

**The Role of National Aquaculture Center Library in the dissemination of
information on Aquaculture and Fisheries in Malawi**

by

Mike Bernard Thuruwe

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fulfillment of the MALA Certificate in Library and Information
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BIOGRAPHICAL SKETCH

Mike Bernard Thuruwe was born in 1967 on 5th September, at Likhomo Village in Machinga District. He is the first-born son in the family of Mr. and Mrs. B. Thuruwe of Lipalapata Village, Traditional Authority Kapoloma, in Machinga District. The author did his primary school at Mpiri Catholic full primary school in Machinga District and Domasi Demonstration full primary school in Zomba District, from where in 1991 went to Pirititi Community Day Secondary School (then Distance Education Center) in Zomba District. After completion of two years, in 1993 for Junior Certificate of Education (JCE) the author started working at National Aquaculture Center Library as Library Attendant. The author was promoted to full Library Assistant after he successfully passed the Malawi School Certificate of Education (MSCE) in the year 2006 after studying on his own. The author was offered to pursue a MALA course, to which he is presenting his project titled “The role of National Aquaculture Center Library in the Dissemination of Information on Aquaculture and Fisheries in Malawi.” The author is happily married with three children.

ABSTRACT

It is a known fact that no single library or an information or documentation center can have all the information required by its users. Generally, the libraries of aquaculture and fisheries are more important and more directly linked to management, scientific research, production and trade in fisheries. Academic libraries are more comprehensive in coverage. By comparison, libraries in aquaculture and fisheries research institutions are smaller but highly specialized. The reasons range from inadequate financial resources to inadequate space to keep the information resources. That is why there are efforts to share information among libraries or information centers. The sharing can be at an individual level or as a network within the country or beyond. This project report will outline what libraries and information centers in Malawi are doing to ensure that they are able to share aquaculture and fisheries information among themselves and discuss the problems they encounter in such efforts. The paper suggests some solutions to the problems so that the libraries and information centers can best share information resources.

Keywords: *Aquaculture and fisheries; Fisheries library; NAC; Responsible fisheries; Role of fisheries; Resource sharing*

DEDICATION

This work is dedicated to my wife Milliam and children Bernadetta, Tiwadhahah and Hannovah who have endured through my course of study by lacking my guidance when I was so busy that I could not attend to their needs. Many special dedications should go to my Mum and late Dad, for their insight in sending me to school.

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Many thanks should also go to the WorldFish Center Staff for allowing me to use their facilities during the time of writing this project, such as Internet and the production of this report using their computers and printer

LIST OF ABBREVIATIONS

ASOM	Angling Society of Malawi
BCAL	Bunda College of Agriculture Library
CHANCO	Chancellor College
CNRFFP	Central and Northern Regions Fish Farming Project
DoF	Department of Fisheries
EEC	European Economic Commission
FHQSL	Fisheries Headquarters Library
FAO	Food and Agriculture Organizations of the United Nations
GTZ	(Deutsche) Gesellschaft für Technische Zusammenarbeit GmbH
ICLARM	International Center for Living Aquatic Resource Management
ITU	International Telecommunication Union
JCE	Junior Certificate of Education
JICA	Japan International Cooperation Agency
MALA	Malawi Library Association
MALICO	Malawi Library and Information Consortium
MCFL	Malawi College of Fisheries Library
MFRUL	Monkey-Bay Fisheries Research Unit Library
MSCE	Malawi School Certificate of Education
MZUNI	Mzuzu University
NAC-LIC	National Aquaculture Center Library and Information Center
NRC	National Resources College
NGO	Non-Governmental Organization
ODA	Overseas Development Administration

OSISA Open Society Initiative Southern Africa
UNIMA University of Malawi

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1.0 Introduction

National Aquaculture Center (then, Domasi Fisheries Research Center) was established in the early 1950's by an Act of Parliament in the Ministry of Agriculture in the Department of Fisheries in order to provide optimal framework conditions and excellent services for maximization of socio-economic benefit through sustainable utilization and management of capture fisheries and increased aquaculture production to improve fish supply in Malawi. The Department is the leader in collaborative management and sustainable use of aquatic resources in southern Africa. It is located 20km to the north of Zomba municipality and it is situated at Domasi. The National Aquaculture Center Library and Information Center is a place where information on aquaculture and fisheries can be accessed through print media or online. The library was established through The WorldFish Center (then, International Center for Living Aquatic Resource Management (ICLARM)), since 1987, with an aim of providing information to strengthen aquaculture research and development and enhance the flow of information in Africa.

The library has a different role in information exchange in sub-Saharan African countries. It does not only serve as a place for keeping information resources, but also functions as a dynamic agent of research utilization. It links aquaculture and fisheries personnel, researchers and extension workers on one hand and the stocking of relevant information on the other. The Library is responsible for identifying, acquiring, analyzing, organizing, storing and disseminating information to serve the needs of the National Aquaculture Center Staff, JICA Aquaculture Project Staff and The WorldFish Center Staff, besides its cooperation agencies and extension users both in Malawi and the entire Sub-Region.

