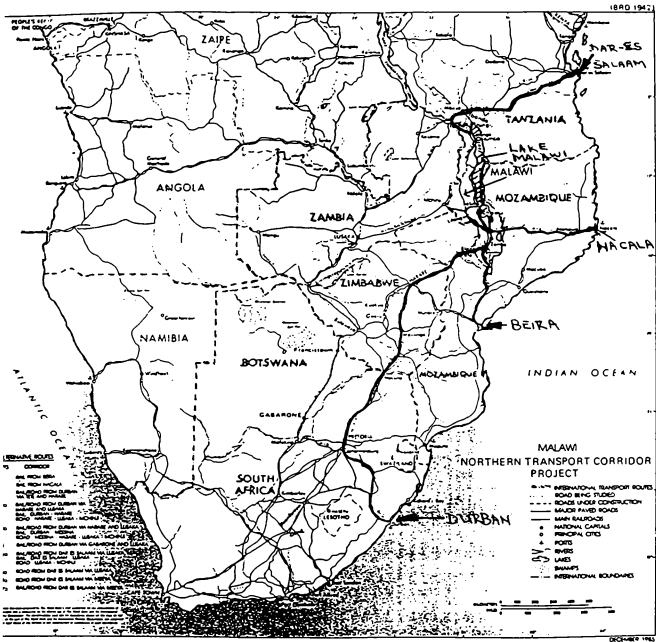


Fig. 2.1: Map of Central and Southern Africa showing the location of Malawi and her traditional routes to the sea (Beira, Nacala, Durban and Dar-Es-Salaam

Source: World Bank Report, 1988

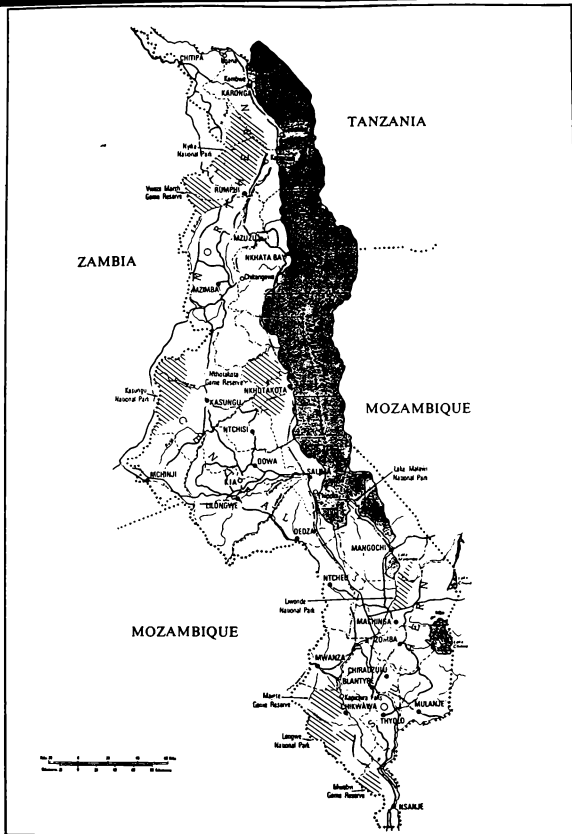


Fig.2.2: Map of Malawi

Source: Department of Economic Planning and
Development

The fishing industry forms an important economic factor to the development of Malawi. Commercial fishing started as early as 1935 when purse seining was introduced on Lake Malawi, but it was not until 1968 when trawling was introduced that commercial exploitation became a significant industry. Today, the Fisheries Department (DEVFOL., 1987- 96, p.43) states that:

There are an estimated 20,000 full-time artisan fishermen who produce about 85% of total fish landings, and a further 1,000 employed in the commercial sector who extract the balance of 15% of the total catch. A further 200,000 people work ashore in fish trading, boat building, net making, and other support industries.

The population on the east coast of the Lake depends entirely on lake transport for access to markets. Efficient ferry services are thus an essential social requirement. In general, the demand for passenger space on ferry services usually exceeds supply, resulting in overcrowding with people and market goods. This demand will continue as the rural population grows. However, safe operations will only be achieved by a planned fleet growth, and well trained personnel to man and maintain the vessels.

Fig. 2.3 below shows the trends of the passenger traffic and the domestic freight on Lake Malawi. Lake passenger and cargo services compete with rail and road transportation. However, if they can offer reliable and efficient services they will attract trade both in the passenger and cargo (domestic and import/export) markets.

2.2 THE MALAWIAN FLEET.

Since 1935, the Malawi Railways Lake Service has operated as a branch of the Malawi Railways Limited, which until the time of writing this dissertation, has been a government owned statutory body under the Department of Statutory Bodies in the Office of the President and Cabinet. Plans are now at an advanced stage to have Malawi Railways sold to a private enterprise

The Malawi Railways Lake Service provides a key transportation system linking the remote northern and central regions of the country which are now being intensively developed and the southern region where the main population and access to international markets are concentrated. It operates through the entire length of the lake, from the northern town of Kaporo to Monkey Bay in the south. Occasionally, using smaller shallow draft vessels, it also operates further south through lake Malombe and the Shire river to Liwonde.

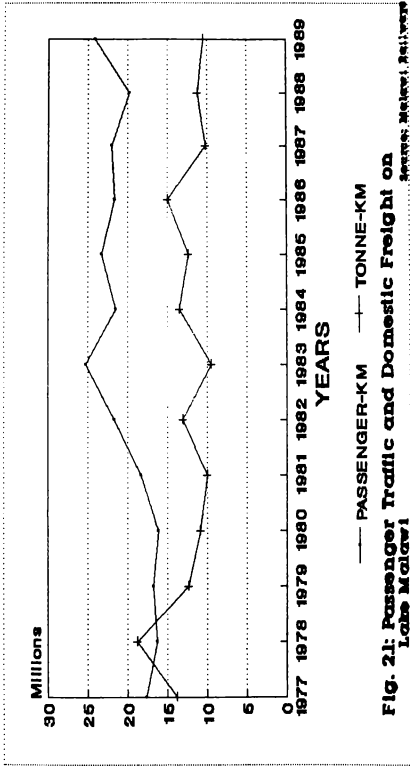


Fig. 21: Passenger Traffic and Domestic Freight on Lobe Malawi
 Source: Malawi Railway

To date, the Lake Service operates 3 passenger vessels, 5 cargo ships (including one 424 tonnes petroleum tanker), 5 tugs and 6 cargo barges and pontoons. The Lake Service also operates one 203 cubic metre cutter suction dredger.

In addition to the vessels owned by the Lake Service, there are a number of other vessels and crafts operated on the lake by various organisations and individuals. There are over 50 launches of various types and sizes, and about 20 fishing trawlers of above 10 GRT. All these vessels are required to be manned by qualified and certificated deck and engineering personnel in accordance with the Malawi Inland Waters Shipping Act. There are about another 10 vessels in this category used by the Army and Marine Police for border patrols, surveillance and law enforcement which require qualified and certificated officers, but do not come under the Malawi Inland Waters Shipping Act.

There are also about 4,000 open boats of both the manual and mechanically propelled type of 5 tonnes and under which are registered by the Chief Surveyor of Vessels. Most of these are engaged in fishing and a few for transportation of passengers. Some of these, in accordance with the Merchant Shipping Act, also require a certificated master.

2.3. JUSTIFICATION FOR A LOCAL TRAINING PROGRAMME.

The government of Malawi, recognizing the need for training malawians in maritime skills, introduced a maritime training scheme in 1965. The scheme was basically an overseas training programme. A number of malawians were sent overseas mainly to the United Kingdom to be trained as navigation and marine engineering officers. The scheme however, did not prove to be successful. Most of the candidates who were sent abroad did not return to Malawi after completing their studies. The few who returned opted for employment with other organisations other than Malawi Railways which had sponsored them.

In a further attempt to promote localisation of the posts held by expatriates in the Lake Service, the government of Malawi requested UNDP/IMO for assistance. An all-fellowship project (MLW 75/014) was approved in 1977 to support the training of malawian deck and marine engineering officers. Unfortunately, suitable candidates, especially for the marine engineering field, were difficult to find at the time and therefore the anticipated results could not be achieved.

The budget for the all-fellowship project was subsequently revised downwards and the whole scheme of training overseas was reviewed in favour of a training programme mounted locally. This was to ensure that future trainees remained in Malawi and stayed in the employment of their sponsoring organisations.

The justification of a local training programme was that the government would be able to train students for specially tailored programmes to meet the needs of the country as a whole. Such local training courses when in full operation could provide opportunities for in-service training, re-training, workshops and seminars on a continuing basis.

These considerations led to the approval of the UNDP Preparatory Assistance Project (MLW/80/008) with the fielding of one IMO consultant to formulate a project document for the substantive activities. However, due to the financial constraints experienced at the beginning of the Third Country Programming Cycle, UNDP funding was withdrawn in 1982, and the project was suspended. By that time the Malawi government had already invested a substantial amount of money in the provision of some infrastructure such as classrooms, library, boarding and lodging facilities.

In 1986 an IMO technical mission visited Malawi and its findings were that the buildings and furnishings were adequate to commence training. However, the centre lacked essential training equipment. The mission emphasised on the need for a Director/Principal for better management of the centre, full-time teaching staff and the development of a suitable curriculum which would meet the training needs of the Lake Service.

Several reports and project documents have been presented on the development of maritime education and training since 1981. The reports have all formed a useful basis for planning the training of malawian seafarers and the establishment of the Malawi Marine Training College at Monkey Bay. However, almost all the studies in this sector have concentrated on the education and training of cadets. The training of ratings, the upgrading of officers already in service and the training of personnel engaged in other maritime sectors, like the police, have never been considered seriously. It is the author's opinion that real safety on the lake and the efficient operation of the malawian ships can only be achieved if all lake users, irrespective of their ranks and interests, are properly educated and trained for their various responsibilities.