The Library provides a strong comprehensive working collection on freshwater aquaculture and related fields. Materials acquired include basic and general works both current and other retrospective in form of books/monographs, reprints, serials, non-book media and other related materials; general reference materials, i.e. dictionaries, atlases etc. Priority materials collected are on aquaculture in Malawi and Africa. The materials in the facility are available for on-site use to the public but circulation is restricted to quality users (The NAC Staff; WorldFish Center Staff and The JICA Staff who are familiar with

Aquaculture and Fisheries). However, the library runs an inter-library lending service with other scientific and technical libraries; these include Bunda College of Agriculture; Monkey Bay Fisheries Research Center; Malawi College of Fisheries and Fisheries Headquarters Libraries.

The Library is a registered member of Access to Global Online Research in Agriculture (AGORA). This program that was set up by the Food and Agriculture Organization of the United Nations (FAO) together with major publishers, enables developing countries to gain access to an outstanding digital library collection in the fields of food, agriculture, environmental science and related social sciences. AGORA provides a collection of 1132 journals to institutions in 107 countries, which National Aquaculture Center Library is inclusive. The Library is able to get relevant information on aquaculture and fisheries from journal articles everyday through Internet for free. The library provides the users free access to our computers located in the library. AGORA is designed to enhance the scholarship of the many thousands of students, faculty and researchers in agriculture and life sciences in the developing world.

1.1 Objectives

This study is aimed at outlining what libraries and information Centers in Malawi are doing to ensure that they are able to share fisheries and Aquaculture information among themselves and discussing the problems they encounter in such an effort.

The second objective is to suggest some solutions to the problems so that the libraries and information Centers can best share information resources to individuals or as a network within the country.

2.0 LITERATURE REVIEW

Fish used to provide about 70% of dietary animal protein to Malawi population but now about 30% because of the declining catches (Sikawa and Kapute, 2007). Fish is the cheapest sources of animal protein where less than 90% live in rural areas and less than 60% live on less than a dollar per day. As a land locked country with about 20% of its total area of 118, 485Km² covered in water, Malawi practices inland fishing. Most of the fish is consumed locally, marketed domestically and consequently contributes to the subsistence and livelihood of poor people (Salanje, 2005)

A fishery is divided into two major sectors, namely; capture fisheries and aquaculture. The capture fisheries contribute about 4% to the country's GDP and provide over 300, 000 jobs. Major water bodies are: Lakes Malawi, Malombe, Chilwa, Chiuta, Shire River and many streams. However, fish stocks are on the decline and catches declined from 70,000t to about 8,000t lately. Aquaculture in Malawi started around the 1950s, but is still underdeveloped than capture fisheries. It is estimated that there are a total of 4050 small-scale fish farmers practicing fish farming and a total of 9050 fishponds. Average pond size is 150 m². Total production from aquaculture is 800t. Species cultured include *Tilapia rendalli*, *Oreochromis shiranus*, *Oreochromis karongae*, *Clarias gariepinus* (Catfish) and *Cyprinus carpio* (Common carp). The latter is exotic to Malawi brought from Israel in 1976.

However, for the past twenty years, the country is failing to satisfy fish demands by its population. It has been observed by experts that the per capita consumption of fish has declined by 50% in 1990s from 14Kgs per year to just 7Kgs per year in 2002. The reduction in per capita fish consumption has seriously affected the nutritional security of rural Malawians who are already facing food insecurity due to declining land productivity (Jamu, and Chimatiro, 2005). These problems are compounded by the limited supply of fish and prohibitively high prices brought about by transportation problems. Difficulties in preservation methods add to the problem of transporting to a large population that live far away from Lake Malawi, which is the main source of fish.

There is also a problem of environmental threats to many inland water bodies caused by increasing aquatic pollution, habitat degradation, water use and other man made pressures. All these problems need a better understanding of the aquatic systems and prevent environmental impacts affecting fisheries resources and aquatic biodiversity. At the same time there is a need to expand aquaculture and sustain capture fisheries, in order to meet the high demand for fish (FAO, 2003).

Therefore, libraries and information centers in Malawi have a crucial role of providing information for the effective aquaculture and fisheries management in terms of teaching, learning, decision-making, conducting research and outreach, etc (see Table 1. below).

Table 1. Aquatic and fisheries information need (Salanje 2003)

	Information Users	Information Needs
1	Fishermen	Markets for their fish landings, daily weather forecasts, types of fish species, modern fishing methods, sites for fish shoal
2	Fish farmers	Modern fish farming methods, markets for the fish, fish feeds.
3	Tourism Industrialists	How to attract visitors to the holiday resorts
4	Water transporters	Daily weather forecasts, modern water transport equipment.
5	Researchers	Past research activities, on-going research projects, prospects for research funding.
6	Educators and Students	Teaching, learning and research materials to impart knowledge and skills for the students to pass exams.
7	Economists	Contribution of fishing industry, water transport and tourism industry to the national economy.
8	Extension workers	Modern fish farming methods.

3.0 METHODOLOGY

3.1 Research Design

The Researcher used exploratory methods to find out whether information is disseminated or shared among scientific libraries. Both quantitative and qualitative data were gathered.

3.2 Study area

The study was conducted at National Aquaculture Center, Fisheries Headquarters, Bunda College of Agriculture, Malawi College of Fisheries and Monkey Bay Research Center Libraries where these libraries share information on aquaculture and fisheries materials.

3.3 Study Population

The target population consists of numbers of materials i.e. accessions list, inter-lending services, distribution of duplicates and pages presented by scientists, periodicals, reprints exchanged per month or annually and inviting one another to workshops, seminars or meetings held monthly or quarterly.

3.4 Data Collection

Data collection was done using questionnaires. Five (5) libraries were visited. The five included: Bunda College of Agriculture, Monkey Bay Fisheries Research Unit, Malawi College of Fisheries, Fisheries Headquarters, Lilongwe as well as National Aquaculture Center Libraries. Data was analyzed using Scientific Package for Social Scientists (SPSS) computer software.

4.0 JUSTIFICATION

As a way of making libraries power houses to information, Libraries and Information Centers/Documentation centers need to improve the capture, dissemination, sharing and preservation of aquaculture and fisheries information in Malawi and beyond.

5.0 OVERVIEW OF AQUACULTURE IN MALAWI

5.1 Background

According to Meecham (1976), aquaculture in Malawi began in 1906, when rainbow trout (*Onchyrhynchus mykiss*) was first introduced into the Mulunguzi Stream on the Zomba plateau. Tilapia culture started in the mid 20th century with the building of several “coarse fish” ponds at Tipwiri, Ntchenanchena, which were stocked with *Oreochromis shiranus* and *Tilapia rendalli* from Lake Malawi. By 1958, there were 52 ponds with a combined area of 5.9 ha and a total production of around 1, 000kg.

Since the late 1960s, Malawi has made a concerted effort to develop smallholder and commercial aquaculture. During the period 1970 to 2002, Malawi has received substantial support through the FAO, ODA (UK), Malawi German Fisheries and Aquaculture Development Project (MAGFAD (GTZ)), International Center for Living Aquatic Management (ICLARM (GTZ)), the National Aquatic Resource Management Programme (NARMAP (GTZ)), the Central and Northern Regions Fish Farming Project (CNRFFP (EU)), the Border Zone Development Programme (BZDP (GTZ)) and the Project on Aquaculture Research and Technical Development of Malawian Indigenous Species (ARTDMIS (JICA)), amongst others.

Overall, there has been a substantial investment in the establishment of aquaculture stations. Today, there are 13 aquaculture demonstration stations with more than 200 experimental ponds. These investments, in addition to the tertiary training provided by the University of Malawi at Bunda College of Agriculture have established Malawi as one of the foremost exponents of inland aquaculture in central and southern Africa (Kaunda, 2003)

5.2 Why Aquaculture

The inland fishery in Malawi plays a very important role as it accounts for about 44% of the total animal protein intake for Malawians. The per capita consumption of fish however, has fallen from 12.3kg in 1972 to currently less than 5.8kg because of the increasing population and the decreasing fish catch from natural waters.

According to the increasing demand pressure, a shortfall in the supply of fish may reach 30% after ten years. Aquaculture is not only the most expected means to fulfill this shortage, but is also an important tool to rural development in the inland community through ensuring the food security, and generating employment and off-farm incomes.

In the national fisheries and aquaculture policy (1999) (draft), the aquaculture research component is embedded in three interlinked policy objectives: to solve problems related to fish farming and small water body management through research, to develop appropriate recommendations and to conduct fish farming.

Table 2. Fish Farming Establishments in Malawi

Place	Year of establishment	Funding Institution
Ntchenachena (Rumphi)	1952 rehab. 1990	EEC (CNRFFP)
Mzuzu	1989 - 90	EEC (CNRFFP)
Limphasa (Nkhata Bay)	1989	EEC (CNRFFP)
Bunda College of Agriculture	1966	UNIMA, ICLARM/GTZ
Chinseu Fish Farming (Zomba)	1988	GTZ
Neno (Mwanza)	1989	GTZ
Kunenekude (Mwanza)	1979	Fisheries Department
Kasinthula (Chikwawa)	1970	Fisheries Department
Chisitu (Mulanje)	1988	ODA/GTZ
Zomba Trout Hatchery	1970	Fisheries Department
Domasi (NAC)	1959	Fisheries Department, ICLARM/GTZ
Makhanga (Nsanje)	1956	Fisheries Department
Chancellor College (Zomba)	1979	ICLARM / GTZ
ASOM Hatchery	1945 (1989)	ASOM

In Malawi, Aquaculture research has, and is still being conducted by several institutions viz.: The Fisheries Department in collaboration with NGOs such as WorldFish Center, GTZ, JICA, World Vision and the University of Malawi (Bunda College of Agriculture and Chancellor College). NGOs mainly play a role as funding agencies for different projects whilst the Fisheries Department is the implementer.