CHAPTER 3

THE CURRENT STRATEGY FOR MARITIME EDUCATION AND TRAINING IN MALAWI.

Higher standards are not only the result of an extended and better training and the use of advanced training equipment but also of higher entrance requirements for maritime studies.

Gunther Zade (1989, 13).

3.1 THE MALAWI MARINE TRAINING COLLEGE (MMTC).

It is often wondered by many people as to why a small land-locked country like Malawi should bother to invest in a meaningful maritime education and training. The justification for a local training programme has already been given in chapter two. However, it should be mentioned here that history has taught us that world-wide measures to increase safety were often stimulated by accidents which occurred as a result of existing deficiencies.

An ice patrol service was introduced after the "Titanic" struck an iceberg and sunk. The plimsoll mark

and freeboard requirements came into being after ships were lost because of being overloaded. Additional safety measures were introduced after the "Amoco Cardiz" accident off the coast of Brittany and lately the capsizing of the "Herald of Free Enterprise" and the "Estonia". Such "unsafe first" stimuli for the promotion of maritime safety is still the order of the day.

In response to the increase in volume of traffic, the Nyasaland Railways (now Malawi Railways) in 1942 ordered a second diesel ship for their lake service; the Mv Vipya. This ship was built by Harland and Wolfe in the United Kingdom and shipped out in 1943 for assembly and launching at Monkey Bay the following year. War time conditions delayed her completion and she was not ready for the first of her weekly scheduled voyages around the lake until 28th June, 1946. During her fourth voyage she apparently encountered a fierce squall at Chitimba and capsized then sank within a few minutes. Out of the 194 passengers and crew on board, 145 were lost including the captain and the chief officer. What really happened on 30th July, 1946, is, like so many maritime disasters, likely to remain something of a mystery. One of the purposes of setting up the MMTTC at Monkey Bay is therefore, to bring to light ways and means of ensuring such disasters are avoided on the Malawian waters.

The MMTC was established by the Ministry of Transport and Communications in conjunction with Malawi Railways in 1981. However, due to reasons already explained in chapter two, organised training did not start until 1990 when the first group of 12 cadets were recruited. The college is situated near the Malawi Railways Lake Service Headquarters at Monkey Bay. It is still under construction and the present structures comprise of three main buildings. The first building consists of the administration offices, a library, ablution rooms and two class rooms. The second block consists of hostel accommodation for 12/24 students and the third block consists of students' common room/dinning room, kitchen, freezer plant, stores and students' wash rooms.

In 1990, the Malawi Government embarked on a long-term construction programme which was divided into three phases:

- (a) Phase one: Rehabilitation of all the old buildings.
- (b) Phase two: Construction of staff quarters.
- (c) Phase three: Construction of engineering workshops and laboratories, new library, six more class rooms and two staff rooms, seamanship centre, storage facilities and

a hostel block to accommodate 36 students.

At present, phases one and two are completed and phase three is still at the design stage.

The MMTC's mission statement is to strengthen the capability of lake transport services for the effective participation in particular in the Northern Corridor Project and domestic traffic. The strategic objectives are to have:

- (a) A fully functional marine training college with specially designed course programmes, management systems and operational procedures.
- (b) A comprehensive staff development programme for fully qualified Malawian counterpart staff to fill established posts at the college.
- (c) Comprehensive training programmes with curricula and syllabi developed, revised and/or updated in line with international standards e.g. STCW 78.
- (d) An appropriate constitution and legal status of the college approved and implemented by government.
- (e) Linkages with other maritime institutions in the sub-region and overseas to foster cooperation in maintaining high standards of curricula, courses and activities.

3.2 ADMISSIONS AND TRAINING POLICY.

The current policy regarding admissions to the MMTC is that students should:-

- (a) Be sponsored as cadets by the Malawi Railways.
- (b) Be young men or women holding either diplomas in mechanical engineering gained at the Malawi Polytechnic for the marine engineering cadets or at least a pass at "A" levels in mathematics and physical science for the deck cadets.
- (c) Have the aim and intention to become competent and qualified marine engineering or deck officers on vessels of the Malawi Railways Lake Service.

Whilst the dangers of generalisation are acknowledged by the author, it may be pointed out here that this policy has tended to be polarised Towards the following extremes:-

- (a) Older entrants with higher academic qualifications and expectations are recruited. This has already started to come under strain both at the training level as well as after the cadets qualify.
- (b) The lack of provision for the training of lower cadres will and has already resulted in having well qualified officers serving with ratings who

do not even know how to read a pressure gauge,
for instance.

It is, among other things, for these reasons that the author feels systematic and comprehensive policies need to be developed and put in place whilst the college is still in its development stage. These policies will not only give the college a strong foundation but will also ensure sustainable development. Before discussing proposals regarding this area in chapter five of this dissertation, it is appropriate to note that both Erzan-Essien's (1987) and Leonard-Williams' (1990) Manpower Assessment studies confirmed that a large demand exists for the training of ratings (for both the merchant and the commercial fishing fleets). The studies also revealed that a bulk of the officers and ratings presently sailing have had no training in survival, safety and fire-fighting in accordance with IMO's STCW 78.

3.3. THE TRAINING PROGRAMME.

The basic training programme at the MMTC spans three years and consists of the following sections:-

3.3.1 First Year.

Education and training on campus and/or nearby facilities at Monkey Bay. The specific curriculum for the Marine Engineering cadets during this period comprises of the following subjects:-

- (i) Basic Marine Engineering Practice
- (ii) Basic Instrumentation and Control
- (iii) Introduction to Naval Architecture and Ship Construction
- (iv) Marine Engineering Practice (practicals)
- (v) Electrical and Electronic Practice.
- (vi) Marine Safety Knowledge and Practice
- (vii) Basic Seamanship
- (vi) Workshop Practice

The aim of this first year work is to adequately prepare the cadet for his/her one year industrial like phase service. The emphasis is on safe working practices, basic ship knowledge and theory of operations. At the conclusion of the first year work, an internal college written examination is held in order to assess the cadets' understanding on the work carried out for the whole year.

3.3.2 Second Year.

The second year constitutes Industrial/Sea Training Phase for the basic watchkeeper's course. The primary

objective of this phase is to give the cadets practical experience of the work and environment on board the ship and to infuse in them the professional approach that is associated with the life and work of either a marine engineer officer or a marine deck officer.

The process necessary to achieve this objective involves training the cadets to develop into responsible, efficient and disciplined members of either the engine room or deck staff. The duties and tasks expected to be performed by the cadets are mainly of practical nature whereby each cadet performs certain essential tasks and duties following a course of guided study.

In general, the Sea Training Phase is mainly in the hands of the Malawi Railways Lake Service. However, the MMTTC takes the responsibility of overseeing the progress of the cadets while "at sea" on the lake, by offering guidance and instruction in the form of the above mentioned course of guided study programme.

Notwithstanding, the sea training programme has recently suffered serious set-backs. In 1993, the period which the cadets were supposed to spend on vessels of the Lake Service fleet was in fact mainly spent in the Lake Service shipyard. John Seaman (Jan; 1994, 63) confirmed in his Project Performance Evaluation Report that "each

cadet spent on average only 15 weeks of the actual time they were assigned to the various vessels which were supposed to be operational on the lake." The causes of this were that many of the vessels of the Lake Service were broken down and laying in Monkey Bay awaiting spare parts and/or the apparent inability of the Lake Service management to obtain cargoes to carry.

3.3.3 Third Year.

This involves the cadets' return to the college at Monkey Bay to undergo a further year of theoretical and practical instruction. The aim of this Phase is to build upon previous knowledge and experience acquired in the first and second years and to ensure that each cadet has an adequate knowledge of the operation and maintenance of main and auxiliary machinery appropriate for an engineer officer in charge of a watch (for the engineering cadets).

It has generally been agreed that after the cadets acquire work experience in the position of responsible watchkeeping officers for a period of not less than 18 months, they would be eligible to undertake courses of study leading to the examination and award of either a Chief Engineer's or a Master's Certificate of Competency. Figures 3.1 and 3.2 show the present structures of

6 Months Full Time Course of Study Leading to Examination for MALAWI CHIEF ENGINEER'S Certificate of Competency

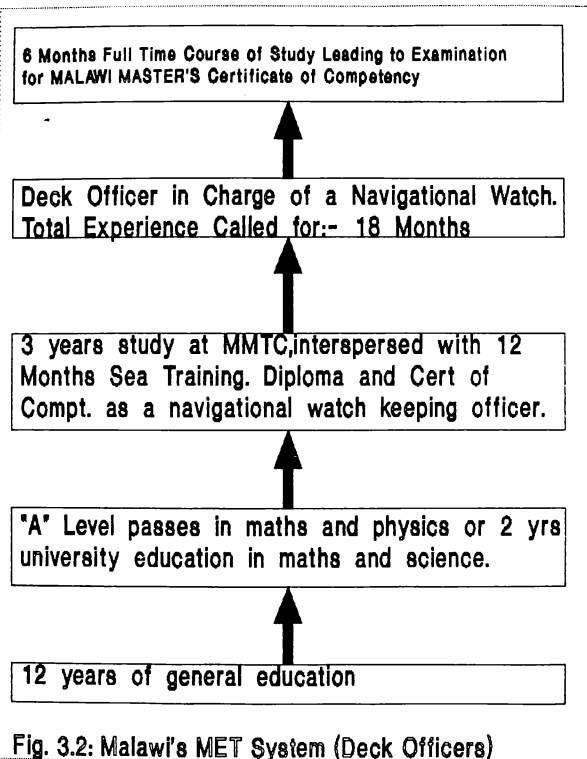
Marine Engineering Officer in Charge of Engine Room Watch. Total Experience Called for:- 18 Months

3 years study at MMTC, interspersed with 12 months' sea service. Marine Engineering Diploma and a Govt. Cert. of Competency as an engineering watch keeper

3 years study at the Malawi Polytechnic: Diploma in Mechanical Engineering.