5.3 Rural Aquaculture

It is estimated that there are about 4000 small-scale fish farmers in Malawi. A typical farmer has one or two small ponds and harvests about 13kgs of fish per annum. Ponds are normally constructed by family members and sometimes with help of hired labour.

The majority of farmers used maize bran as feed and green compost for pond manure. Partial harvesting is normal and many farmers do not harvest their ponds on an annual basis. Only 3% of fish farmers owned a seine net. Nevertheless, the current outputs from fish farming form an important part of households and provide an additional option for spreading risk and increasing the overall value of the farming system (NASP – 2005)

5.4 Commercial Aquaculture

There are two carefully planned middle/large-scale fish farms started in 2004, Viz. Chambo cage culture in Lake Malawi (MALDECO fish farm) and semi-intensive pond culture in the Lower Shire valley (G.K. Aquafarm). MALDECO fish farm used *O. karongae* and G.K. Aquafish use common carp and *O. mossambicus*. Though still in the nascent phase, these farms are making excellent progress and at full-scale production should be able to produce over 3,000mt per annum.

5.5 Capture Fisheries

Since 1976, the total fish supply has fluctuated between 40,000 and 76,000mt with no definite trend. Lake Malawi is the most important contributor (57%) to the annual fish supply. Fish supply from capture fisheries was estimated at 56,000mt in 2000. Total fish yield has remained fairly static since then and despite fish imports (1,630mt in 2000) and a limited contribution from aquaculture sub-sector, per capita supply fell from 12.8kg during the early 1970s to 5.8kg in 2000.

5.6 Fish Marketing

Processing of fish by small-scale fishers is rudimentary. Distribution and marketing of fish is complex but appears to be efficient. The bulk of the fish landed by small-scale fishermen is smoked or sun dried while the remainder is sold in fresh style. Tilapias are the most valuable fish species in Malawi and its price is sharply increasing with more

than 30% growing rate. Fresh tilapia currently fetches up to Mk200/kg (USD2/Kg) in some city markets. While, small dried fishes, such as Matemba are most popular in the villages and its prices are about one-tenth of tilapia.

6.0 AQUACULTURE AND FISHERIES LIBRARIES

6.1 BACKGROUND

Malawi has only eight (8) libraries and information centers which are involved in aquaculture and fisheries information. These libraries and information centers are: Bunda College of Agriculture Library (BCA), Chancellor College Library (CHANCOLI), National Aquaculture Center Library and Information Center (NAC-LIC), Natural Resources College (NRC), Monkey Bay Fisheries Research Unit Library (MFRUL), Mzuzu University (MZUNI), Fisheries Headquarters (FHL), Lilongwe and Malawi College of Fisheries Library (MCFL). These libraries and information centers have a major role of providing the required information used for teaching, learning and research. But, it is impossible for a single library or information center to satisfy the information needs of its users alone. That is why they have been cooperating among themselves by sharing information resources. However, their efforts are met with a number of challenges.

6.2 Effort in Information Dissemination

Libraries and information centers involved in aquaculture and fisheries science in Malawi have over the years been cooperating by sending each other accessions list, inter-lending services, distribution of duplicates and papers presented by scientists and inviting one another to workshops, seminars, meetings, etc. These efforts have not worked effectively because of a number of reasons such as a few institutions producing and sending accessions lists, which may not be current or relevant to other institutions. There is also unreliable and slow postage services which has just been developed in Malawi; inadequate resources for sharing; scientists not depositing their papers to libraries and information centers in Malawi while information on aquaculture and fisheries is available in other countries and on the Internet. This information is often difficult to access due to little/lack of access to Internet, which is sometimes slow and expensive. Also, very important aquaculture and fisheries research and publications are not accessed for free.

6.3 Problems and Discussions

Lack of qualified staff in Library and Information Science is one of the major problems, which contributes to the effort not to work effectively. Some governmental institutions do not have established posts like that of Monkey Bay Library, Malawi College of Fisheries Library and Fisheries Headquarters library, which require a qualified professional to head information services, in addition to the lack of real government support for an information infrastructure, policy and development at national level. This is seen as the main reason for the lack of adequately qualified staff in many fisheries libraries and other governmental research institutions. The provision of specialized subject-based library services requires qualified staff at least with MALA Certificate, graduate and preferably to post-graduate level. To achieve this level, staff should be motivated, have career prospects, and support from the institutional hierarchy.