12 years of general education (8 primary and 4 secondary)

**Fig.3.1: Malawi's MET System (Engineering Officers
Source: MMTC's Working Paper**



education and training of marine engineering and deck officers at the MMTC. As the Figures show, it takes a minimum of five years for students to qualify from entry to the highest sailing qualification. However, it can also be seen that the marine engineering students spend three years at the Malawi Polytechnic for their Diplomas before they are enrolled at the MMTC.

3.4 ASSESSMENT AND CERTIFICATION.

The MMTC is a monotechnic institution; training cadets for certificates of competency. Under the revised Malawi Inland Waters Shipping Act, the examination system adopted is the joint Institution/Government type of examination system. The Act empowers the minister of Transport and Communications to issue the following certificates of competency:-

- (a) Masters Certificate
- (b) Mates Certificate
- (c) Junior Deck Officer Certificate
- (d) Chief Engineer Certificate
- (e) Second Engineer Certificate
- (f) Junior Engineer Certificate
- (g) Launchmaster Certificate
- (h) Engine Attendant Certificate

However, it may be mentioned here that at present there is practically no established system for the conduct of examination and certification of seafarers as applicable to lake vessels and required by the Shipping Act. Temporary arrangements are in place whereby certificate of competency examinations are held at the MMTC and are given by the two IMO internationally recruited training experts. These experts were recruited to design and develop curricula for the MMTC under a Project which is expiring in December, 1994.

The examinations at the end of the third and final year of the watchkeeper's course at the MMTC are usually combined into examinations for the award of:

- (a) Either a Marine Engineering Diploma (for the engineering cadets) or a Diploma in Nautical studies (for the deck cadets) AND
- (b) Either a Malawi Second Engineer's Certificate of Competency or a Malawi Mate's Certificate of Competency respectively.

This takes into account of the relatively high entry qualifications of the cadets.

3.5 MANAGEMENT STRUCTURE.

The management of Maritime Education and Training institutions in many developing countries continues to be a three-party game involving the government, industry and the institutions themselves. However, in a growing number of developed countries many players like the trade unions, professional bodies (e.g. Research and development) e.t.c. often find themselves actively involved in the MET management structures.

In Malawi, the MET management structure is essentially a three-party game. The government through its maritime administration plays a very important role. It is responsible for almost all the corporate activities like funding, recruitment of staff, construction of buildings e.t.c. This means therefore that the government has a great influence on all management decisions. The maritime administration also ensures that the training standards at the MMTC are in line with both the national and international standards.

As illustrated in fig.3.3, equally important in the MMTC's management structure is the Board of Governors which was established under the Education (Marine Training College Board of Governors) Order, 1993. The Board consists of:

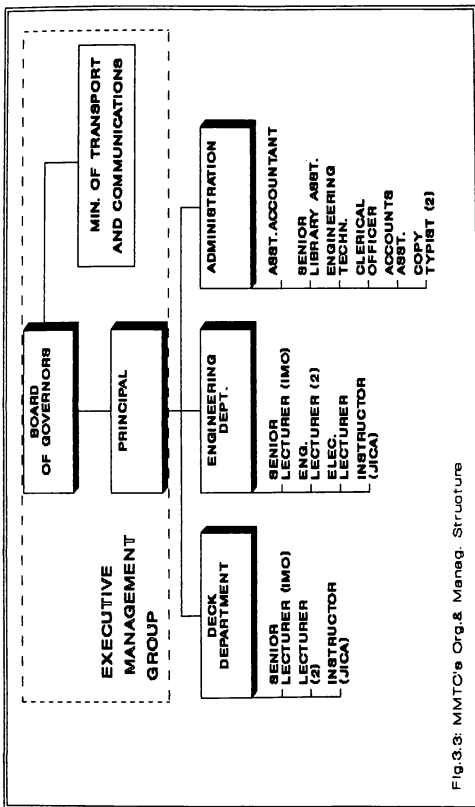


Fig.3.3: MMTC's Org. & Manag. Structure

- (a) Two members appointed by the Minister of Transport and Communications, one of whom is designated as Chairman of the Board and the other as Deputy Chairman;
- (b) The General Manager of Malawi Railways Limited;
- (c) The General Manager of MALDECO Fisheries Limited;
- (d) A representative from the University of Malawi;
- (e) Ex officio members from various government ministries and department.

The functions of the Board are basically of supervisory, regulatory and control in nature. The above mentioned Education Order empowers the Board to:-

- (a) Supervise the management and administration of the College;
- (b) Regulate the admission of students to the College.
- (c) Determine the range, duration and content of the courses conducted at the College. This is done in consultation with the government ministries and departments and other institutions directly concerned with the courses conducted at the College;
- (d) Determine, with the approval of the minister, the levels of the academic awards and make the academic awards.

The Board is also empowered to control the finances of the College and receive all grants out of public funds and "all donations made whether by gift, devise or bequest, absolute or in trust, to or for the benefit of the College." (Government Gazette, 1993, 204). The Board meets in ordinary sessions four times a year.

The day-to-day administration and management of the College are in the hands of the Principal. He is also responsible for the control of the day-to-day expenditure and therefore he is required to present an account of such expenditure to the Board.

From the above, it can be seen that policy formulation, change or review is not a one-party activity. Various parties are involved and as much as the system offers enough safety nets, it can also be said that clear lines of responsibility need to be established. Each party needs to know the degree of its involvement on specific issues. This will not only improve the efficiency of the system, but it will also make it cost-effective. Take curriculum design and development, for example. One may ask a question as to how much involvement should each one of the parties mentioned above should have? A seemingly straight forward question it is. However, the reader would be surprised to learn that even the author himself who plays

an equally important role in the example in question does not know the answer.

3.6 RECRUITMENT OF TEACHING STAFF.

Gunther Zade (1986, 3) defines a maritime lecturer as "a full-time lecturer in a governmental or government-supervised maritime training institution who is qualified and entitled to teach students for the highest certificates of competency that can be obtained by studies." He further qualifies the statement, "...qualified and entitled to teach" as referring to professional subjects such as engine operation, navigation, seamanship and other subjects which have a direct relevance to shipboard work. He draws a distinct line between the teaching of professional subjects and that of academic subjects such as mathematics, physics, etc, which can be taught by lecturers without shipboard experience and certificates of competency.

It seems logical therefore, to say that most maritime lecturers who teach professional subjects to ship officer students are former ship officers themselves. However, most maritime training institutions in developing countries are government controlled and therefore the salary scales for their staff are relatively low. This often creates problems in recruiting properly qualified teaching staff. Properly qualified ship officers who feel

attracted by the idea to become maritime lecturers may not be willing to accept a serious reduction in their income and living standards.

As stated earlier, one of the strategic objectives of the MMTC is to have a comprehensive staff development programme for fully qualified Malawian counterpart staff to fill established posts at the College. In line with this objective, the Malawi Government sent five fellowship students in 1989 to the United Kingdom to be trained as maritime lecturers/instructors.

After qualifying for their academic studies; BSc (Honours) in either Nautical Studies or Marine Technology, it was considered that they all needed real practical sea going experience to develop them into "fully qualified Malawian counterpart staff" as stated in the objective above. They were placed on various foreign-going ships where they completed one year of practical sea service. It was then felt that the academic knowledge the lecturers gained during their degree programmes coupled with the practical sea going experience provided them with enough confidence to take up classes of marine cadets.

Notwithstanding, it should be realised that shipping is a dynamic industry. Public awareness for safety of

shipping and marine environment protection are gaining momentum every day. Ships are becoming bigger and more sophisticated, communication equipment on ships and cargo operations on board as well as in ports are further adding to the complexity of the operational and legal framework of today's shipping.

It is interesting to note that such developments have been reflected in the education and training offered in many maritime institutions, especially in the developed countries like Japan, Norway, United States of America, Australia, France, The Netherlands, etc. Under such circumstances, maritime lecturers have to accept the need for continuous updating of their knowledge and skills.

It goes without saying that the quality of a maritime institution and its contribution to industry, the administration and the national economy as a whole are directly related to the level of professional and vocational knowledge of its teaching staff. A comprehensive staff development policy which incorporates continuous updating of the teaching staff will not only enhance the quality of the courses offered but will also motivate the teaching staff. MMTC is a very small and young maritime institution and inevitably its academic staff development policy suffers from several serious short falls. The author is well aware that the

formulation and implementation of staff development policies for maritime training institutions is a complex issue. However, an attempt has been made in chapter five of this dissertation to formulate proposals for an academic staff development policy for the MMTC in order to achieve sustainable growth.

CHAPTER 4

LEGAL INSTRUMENTS

There are three main instruments governing the training and certification of Malawian seafarers. These are as follows:-

- . The Malawi Inland Waters Shipping Act, 1973 and its revision of 1985.
- . The IMO convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978.
- . The Malawi Education (Marine Training College Board of Governors) Order, 1993.

These three main instruments contain legal requirements and guide-lines on the training and certification of Malawian ships officers and crews.

A triangle inside a triangle has been chosen to describe the relationships between the essential elements in the entire legal framework of the MMTC. Fig. 4.1 shows the essential elements being represented by the three faces of the inside triangle which is the core of these elements. The composition of each of the elements

and their influence on the MMTC are described in detail as follows:

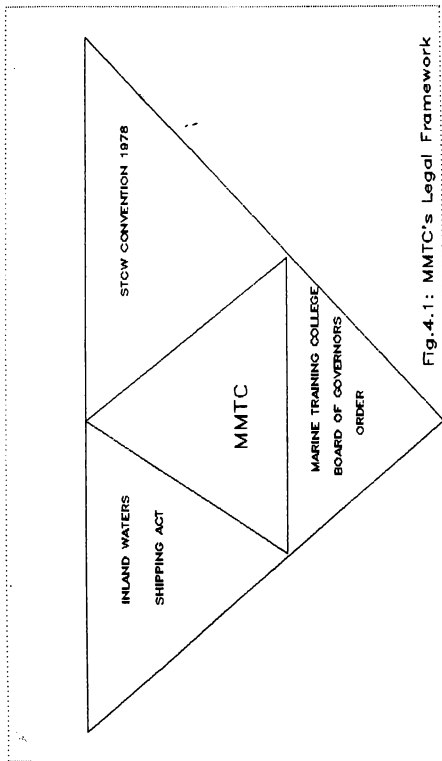


Fig.4.1: MMTC's Legal Framework

4.1 THE MALAWI INLAND WATERS SHIPPING ACT.

The Malawi Inland Waters Shipping Act was patterned upon the inland water provisions of the British Merchant Shipping Act, 1894 as amended from time to time. It was introduced into Nyasaland (now Malawi) in 1901 and since that time it has been amended and revised about nine times as follows:-

- . Shipping Ordinance (Chapter 105 Revised Edition), 1933.
- . Shipping Ordinance, 1951.
- . Nyasaland and Protectorate Maritime Order, 1952.
- . Water Transport Ordinance, 1957 (Chapter 142).
- . Nyasaland Inland Waters Shipping Act, 1960.
- . Inland Waters Shipping Ordinance, 1963.
- . Malawi Inland Waters Shipping Act, 1973.
- . Malawi Inland Waters Shipping Act (Law Revision Order), 1985.
- . Malawi Inland Waters Shipping Act (Revised Edition), 1994 (Not yet finalised).

In discussing the status of shipping in developing countries, Moat and Hodge (1985, 2) observe that " Over the past three decades the situation has been changing; many developing countries have become ship owning and ship operating states." Whilst the author totally concurs with this observation, it is worth mentioning here that

the implications of this rather positive development are many and varied. However, one thing is true that many newly independent states continue to be legislatively ill-equipped and Malawi is not an exception.

As an adopted piece of legislation, the Ordinance (now the Malawi Inland Waters Shipping Act) was never suitable for either the local conditions on the lake or the Malawian needs. It has to be remembered that the inland water provisions of the British Merchant Shipping Act 1894, upon which the Ordinance was patterned, were applicable to the now abandoned United Kingdom canals. Even if that were not the case, a lot of developments have taken place; technologically and otherwise in Malawi as well as internationally. With the introduction of the Northern Transport Corridor Project which will result into relatively heavy traffic and the introduction of high technology ships on the lake, the 1973 Act and its 1985 revised edition were clearly seen to be inadequate.

In justifying the need for a complete review of the said Act, Ademuni-Odeke (1988, 29), among other things, argues that:

In addition to the said Maritime Safety Administration Consultant's Report it becomes apparent that the syllabuses are rather out

of date; they are incomplete in that there are no provisions for Malawi Master's Certificate Class 1 and Malawi Engineer's Certificate Class 1; and there are no corresponding provisions for Master's and Engineer's qualifications in the fourth schedule. There are no apparent reasons why the above omissions were over looked.

Ademuni-Odeke's consultative mission on Maritime Legislation in Malawi was unique in its findings. In his final report submitted to the Malawi Government in December, 1988, he among other things recommends that:

For the reasons given herein and in the Activities and Findings above and in view of the anticipated volume and nature of activities on the lakes it is recommended that a new Inland Waters Shipping Act be drawn up to reflect the extensive reviews and amendments necessary.

It was upon this recommendation that the 1994 Act was drawn up. The Act (Masters and Crews) Regulations cite the following:-

. Certain vessels to be under command of competent masters.

- . Masters and crews to hold appropriate certificates.
- . Conduct for the examinations for certificates of competency.
- . Issuing of certificates of competency by the Minister of Transport and Communications.

The syllabuses for the certificates of competency examinations are provided in the fifth schedule of the Inland Waters Shipping (Masters and Crews) Regulations made under Section 37 of the Act, and the qualifications are found in the fourth schedule to the same Regulations.

The Act has vested all the examination for certificates of competency responsibilities in the hands of the Malawian Maritime Administration. However, the examinations for any other certificates besides those for certificates of competency as Master, Mate, Junior Deck Officer, Launchmaster, Chief Engineer, Second Engineer, Junior Engineer and Engine Attendant can be administered by the MMTC.

4.2 THE INTERNATIONAL CONVENTION ON STANDARDS OF
TRAINING, CERTIFICATION AND WATCHKEEPING FOR
SEAFARERS (STCW), 1978.

Shipping is an international industry which is highly capital intensive, regardless of whether it is ocean trading, coastal, or inland water trading. An average cargo or passenger vessel for inland water trading may cost a few million dollars and the cost of cargo she carries can make each voyage a multi-million dollar venture. This therefore calls for the highest levels of education and training for the personnel involved.

In order to develop efficient shipping services in Malawi, the author believes that the government has a major role to play. It has to have a leading role in:

- . The development of an efficient and well trained seagoing personnel,
- . An effective shore-based administrative, managerial and technical personnel,
- . An effective ship management system,
- . Establish appropriate legislation and national regulations that conform to international standards.

It should be remembered that at the time of the adoption of the STCW Convention in 1978, most of the established maritime countries which adopted it could be classed as "developed countries". These countries possessed well established maritime infrastructures including excellent maritime education and training facilities, examination and certification systems and in order to meet the convention requirements, there were only minor adjustments to be made.

However, most of the developing countries had little or no formal maritime infrastructure, and therefore the ratification of the STCW Convention and probably others as well presented them with serious problems. These problems were varied but the central issue being the lack of national maritime legislation through which the following essential education and training elements could effectively be implemented:

- . A system for the examination and certification of seafarers,
- . Crew matters (i e, matters affecting marine personnel) in general,
- . A means of control and monitoring of the levels of education, training and experience required of seafarers as a condition of entry to the examinations for certificates of competency.

Malawi is a party to three international maritime conventions: the International Convention for the Safety of Life at Sea (SOLAS) 1974, the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) 1978, and the Athens Convention relating to the Carriage of Passengers and their Luggage by Sea (PAL), 1974. To say that Malawi's ratification in 1991 of the STCW Convention represented an important milestone in her MET history would not be far fetched. The main aim of this convention is to ensure that merchant ships will operate safely and efficiently with maximum protection of the environment against pollution. It is also directed at helping the less experienced maritime nations to develop their seafarers' education, training and certification that will satisfy acceptable minimum standards.

The convention specifies mandatory minimum requirements relating to theoretical and practical knowledge, understanding and experience contributing to seafarers' competency. The training programmes at MMTC are being formulated in accordance with the STCW requirements. However, as the primary objective of MMTC's programmes is to provide properly qualified personnel for manning vessels on Malawian inland waters, certain aspects of deep sea training are excluded.

Owing to the tremendous developments that have been witnessed in the shipping industry, IMO initiated efforts to review the STCW 1978 Convention. The STW Sub-committee started work on the comprehensive review of the convention in March, 1993 and the work is expected to be completed by 1995 with the adoption of the convention in 1996.

Whilst the current revision of the STCW Convention is not likely to change the present scope and levels of knowledge, it may result in greater emphasis on instruction and skills acquisition. This is likely to include greater utilisation of training simulators. For maritime training institutions (including MMTC) this could mean an increase in the applied aspects of comprehensive education programmes and additional involvement in short specialist courses. However, sophisticated simulation equipment for the MMTC is not conceivable even in the medium term. Propulsion systems for the Lake fleet vary so much that marine engineers require "hands-on" experience combined with good basic training. There is no serious heavy traffic or fog on the lake;- the two main elements which necessitate radar simulator training for other maritime countries. The radar is used as a navigation aid mainly for measuring ranges. With a live radar (on a ship or at MMTC),

students can be trained to a satisfactory standard for lake operations.

4.3 THE MALAWI EDUCATION (MARINE TRAINING COLLEGE BOARD OF GOVERNORS) ORDER, 1993.

As one of Malawi's institutes of higher education and training, there was need to clearly define the legal status of the MMTC. Accordingly, in exercise of the powers conferred by Section 29 of the Education Act (Chapter 30.01) of the Laws of Malawi, the Minister of Education and Culture made the Education (Marine Training College Board of Governors) Order, 1993 which was published in the government Gazette of 18th June, 1993. The Order is a legal document for the MMTC and it constituted the Board of Governors which is the governing arm of the college.

The composition and the powers of the Board have already been discussed under section 3.5 of this dissertation. Notwithstanding, the Order also specifies the terms and conditions of service of the college staff, the procedures in instituting discipline to students, control of college finances, appeals for subscriptions and donations and ownership of the property of the college.

The essential elements in the legal framework of the MMTC have already been shown to be represented by the three sides of the inside triangle of Fig.4.1. These elements are the national legislation enforced and overseen by the maritime administration, the international regulations enacted by the international community through IMO and the College's governing arm represented by the Board. An attempt here will not be made to differentiate the three as they are closely interrelated. The following however, is intended to illustrate the roles that each can play:

" In most countries, maritime administrations have a great influence on maritime academies. They are at least responsible for the safety content of the syllabus for which the minimum requirements are derived fromthe STCW convention.... On the other hand, there could be systems in which shipowners play an important role.....and may even take over part of the training because of dissatisfaction with the standards...."

Gunther Zade (Aug.,1985, 4)

The Key issue here is the standards and it goes without saying that the correct balance of the triangles will in no doubt produce the best results.