Inadequate funding is one of the constraints which other libraries and information centers face. Library governance in general is not well defined. A continuous problem of libraries is finding the correct responsibility so that the library budget is measured alongside those of other departments according to information needed for effective research and development. Too often, the library is grouped with administration in the institutional structure and its costs are seen as purely administrative. Libraries in this scenario are competing with, for example, scientists for scarce financial resources and the competition is seldom on an equal footing. The result is that the library budget is inadequate, and in some cases non-existent. This scenario on the other hand makes the acquisition of publications and access to information difficult.

Inadequate library collection in many national aquaculture and fisheries institutions indicates that basic library collections are inadequate to support growing fisheries research and management programmes. In addition to the very low library budgets for the purchase of information resources, the lack of adequate methods for the dissemination and distribution of national publications means that even these collections are far from complete and current. In the absence of adequate distribution, or at least a system of alerting people to the existence of publications is necessary. There is obviously low

awareness of them. Cases where the library staff has to travel long distances to the various publisher of relevant information in their country are not uncommon. Apart from the inefficiency of this arrangement it is also dependent on the availability of funds. For example, in Malawi only the two academic institutions out of the seven fisheries related organizations surveyed have a policy or mechanism to ensure that local publications are easily and readily accessible to other users. This applies to users in Malawi as well as to those outside the country. As a result, most publications are kept in individual offices and are not organized or catalogued in any way. (Kadzamira, Ngwira and Salanje, 2004). At the same time students and researchers in some countries are forced to travel long distances to libraries in order to obtain the information they need. The research grants in some institutions include travel to other countries in order to obtain information. Donor programmes such as those of International Foundation for Science give grantees amount to cover the purchase of information resources during their research. None of these examples contributes to the availability of information in the long term, either at institutional or national level. Consequently many libraries in developing countries rely almost entirely on donations and free distribution of the publications from international organizations. This development is happening in all aquaculture and fisheries libraries in Malawi, where there is no budget for purchasing books, periodicals and non-book materials since the establishment of their libraries in Departments and Ministries. How can we share information with other libraries when we do not have access to current information on the desk? Information is power and it has to be utilized to the maximum for development.

Lack of staff training in library operations is also the problem, which hinders awareness to inter-lending services, the efforts that have not worked to be implemented effectively. Lack of effective inter-lending cooperation at national level in many countries contributes to even weaker access to information in resource-poor situations. For example, fisheries libraries rely heavily on national socio-economic, trade, environmental and other information related to the particular country in the absence of information resource sharing in Africa and concludes that the underlying problems which have caused the decline in information services must be solved before libraries can benefit from

networking (Rosenberg, 1993). Most of these problems have to be solved at national level.

7.0 STUDY FINDINGS

7.1 Characteristics of Respondents

The respondents in this study consisted of five (5) libraries, which share information on aquaculture and fisheries in Malawi

Data was collected at Bunda College of Agriculture, National Aquaculture Center, Fisheries Headquarters, Lilongwe, Malawi College of Fisheries and Monkey Bay Research Unit Libraries. All the mentioned libraries responded positively when they were sent the questionnaire.

7.2 Needs for Professional Librarian to manage the Information at All Aquaculture and Fisheries Libraries

Responses from respondents from all five libraries show that only Bunda College of Agriculture and National Aquaculture Center have a professional librarian to manage the library.

Bunda College of Agriculture has 18 members of staff. There are three (3) professional librarians, two (2) of them are graduates and one (1) is post-graduate, some of them have got certificates while at National Aquaculture Center, the person managing the library has experience for ten (10) years and is currently pursuing Malawi Library Association (MALA) Certificate Course at Chancellor College.

Table 3. *Showing the Number of Staff and their Professional qualifications*

Name of Library	Number of Staff	Professional Librarian	Graduate	Post-Graduate	Certificates	None Certificate
BCAL	12	2	1	2	4	3
NAC-LIC	2	0	0	0	1	1
MCFL	1	0	0	0	0	1
MFRUL	1	0	0	0	0	1
FHQSL	1	0	0	0	0	1

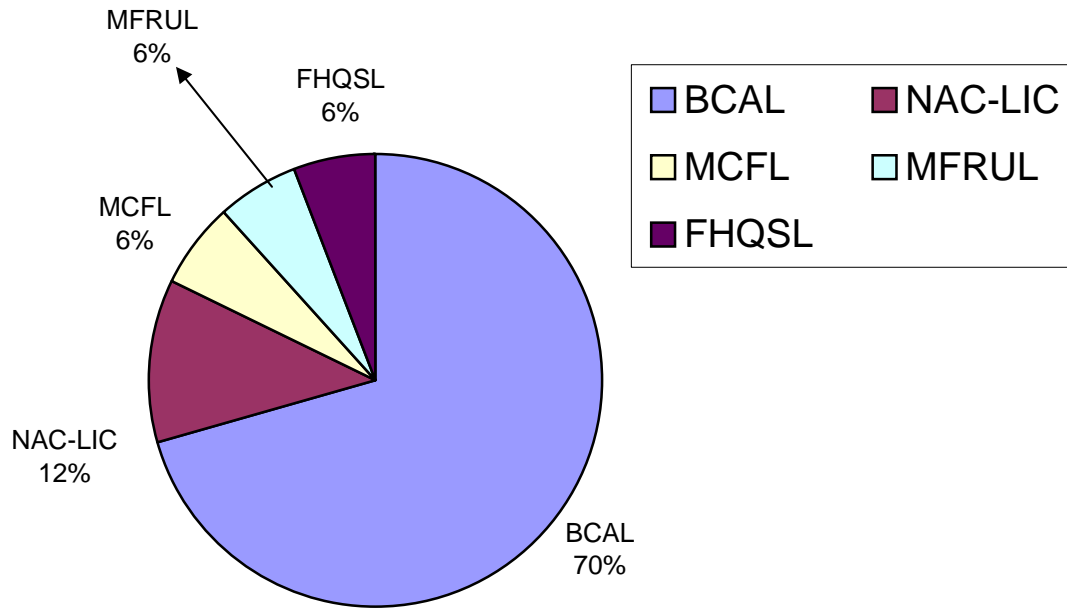


Figure 1: The Pie with a 5-D shows that only Bunda College of Agriculture Library has at least adequate staff to operate the library rather than other four libraries which do not have qualified personnel to operate the library except National Aquaculture Center which has only one staff who has enormous experience and is to be awarded the Certificate in Library and Information Science studies after the completion of the project and assessment of the examinations of MALA.

7.3 Access to Internet in all five Libraries

The survey has shown that only three (3) libraries, thus Monkey Bay, Malawi College of Fisheries, and Fisheries Headquarters have no access to Internet in their libraries.

The survey has shown that Bunda College of Agriculture Library has got twenty (20) computers for their library while National Aquaculture Center Library has three (3) computers, Monkey Bay has one (1) computer and Malawi College of Fisheries has no computer. Those libraries that have more than one computer have Local Area Network in their libraries.

Table 4. Showing the Number of computer users in the library connected to Internet

Name of Library	Number of Computers	Number of Users	Per Day	Per Week	Per Month
BCAL	20	100	100	500	2000
NAC-LIC	4	15	10	100	300
MCFL	1	0	0	0	0
MFRUL	0	0	0	0	0

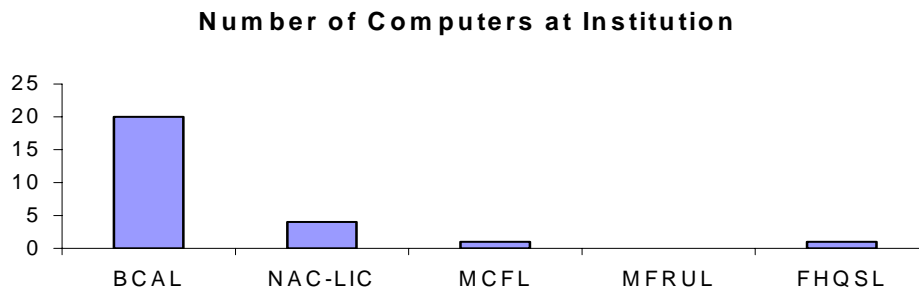


Figure 2: The graph shows the Number of Computers per Library Institution. This graph shows that only three institution Libraries have computers.

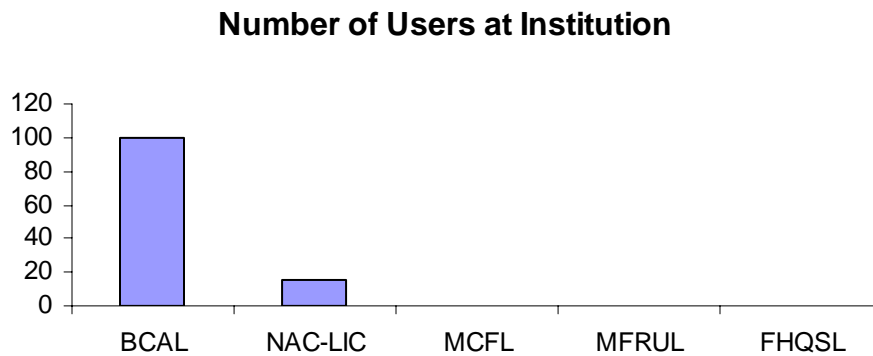


Figure 3: Shows Number Users as per Five-Library Institution, which revealed that three Library institutions are not using Computer and there are not connected to Internet.