CHAPTER 5

DETERMINING MMTTC'S FUTURE DIRECTION IN LINE WITH ITS STRATEGIC OBJECTIVES .

It is self evident that in a recession, public spending comes under pressure and those services which are then being under utilised, as are the marine colleges providing cadet and officer courses, will be trimmed to meet the lower demand.

D.J. Heaslip (1984,6).

In order to compete in this present day harsh economic and financial environment, MET institutions will have to be as good or better than as their competitors. Most MET institutions in the developing countries are either directly or indirectly owned by government and as such they are government funded. Unlike the circumstances prevailing between the 1960's and the mid 1980's, when foreign aid to developing countries was relatively easy to come by, the current aid reductions by the developed nations have made most maritime colleges in the developing countries close down.

However, it has to be clarified here that the portrayed foregoing scenario does not in any way imply that MET in developing countries is doomed. On the

contrary, these circumstances should give developing countries an opportunity to rethink the problems and then formulate realistic strategies to meet the challenge.

In formulating realistic strategies, there is need to thoroughly analyse the MET institution's environment so that the institution can:

- . identify the factors that influence (or have the potential to influence) its present and future competitive position, and
- . use the knowledge from the analysis to guide strategic objective setting.

A thorough analysis of the MMTC's environment would be outside the scope of this dissertation. However, it goes without saying that the real value and perhaps the success, of strategic objective setting lies in its ability to produce a more efficient and effective institution. An attempt will therefore be made to briefly analyse both the internal and external environments of the MMTC in order to formulate realistic strategic objectives for the present time and beyond.

5.1 MMTC'S MISSION STATEMENT TO MEET THE CHALLENGE.

Fig. 5.1 shows the bases which may be used when setting up strategic objectives of an MET institution. From the figure, it can be seen that the first major step in the process is to formulate the objectives based on the institution's mission and an analysis of the environment within which the institution operates.

The mission statement reflects the MET institution's strategic vision of the future. On the other hand, the statement by itself is not an end as it provides little specific guidance as to what the institution should realistically aim to achieve. This means therefore, that the mission statement must be transformed into specific, measurable, and achievable objectives.

In view of the anticipated volume and nature of activities on the Malawian inland waters and the whole of the Southern African region, the author has the opinion that the current MMTC's mission statement (which has already been discussed in Chapter 3) should be broadened to reflect the trend of events. The statement should clearly state that the MMTC is Malawi's national centre for maritime and maritime related education, training, research and development. It should be the MMTC's mission:

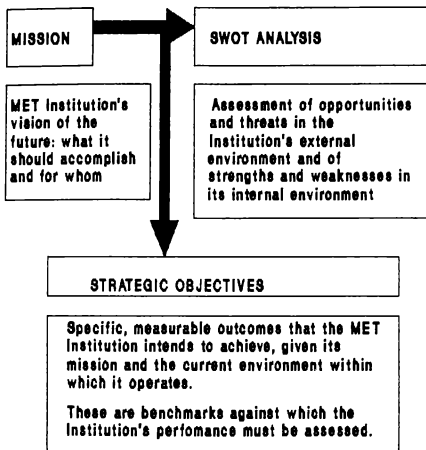


Fig. 5.1: Bases for Setting Strategic Objectives

Source: Adapted After Prof. Peter Muirhead's Lecture Notes

- . to respond to and fulfil the needs of the Malawian community for maritime and maritime related education, training, research and development,
- . to develop linkages with its graduates, the local community, professional bodies, other educational institutions, industry, government departments and other relevant institutions.
- . to strengthen the international role of Malawi as an inland waters shipping nation,
- . to establish the need for training within the Southern African region. There is thought to be a need for training for Lake Transport Operation in other countries in the region. On several of Africa's lakes there has been a recent expansion in use of water transport especially in fisheries, ferries and tourism. However, within the Southern African region there is no MET institution at present which is training personnel for this sector. The MMTC should therefore make expansion into regional training for inland waterways to be a medium term objective.

Fig. 5.2 shows the current requirements for officers compared with MMTC's output. These projections are based

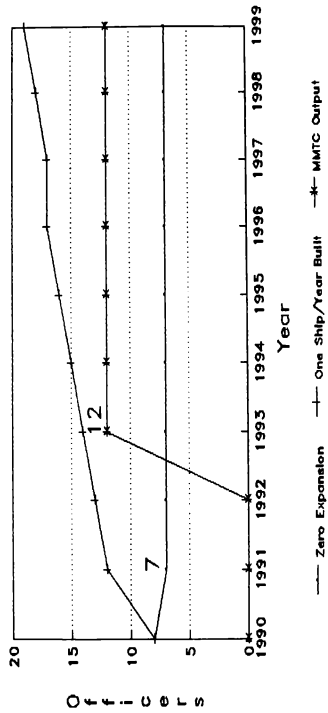


Fig. 5.11 Office Requirements/MTD Data
 Bureau Maritime Assessment Report, Leonard-Williams (1991)

on the manpower assessment study carried out by Captain Michael Leonard-Williams in 1991 and they assume two scenarios: one ship built per year and zero expansion. Taking both scenarios into consideration, it can be argued here that the current output does not appear to justify for continued operation of a fully-fledged maritime college. At present, the government has invested heavily and is committed to invest more for MMTTC to be fully operational. In order to justify continued operation, it is the author's belief that diversification in training programmes is the only answer. Section 3 of this Chapter outlines the areas that MMTTC could embark on in addition to the officers training. This will not only make the College cost-effective but the current and probably the future needs of industry would also be fully met.

5.2 STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS (SWOT) ANALYSIS FOR THE MMTTC.

In discussing the importance of the maritime environment, Wan Shukry (July, 1994, 5) argues that:

No institution can exist on its own or in isolation. Every organisation or institution exists within an environment and is interdependent with the elements and

conditions prevailing within that environment.
It is constantly subjected to, governed
and influenced by these elements.

By using a SWOT analysis, an institution can analyse its strengths and weaknesses in its internal environment and also its opportunities and threats in its external environment. The institution's internal environment relates to its ability to compete in its areas of operation while as the external environment relates to market forces and conditions.

Regarding this study, the author has determined the scope of the SWOT analysis by focussing only on those facets which will have the most direct and significant impact on the MMTC. The analysis and the summary are given as illustrated on Figures 5.3, 5.4 and 5.5 overleaf.

Now, let us consider Figures 5.3 and 5.4. If we assume any element of the facets to be equal to one unit, then we can summarise the strengths, weaknesses, opportunities and threats in terms of percentages as shown in Figure 5.4. From this we can see that the ability of MMTC to compete in its areas of operation is comparatively high. We can also see that its level of marketability is fair.

INTERNAL FACT	ORGANISATION	
	STRENGTHS	WEAKNESSES
1. EFFICIENT ECONOMIC RESOURCES.	<ul style="list-style-type: none"> . IMO sponsorship for Capital Equipment and Technical Experts . JICA sponsorship for Instructors . USO sponsorship for Technician staff 	<ul style="list-style-type: none"> . Very little Capital Works . Student Population limited by lack of accommodation
2. FINANCIAL CAPABILITY	<ul style="list-style-type: none"> . 98% Government source . 18% Other sources 	<ul style="list-style-type: none"> . Insufficient Budget to meet Recurrent and Development Accounts
3. ORGANISATIONAL POLICY MGT STRUCTURE INDUSTRIAL RELATION	<ul style="list-style-type: none"> . Single Campus . Close to Shipyard . Links with the Malawi Polytechnic . Good relations with Malawi Railways Lake Services. 	<ul style="list-style-type: none"> . Lack of experienced expertise . Not autonomous . Vague Policies on key issues
4. POLITICAL GOVERNMENT POLICY REGULATIONS	<ul style="list-style-type: none"> . IMO links 	
5. SOCIAL CUSTOMERS EMPLOYEES OTHERS	<ul style="list-style-type: none"> . International profile of staff (Japanese, British, Ghanaian and Malawian) 	<ul style="list-style-type: none"> . No sporting facilities of own
6. TECHNICAL AFFECTED BY CHANGING TECHNOLOGY		<ul style="list-style-type: none"> . Limited access to technological advances

Fig. 5.3: SHOT Analysis for the MHTC's Internal Environment.

SOURCE: Adapted from Professor Muirhead's SONS-SHOT Analysis; Lecture notes given to MKT class.

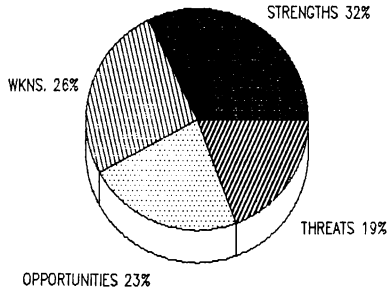
EXTERNAL ENVIRONMENTAL FACET	MARKET	
	OPPORTUNITIES	THREATS
1. EFFICIENT ECONOMIC RESOURCES	<ul style="list-style-type: none"> Shipyard facilities made available for student training Need exists for training in other sectors 	<ul style="list-style-type: none"> one student provider
2. FINANCIAL CAPABILITY	<ul style="list-style-type: none"> Attracts funds from other sources Students sponsored by organisation they subsequently serve 	
3. ORGANISATIONAL POLICY NOT STRUCTURE INDUSTRIAL RELATIONS	<ul style="list-style-type: none"> Only College in the Southern African region developed to train for inland waterways 	<ul style="list-style-type: none"> Dar es Salaam Maritime Institute in Tanzania Bandari College in Tanzania
4. POLITICAL GOVERNMENT POLICY REGULATIONS	<ul style="list-style-type: none"> Accorded a legal status in 1993 in accordance with the Laws of Malawi 	<ul style="list-style-type: none"> Staff appointed through the Civil Service
5. SOCIAL CUSTOMER EMPLOYEE OTHERS	<ul style="list-style-type: none"> Campus location easy access by road, water and air 	
6. TECHNICAL AFFECTED BY CHANGING TECHNOLOGY		<ul style="list-style-type: none"> Ageing fleet on the lake Fisheries Research Institute

FIG. 5.4: SHOT Analysis for the HMTC's External Environment

SOURCE: Adapted from Professor Muirhead's SOHS-SHOT Analysis;
Lecture notes given to NET-94 class.