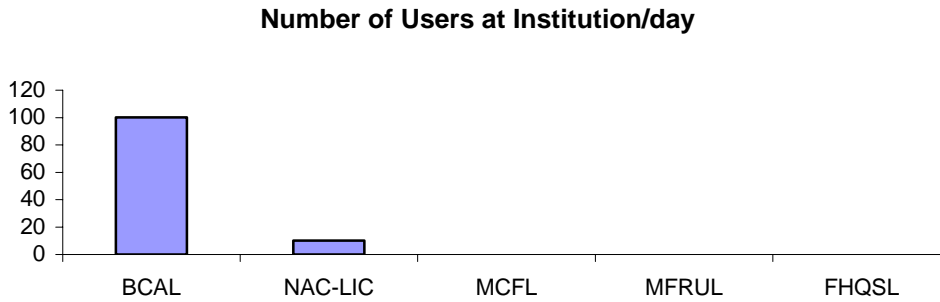


Figure 4: This Graph shows the number of users per Day at individual libraries.

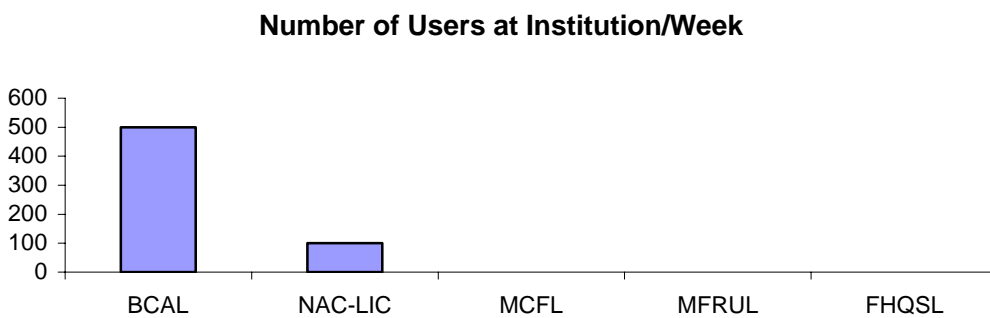


Figure5: This graph shows Number of users at Institution per week.

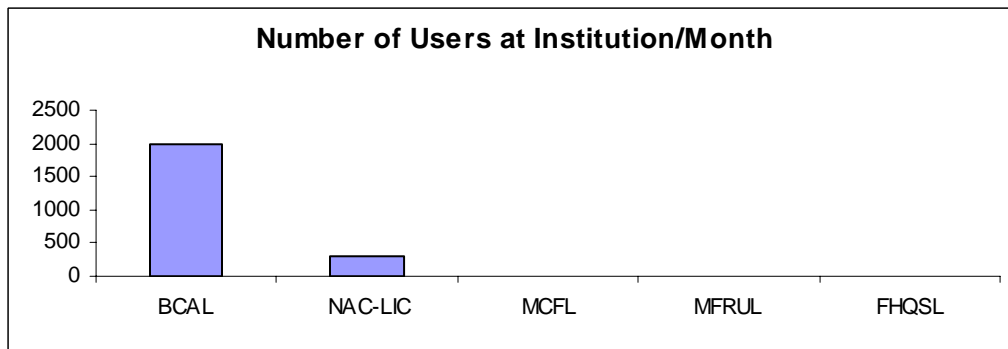


Figure 6: This Graph shows the number of users at Institution per month

NOTE: This shows that other libraries have no access to Internet even in using computers in their library. The survey has shown that only Bunda College of Agriculture have full accessibility of using computers and internet and that National Aquaculture Center Library and Information Center has also accessibility to use computers and internet. The survey has shown that the problem of computer in other libraries is really a crisis. There is need for other library to have enough computers that the library personnel should have access to computers and connected to Internet in order for them to be able to share information with their friends of the same scientific libraries within and beyond the region.

7.4 Materials acquired by the Libraries

The survey has shown that all Aquaculture and Fisheries libraries except Bunda College of Agriculture library have no budget for purchasing materials for their libraries. They only rely on donations and gifts from other institutions and organizations; they also rely on the papers, which get deposited in the library as a result of the research projects or papers presented at any other workshops or seminars. All materials acquired are being classified using the Library of Congress classification scheme except Malawi College of Fisheries, where they classify their materials using Dewey Decimal Classification scheme.

7.5 Libraries and materials they exchange and correspond with each other

The libraries, usually exchange materials like reprints, Fisheries Bulletins, Annual Reports, Books etc. NAC donates the above-mentioned items when The Worldfish Center's Headquarters in Penang, Malaysia donates to the library, especially books. Other materials like reprints are obtained from the Internet through AGORA. Fisheries Bulletins are obtained from Fisheries Headquarters in Lilongwe. Two copies are sent for each title to all five Aquaculture and Fisheries Libraries and Bunda also does the same to NAC and to all aquaculture Fisheries libraries.