Strengths=11 Points
Weaknesses=8 Points
Opportunities=7 Points
Threats=6 Points

Total Points=32 Points



**FIG.4.3: Summary of the factors having
The most direct and Significant
Impact on MMTC**

5.3 STRATEGIC OBJECTIVES BASED ON MMTC'S MISSION.

An institution's strategic objectives are the specific measurable outcomes that the institution intends to achieve, given its mission and the current environment within which it operates. In order for them to be achievable, it is necessary that they must be realistic and in line with the mission statement.

As a comprehensive maritime college within the higher education sector and an aspiring centre of excellence in maritime education, training, research and development, the author sees it as an essential prerequisite that MMTC's activities should be directed towards the fulfilment of the following strategic objectives:

- . To provide internationally recognised education and training programmes, including short courses leading to the award of certificates, diplomas and degrees.
- . To establish and strengthen links with maritime colleges within the region and overseas and other training establishments within Malawi.
- . To initiate and increase the role of the college in research and development on shipping.

- . To print or publish or assist in the printing or publication of reading materials or journals on shipping and related matters.
- . To coordinate in maritime related programmes that are of national importance, such as Search and Rescue (with the Army, Airforce and Police), and Emergency Procedures to deal with pollution incidents.
- . To recruit outstanding staff with the qualifications and experience required to improve and maintain the excellence of the college's programmes.

Training for other maritime sectors besides that of Malawi Railways Fleet has never been a major feature of the Malawian maritime education and training system. But greater need has been determined and proven to exist in the following sectors.

5.3.1 FISHERIES TRAINING.

There is an urgent need in the Fishing Industry for trained Master Fishermen and Engineering Officers. The major commercial fishing company in Malawi is Maldeco Fisheries based about 35 kilometres south of Monkey Bay. This company expressed to the author its determination to improve the standard of its crews and indicated that it

has already made inquiries for its seagoing personnel to be trained at MMTC. It was also stated that Maldeco intends to expand its feet.

Discussions with the officials at the Fisheries Department in the Ministry of Forestry and Natural Resources in Lilongwe revealed that there is going to be the development of under-exploited pelagic fisheries in the northern part of the lake. This will call for more vessels for the commercial fisheries and the fisheries research. In any case, there will continue to be a requirement for properly trained fishing vessel skippers and engineers for the foreseeable future and it is felt that the above strategic objectives will cater for this trend of events.

5.3.2 MALAWI MARINE POLICE.

The Marine Branch of the Malawi Police Force has a fleet of 22 craft on the lake. The Police plans to acquire a further two 21m launches and these will have to be manned by certificated officers while as the rest require Launchmaster and Engine Attendant Qualifications. The objectives of the Branch are Search and Rescue, enforcing the Merchant Shipping Act and regular police patrols.

There is an urgent need for all lake users to be instructed in the Search and Rescue set-up for Lake Malawi and coordinated training involving commercial lake users and the Search and Rescue authorities (the airforce, army and police). MMTCC could mount such coordinated training in the form of periodic short courses.

5.3.3 TOURIST CRUISES.

Tourism in Malawi is the fourth largest source of foreign exchange. The lake which presently is under-exploited is a major tourist asset. At present there are a few 20-passenger cruise ships run in the private sector, mainly from hotels. However, Leonard-williams (1990, 30) points out that " The SATCC/DANIDA study researched this potential and recommended small (50 passenger) luxury cruise ships as being the ideal." Presently, tourism is being marketed on a regional level, however the current government policy is to market it world wide. This will see a sizeable increase in numbers of visitors over the next few years which in turn will increase the demand for cruise vessels.

5.3.4 INDIGENOUS SMALL CRAFT OPERATORS.

Until this present day the growing fleet of indigenous small craft is being manned by people with no formal training but inherited natural skills and instincts. They now have to operate in a challenging environment where other lake users in an expanding fleet are trained to international standards. The volume and activities of this sector have already been discussed under section 2.2 of this dissertation.

The indigenous users need very basic training so that they can complement their skills with knowledge of safe practice and thus operate more effectively within the total lake environment. This can be achieved through Extension Training Schemes (ETS) based on the MMTC.

5.3.5 SHORE BASED PERSONNEL.

The Malawi Railways Lake Service, the major ship operator in the country, has until now been operating the passenger and cargo services more on the basis of a public service than as a commercial enterprise. However, if the new Northern Transport Corridor Project has to succeed, there has to be a shift towards a more commercialised operational system. This shift will inevitably put an extra obligation on the management of

the Lake Service, not only to train seagoing personnel, but also to train the land-based staff in the commercial aspects of shipping. Short courses in cargo operations, shipping management, maritime logistics and other maritime trade and marketing courses can be developed and implemented at the MMTC.

The author is well aware that to engage in these areas of education and training is no mean task and that there are serious implications on human resource and related investments. However, the issue here is: Setting strategies that are in line with the country's needs which in the short, medium and long-term will have a direct impact on the overall economy. To echo Jere Behrman's (Sept., 1993, 1) comments on investment in human resources, he has this to say:

Investment in human resources is a key element of the development strategy. Four decades of development experience, as well as recent trends in economic growth theory, show that appropriate human resource policies are as critical to economic development, social reform, and the alleviation of poverty as macroeconomic stability, international competitiveness, and appropriate physical infrastructure.

Certainly Malawi has achieved some success in other areas of human resource investment. However, in the maritime sector, despite the inevitable demand, there is quite a lot that needs to be done.

5.4 ACADEMIC STAFF DEVELOPMENT POLICY TO ENSURE GROWTH.

There is often a general opinion that prevails in most MET institutions that staff development and updating of maritime lecturers should be a matter of the individual lecturers themselves. However, the author believes that this opinion may lead to serious deficiencies in the expertise available in the faculty of the institution if the specification of staff development and updating needs are totally left to individual desires and wishes. It would be more effective if the faculty would look at it as a need for the institution rather than for the individual lecturers.

It should be acknowledged that the teaching staff have the prime responsibility of formulating the education and training programmes, and putting them into effect. It is therefore, crucial that the staff are well experienced and competent in their own fields. This can only be achieved through proper staff selection and a good academic staff development policy.

The policy of the MMTC should, therefore, be to encourage and facilitate the professional development of staff. The general aims of this policy should be:

- (a) To allow staff to improve the performance of their existing functions by maintaining and improving their professional and vocational knowledge.
- (b) To enable staff to prepare for greater responsibilities which are usually associated with career advancement.
- (c) To allow staff to obtain practical experience in the workplace, and undertaking research activities.

This policy however, should not apply to the Department of Personnel Management and Training Initiated Staff Development. It is proposed here that MMTC should have an Academic Staff Development Committee which shall comprise of:

- . The Principal (Chairman)
- . One academic staff from each department (refer Fig.3.3).

The Committee shall have the following functions:

- . Assess the intellectual and/or professional contributions of the academic staff including

acquisition of further relevant qualifications, active involvement where attendance at a conference or seminar/workshop is involved, involvement in research and other activities which are compatible with the strategic, developmental and operational requirements of the College.

- . Establish policies regarding development and updating of staff.

The strategies which should be employed in pursuit of this policy should involve action to update the staff's:

- . Theoretical knowledge through self-studies
- . Shipboard experience
- . Work in the maritime related industry and administration
- . Specialized updating and training programmes

PROPOSED CURRICULUM POLICIES FOR ACHIEVING THE STRATEGIC
OBJECTIVES.

6.1 CURRICULUM CONCEPT AND APPROACHES.

In order to come up with proposed policies on curriculum which would meet the strategic objectives discussed in the preceding chapter, certain fundamental curriculum questions will have to be answered in parallel with the proposals made in this chapter. However, it is also felt necessary to first consider the general characteristics of the concept of curriculum.

Writers and teachers on curriculum have never agreed on a single acceptable definition of the term, and probably the concept of curriculum. For the purpose of this study, Print (1993, 9) defines curriculum as:

All the planned learning opportunities
offered to learners by the educational
institution and the experiences learners
encounter when the curriculum is implemented.

This view considers almost anything in an educational institution, even outside of the institution (as long as it is planned) as part of the curriculum. Its roots can probably be traced from John Dewey's (1938, 69) definition and view that curriculum is "All the experiences that children have under the guidance of the teacher." This definition is generally subscribed by humanistic curricularists and elementary school administrators more than traditional curricularists and higher education and training institution administrators. The author has used it here because it is broader in scope and its concept goes beyond the notion of simply preparing a planned document which can be applied later.

In order to educate and train complete mariners for the modern day, the curriculum so used should not only be viewed in terms of specific subject matter. It has to be acknowledged that the shipping industry one knew it in the 1950's is by far not the same today. Ships have become faster, bigger and more numerous. The amount of dangerous cargoes carried by sea has grown steadily. Spectacular accidents of ships carrying such cargoes are no more the concern for ship's crews and ship owners only; they have drawn the attention of the public.

Modern technology has allowed head offices to be in permanent contact with ships. Gone are the days when the

ship master and ship officers were making all the serious economic decisions by themselves. Their influence on the stowage of cargoes on board has been reduced to a bare minimum; and even to nil for some types of vessels like the container ships. It is for these, and many more other reasons like the mixed manning concept, that in addition to emphasis being put on knowledge, concepts, and generalisations of a particular subject, the present day MET curriculum should be flexible and responsive to the experiences of the learners.

6.2 WHICH CURRICULUM DEVELOPMENT MODEL AND WHY?

Controversy often develops among curriculum planners and developers when attempts are made to adopt a model that would best suit their circumstances. From the research study conducted in Australian schools by Cohen and Harrison (1982), the reason for this controversy is that:

As well as the diversity of perceptions (of curriculum) across Australia generally, there was differing perceptions between states and between principals, department heads and teachers. Of more crucial importance, however, is that, even within individual schools, there were differing and often conflicting views.

However, a thorough study of the various curriculum models has compelled the author to subscribe to the one developed by Murry Print (1993) which is shown in Fig. 6.1. Print's model has a wide range of application. It is straight forward in approach and yet is sufficiently complex to provide an algorithmic base to curriculum development. As it has already been mentioned in Chapter five that the current MMTC's mission statement ought to be broad based to reflect the trend of events, the said model would lend itself to application in different course development contexts. This is the main reason why Print's model could suitably be employed at the MMTC when developing new courses or updating old ones.

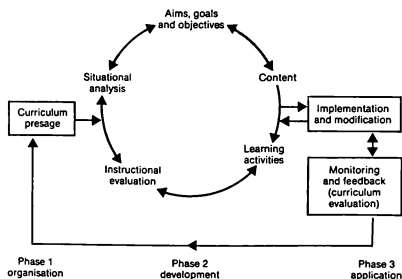


Fig. 6.1: Model of curriculum development.

SOURCE: Print, M. (1993);

In his model, Print considers three sequential phases as to form the basis of curriculum development which are:

- . Phase 1: Organisation
- . Phase 2: Development
- . Phase 3: Application

In the organisational phase, which involves a formalised procedure of curriculum presage, the participants (curriculum committee or developers) are looked at: their backgrounds and the forces that have shaped their thinking. This, Print stresses, is important because the selection of the curriculum committee will influence the shape of the curriculum outcomes and affect the nature of the curriculum.

In the developmental phase, the curriculum committee follows the cyclical procedure according to the sequence of the curriculum elements shown in the same figure. The situational analysis, which is the first element in this phase, provides the committee an awareness of the needs of the students and the resources available to meet such needs. From this information, the committee can state useful and appropriate aims, goals and objectives.

The next element is the content and the appropriate learning activities organised so that the content is

learnt effectively, and thus objectives achieved. The final element in this phase is the evaluation which requires the developers to devise effective assessment procedures to determine the degree to which the students have achieved the objectives.

The third phase of Print's model is the Application Phase which in turn incorporates three sets of activities. These activities can be listed as:

- . Implementation of the curriculum
- . Monitoring of and feedback from the curriculum
- . The provision of feedback data to the presage group (or the curriculum committee).

The most difficult problem facing the MMTC regarding curriculum design and development is the lack of a curriculum design and development structure. It should be pointed out that unless the following fundamental curriculum questions as asked by Campbell, et al (1989,30) are resolved, course development and review at the MMTC will continue to lack a proper sense of direction:

1. WHEN PLANNING NEW CURRICULUM AT THE MMTC.

- . Who determines priorities?
- . Who develops the time line?
- . Who assigns members to curriculum committees?

- . Who coordinates the efforts of the curriculum committees?
- . Who devises the curriculum development process?

2. WHEN IMPLEMENTING THE CURRICULUM.

- . Who decides on the materials and activities for the new curriculum?
- . Who determines how much money will be needed to carry it out?
- . Who decides what staff development will be offered to prepare teachers to use it?

3. WHEN EVALUATING THE CURRICULUM.

- . Who decides how the curriculum will be evaluated?
- . Who is responsible for carrying out the evaluation?
- . Who is responsible for reporting the results of the evaluation to teachers, administrators, Board members, and the public?

SOURCE: Adapted after Campbell, M., Carr, J., and Harris, D., (1989, 30).

The above questions suggest that in developing any curriculum, it is important to clearly define the various elements involved in the planning, implementing and evaluating that curriculum. This calls for closer cooperation between the institution's staff, the maritime administration and the governing body. Without offering clear-cut answers to the above questions, the author proposes the following as guiding statements which may be used when developing new course curricula at the MMTC:

- . A curriculum design and development committee should be formed which should include members of the senior MMTC academic staff, the Maritime Administration and the Board of Governors.
- . The committee should establish a sense of mission or purpose right at the beginning or during the first meetings.
- . MMTC's goals and objectives should not be the only criteria on which to develop new course curricula. Alternative curriculum designs should be contrasted in terms of advantages and disadvantages such as cost, scheduling, class size, facilities and personnel required to current programmes.
- . To assist the teaching staff gain insight into the new or modified designs, the curricula should

reveal expected cognitive and affective skills, concepts and outcomes.

Ministry of Education and Culture officials should have only a peripheral impact on MET curriculum development because their outlook and concerns center on regulatory activities. Their MET curriculum role should be minor; but their support and approval are essential.

In terms of the subject matter, all curricula at MMTC should be concentric in structure; going from generalities, broad based, shallow in depth to specifics but deeper in nature. An example is given on Fig. 6.2 for the proposed structure of education and training of merchant marine engineer officers at the MMTC.

Fig.6.2 illustrates that the programme of education and training for the marine engineer officers must be sufficiently broad based at the basic level to cover all the required knowledge. This would involve a large number of subjects and disciplines in its structure.

However, as the levels advance, where the officers are transferring from junior to more senior rank, the programme assumes fewer subjects and concentrates into

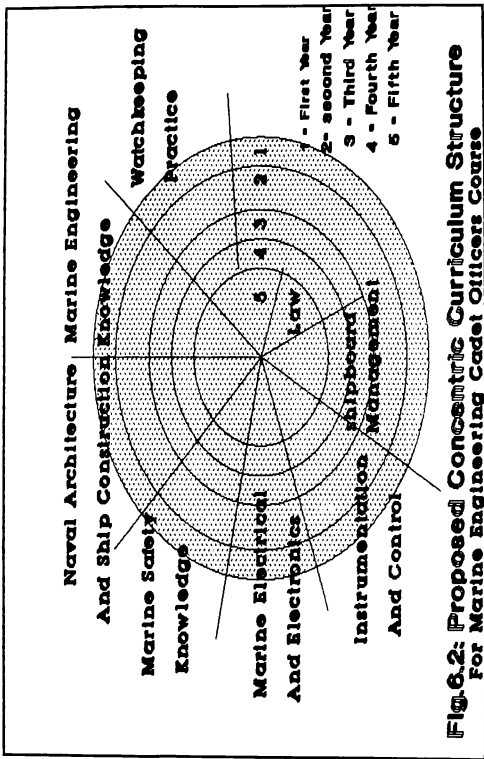


Fig.6.2: Proposed Concentric Curriculum Structure For Marine Engineering Cadet Officers Course

those specialist areas reflecting the higher technology and responsibilities that are associated with senior positions aboard ship. This implies that the curriculum is structured and organised so that knowledge, understanding, skill and experience are steadily and progressively acquired.

Due consideration should be given to the basic level course as it provides a firm foundation on which more advanced and specialised studies can be built. The author believes that this could be the philosophy which would probably help any courses developed at the MMTC to be solid and sound. However, this again should not be interpreted as to mean that the senior and advanced programmes are less important. The philosophy here is as the old saying goes, " if you want to know the strength of a structure you have to look at its roots or the foundation!"

6.3 STRENGTHENNING THE MISSING LINK: SEA TRAINING.

The second year sea training component is a very important aspect of the curriculum related to the watchkeeping certificates for the deck and engineering cadet courses. This component should be seen as an extension of the programme of the land-based MMTC training. For this reason, it is important that there is

effective and close coordination and cooperation between the personnel aboard the ship and the MMTC ashore.

Discussions that the author had with some senior sea going personnel of the Lake Services revealed that the failure of the current sea training programme is due to historical reasons. It has already been pointed out in chapter three that up until recently Malawi had never embarked on any structured officer's local training. The majority of the serving officers went through a fragmented-correspondence type of training. The author is in no way trying to demean the hard working spirit of these gallant men. However, faced with such a background, one would not be suprised to see the master or the chief officer or the chief engineer failing to exercise his responsibilities regarding cadets on training aboard his ship.

The MMTC ashore should have the responsibility of instituting a properly structured and organised Task And Guided Study (TAGS) programme of activities so that this period of "hands-on" experience aboard ship can be fruitful and effective. The TAGS programme should offer guidance in this important and vital area and should aim at instilling correct and safe professional practices in the cadet officers (both deck and engineering) undergoing training.

**6.3.1 STRUCTURE OF THE TASK AND GUIDED STUDY (TAGS)
PROGRAMME.**

The current sea training programme at the MMTCC has two main areas of weaknesses:

- . The structure of the whole programme
- . Management of the programme, i.e. Lines of responsibility.

In view of the short falls in these areas, it is suggested here that the scope of the Task and Guided Study Notes issued to the students when they proceed for their sea training should be broadened to include requirements for other categories of personnel such as those employed in the fishing vessels. The content of the TAGS programmes for the various courses could be different. However, the fundamental objectives be streamlined as follows:

- . To provide trainees with basic knowledge of, and skills in watchkeeping, general shipboard operations and maintenance.
- . To develop skills and abilities in the acceptance of individual responsibility for tasks, and for operating as part of a team on board.

- . To act as a spring board for trainees' further development of knowledge and skills in practical work situations.
- . To instill in the trainees a spirit of commitment to safe, effective working practices and a better understanding of rules, regulations and other relevant safety codes governing work on board.

The process necessary to achieve these objectives would involve training them to develop into responsible, efficient and disciplined members of the shipboard staff by the completion of the TAGS programme. The nature of the TAGS programmes should take into account of the experience of the trainees when first going on the lake and should become progressively more demanding as the trainees' knowledge and experience increase. As a general rule therefore, trainees should be advised to undertake the projects in each part in the order laid down in the TAGS notes whilst at the same time not concentrating on any one section to the exclusion of all others.

It is proposed that the period required to complete the entire second year sea service for the cadet courses should not be less than 48 weeks. Persons wishing to qualify for the other certifications, e.g. Launchmaster, will have to undertake a training period of not less than 20 weeks.

6.3.2 MANAGEMENT OF THE TAGS PROGRAMME- LINES OF RESPONSIBILITY.

The key to the success of the TAGS programme in achieving the objectives proposed above will depend on the effective management of the whole sea training programme. Poor management has greatly contributed to the failure of the current programme. All the parties involved should cooperate and coordinate the various activities properly. It is necessary therefore, that the notes for the TAGS programme should include:

- . Guidelines for the Master
- . Guidelines for Supervisors
- . Instructions to the trainees

These guidelines and instructions should be communicated accordingly to all those concerned and in good time before the sea training period commences. The guidelines to the Master should clearly state that the overall responsibility for determining the manner in which the shipboard programme will be carried out and monitored shall rest with the Master. The Chief Mate and the Second Engineer as officers responsible for work in their respective areas should be responsible for allocating tasks to the trainees.

The responsibilities of the supervisors should be made clear to them as this will facilitate quality performance of the tasks by the trainees. On the other hand, the trainees should clearly understand the purpose of the programme and the roles of the Master and others in guiding and assisting them. It should be made quite clear to them right at the beginning of the programme that their training will be of benefit if they have a positive attitude towards the TAGS programme and a determination to learn and to gain experience which would stand them in good stead throughout their career.

6.4 MET FACILITIES AND RESOURCES TO SUPPORT THE PROPOSED CURRICULUM POLICIES.

For an MET institution to achieve its education and training objectives, a number of closely inter-related elements have to function in harmony and these are as follows:

6.4.1 LABORATORIES, WORKSHOPS AND OTHER BUILDING FACILITIES.

The buildings provided for maritime education and training must be adequate and appropriate for the particular activity related to their use. However, conventional wisdom has maintained that large campuses

with a multitude of building facilities were more efficient and offered more diversified opportunities for students. Callahan (1962, 99) associates "bigness with growth and productive efficiency and greater opportunity to specialise." He views smaller institutions as a problem in terms of lack of special facilities and subjects and economically wasteful.

As much as the author shares this view, it is also felt necessary to carefully examine which buildings should be put up and how. Simply putting up expensive and imposing structures may not necessarily be the answer. For instance, laboratories should be constructed and furnished according to their specialist activities, and be provided with services such as electrical power, water, compressed air, etc.

Because of considerations of weight, effect of vibrations and transimission of power, spaces that are to contain items of equipment like marine machinery should be adequately strengthened and reinforced.

It is also important to provide adequate access to all spaces, especially for practical training areas, which may involve transfer and transport of units which may be heavy or awkwardly shaped. All what the foregoing implies is that academic resources of an institution cost

a lot of money and should be properly planned for. As it has already been pointed out that the answer may not be putting up too many buildings, but probably what is required is putting up functional buildings with careful scheduling. Scheduling is an intricate and time-consuming process. However, if it is done properly, academic resources of an institution and students course needs would be linked into a time-pattern relationship which would enable instruction to be conducted in an orderly manner and thereby utilising the resources to the maximum.

The author has had the opportunity of visiting several MET institutions in Africa and Overseas. His observations are amazing. Out of the five institutions he visited in Africa, three were very big but heavily under utilised. Certain facilities had not been used for years and the question is "why were such facilities put up in the first place?"

The various elements of MMTC's building programme have been discussed in chapter 3. However, it should emphasised here that for the programme to achieve its intended goals the issues raised above should not be ignored.

6.4.2 TRAINING EQUIPMENT

The importance of training equipment for an MET institution can not be over emphasised. However, it should be pointed out that training equipment must be relevant to the technology used in modern vessels so that the practical training activities can be co-related to the seafarers' duties and functions aboard ship.

At present there is no laboratory and workshop equipment in place at the MMTC. This means therefore, that in the first instance the initial intakes of students will have to cover the theoretical aspects of the curriculum. It is essential that the Phase 3 building programme is expedited and that training equipment is provided as planned to avoid creating a vacuum in this important aspect of training.

Priority should be given to basic safety training. This requires practical and classroom instruction in:

- . Firefighting
- . Rescue from enclosed spaces
- . Use of Survival Craft
- . Emergency Procedures
- . General safety on board ship
- . Pollution

Presently there are no facilities at the MMTC for proper Survival Craft training, and it is not advisable that the use of boats and davits on Lake Service vessels should be relied upon. Therefore a Lakeside facility with davits etc. should be a priority. MMTC has a wooden training boat, the Ng'ona, with an outboard engine. This boat continues to offer excellent rowing and boatwork training.

The nearest available firefighting training facility is at Kamuzu International Airport in Lilongwe, a distance of over 300 kilometres. This is designed for airport emergencies. MMTC students have been given some firefighting training there in the past. However, the author believes that it is most important to put up a firefighting facility at the MMTC in Monkey Bay, complete with firefighting equipment and breathing apparatus so that this essential component of training can be correctly imparted.

6.4.3 LIBRARY AND LEARNING RESOURCES

The MMTC has a library with over 500 maritime books. However, the author has observed that the library resources are limited to material specific to the present curriculum. There is a lack of wider range of shipping

titles. At present though the MMTC's policy to obtain essential titles only, is understandably wise.

Notwithstanding, the maritime community around Monkey Bay and along the lake in general is by all standards a very large one. The library at the MMTC is the only established maritime library in the country. The MMTC's plans in building a new one (refer section 3.0 on phase 3 of MMTC's building programme) would have a positive impact towards this end. The objective in this case would not be to serve students and staff only, but to serve the entire maritime community in the country. Further titles should therefore be identified in the near future and be requisitioned as budget funds allow.

CONCLUSIONS AND RECOMMENDATIONS

7.1 CONCLUSIONS.

From this study, the following conclusions can be made:

1. The importance of the urgent need for the expansion and improvement of the capacity of the lake transport services to support both the domestic and international trade has been recognised by the Malawi Government. The carriage of cargo by ship is in competition with the roads and railways. However, Malawi has invested heavily in the Northern Corridor trade route in order to create a strategic rail/lake/road route to the port of Dar es Salaam in Tanzania. The carriage of passengers by ship is accepted by government as being a social necessity. It runs at a loss, but parts of the rural population would be isolated without it. Malawi will therefore always have to run cargo and passenger ferry services.

2. The fishing industry is an important economic factor contributing to the socio-economic growth of the whole nation. The government's policy is to undertake a programme of research to identify and quantify underutilised fish resources, particularly those in the off-shore waters of Lake Malawi and then encourage the appropriate exploitation of such underutilised resources

as are identified. This, it has been established in this dissertation, would in effect, increase the fishing fleet.

3. The facilities under development at the MMTC could be made available to a wider sector in addition to the present cadet programme. The current fishing industry has a need for professional training in navigation, engineering and seamanship. There is a need for basic training in small craft operation, and there is also a need for training in survival, search and rescue, safety and firefighting to the wide variety of lake users.

In this regard, there is an urgent need for the exploitation of the full training potential of the MMTC in terms of the range of courses which could be offered to meet the needs of the total maritime infrastructure.

4. MMTC is the only establishment in the Southern African Region devoted to training inland waters personnel. A regional need would more likely exist under such circumstances which would make MMTC the ideal centre for such training.

5. Unless appropriate measures are take, MMTC's current output of 12 officers per year will soon saturate the

market with highly qualified officers sailing with unqualified crew.

7.2 RECOMMENDATIONS.

The study's findings and conclusions have resulted into the following recommendations:

1. The Malawi Government should expedite the provision of the new college buildings with priorities being given in the order of:

- . Engineering workshops and laboratories
- . Seamanship centre
- . Class rooms and staff rooms
- . Hostel block
- . Library
- . Storage facilities

Delays in the phase 3 building programme have had a negative impact on the training programme as a whole. Even though efforts have been made to provide and/or arrange for supplementary building facilities, essential training equipment could not be installed in the absence of the appropriate buildings.

2. Once the practical training facilities are in place, the entry requirements for the cadet training programme be reviewed. Cadets in most established maritime nations are recruited after they have completed their secondary school education at the ages of about 16 to 18 years. However, it has been pointed out in this dissertation that because of the lack of workshop and laboratory facilities, holders of diplomas in engineering and at times degrees are recruited for the cadet training programme. This does not only demotivate the students once they are in the system, but cadet training as demanding as it is, it has to start when the individual is relatively young; not when he is already 26 years of age!

In this regard, educational qualifications called for should be the Malawi Certificate of Education with good passes in Mathematics and a Science subject.

3. An effective curriculum development group (committee) should be established as soon as possible. It has been reiterated in this document that the sustainability of the MMTCC in the medium and long term must depend upon diversifying the courses offered. By developing a series of short courses in survival, safety, firefighting, small boat operations and engineering etc., a much wider sample of lake-users will be able to utilise

the college. Cadet training should be maintained, but at a rate commensurate with Lake Services' demand. Developing these, and other courses, requires the professional expertise of the lecturing staff and the support of industry and the maritime administration. The recommended curriculum committee must therefore, incorporate appropriate staff from the lecturing team, maritime administration and industry.

4. Further investigations should be undertaken regarding the requirements for training Inland Waterways personnel in the region. A regional seminar on this topic should be held at the MMTC once the building programme is completed. Should a need for regional training be identified, then this should be incorporated into the Malawi cadet training programme when numbers permit. The short courses to be developed and the research programmes should also be available to people from the region.

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