7.6 Libraries have access to meetings/seminars or training workshops

The survey has shown that due to lack of funding, libraries do not have access to organizing meetings/seminars or training workshops pertaining to library work. Lack of qualified library personnel in other aquaculture and fisheries libraries has made it a problem to communicate with other aquaculture and fisheries library personnel in the inter-lending services and in the distribution of materials of the library.

7.7 Problems faced by the aquaculture and fisheries personnel in running the libraries

The survey has shown that lack of inadequate funding is a major problem, which has resulted in inadequate information resources being purchased in some of the aquaculture and fisheries libraries in Malawi. The other problem is that there isn't enough library space for all library users to use the library comfortably.

8.0 DISCUSSION OF FINDINGS

The study was designed to analyze the role of National Aquaculture Center Library in the dissemination of information on aquaculture and fisheries in Malawi. The researcher based his research on two objectives. The first objective was aimed at outlining what libraries and information centers in Malawi are doing to ensure that they are able to share aquaculture and fisheries information among themselves, and discussing the problems they encounter in such an effort.

The study found that due to lack of valuing library and information resources on aquaculture and fisheries and lack of qualified library personnel in the aquaculture and fisheries, libraries are not able to properly share information on aquaculture and fisheries within Malawi, as it was supposed to be. Many of these issues related to access to local aquaculture and fisheries also apply to global information (Webster, 2005). For example, the physical location of information, the gaps in information, the time and costs involved in gathering information are equally relevant. These issues are invariably related to economic factors and the concept of information value is not well documented in the fisheries literature. There is rarely any calculation of the costs of duplicating research or loss of livelihood, or even life, as a result of the lack of information. Whereas commercial publishers are well aware of the costs and the value of information in terms of profits, there is little evidence of an equivalent awareness of the value of information in fisheries research programmes or institutional budgets. This is probably because of the difficulty in measuring the impact of information on an individual or an institution, not to mention society in general.

Studies have been carried out which contribute to an understanding of the value of libraries in various sectors and situations. For example, 'the value of library services in development,' which was published in 2003, suggests that a return on investment analysis should be used in demonstrating the monetary value of libraries to their parent organizations and communities. The funding of libraries is not being viewed as profitable investments in development and as the provision of public goods, which help in the efficient use of scarce financial resources (United Nations Economic and Social Council, 2003).

The study also found that aquaculture and fisheries libraries do not have enough space to accommodate their materials. As a result, the libraries do not have enough space for users to comfortably sit and read. Lack of computers in the aquaculture and fisheries libraries is another problem, which hinders in accessing of information on aquaculture and fisheries through the Internet. Lack of staff training of library personnel is also the problem, which hinders awareness to inter-lending services, the efforts that have not been worked out to be implemented effectively.

The study also revealed that the library is grouped with administration in the institutional structure and its costs are seen as purely administrative. Libraries in this scenario are competing with, for example, scientists for scarce financial resources and the competition is seldom on an equal footing. The result is that the library budget is inadequate, and in some cases non-existent. This scenario on the other hand makes the acquisition of publications and access to information difficult.

The second objective was to suggest some solution to the problems so that the libraries and information centers can best share information resources to individuals or as a network within the country through Internet to those libraries, which are not yet connected. The International Telecommunication Union (ITU) in its World Telecommunication Development Report, 2003 states that as we enter the new millennium, almost every country in the world has a direct connection to the Internet. ITU goes on to point out that, although this is an impressive achievement, Information and Communication Technology (ICT) penetration levels vary among and within countries, creating a digital divide between those with high and those with low access levels. Aquaculture and fisheries institutions in many developing countries are slowly progressing towards full and more reliable Internet access. The case of Malawi, only National Aquaculture Center and Information Center and Bunda College Libraries are accessible to Internet in their libraries, where they are able to access current information on the web. The Malawi Library and Information Consortium (MALICO), which was formed in 2003 with an aim of providing information through electronic technology, has made a tremendous improvement in the area of accessing and sharing of information at

Bunda College. MALICO has within the three years of its existence brought into the country four V-SATs with funding from Open Society Initiative for Southern Africa (OSISA) among other donors.

9.0 CONCLUSION

The findings of the research have revealed that sharing of information on aquaculture and fisheries is not reaching targeted people in a specific locality or a specific country, and that it is normally the most important resource for the sector as a whole in the country. In these times when science and technology are developing rapidly; aquaculture and fisheries libraries are also faced with new challenges and new opportunities. There are many problems for us to resolve and much hard work for us to do and explore. Aquaculture and fisheries libraries in Malawi have the potential and opportunities of sharing information/documents among themselves and with other institutions within or outside the country. However, they have to resolve some of the challenges they face in their efforts to share information and documents. Information is power and has to be utilized to the maximum for development. With advancement of technology, use of electronic media is becoming popular by the day. Malawi cannot afford to lose rich and diverse data/information, which is lying idle in office shelves. Any delay for action could be detrimental and irreversible. Our libraries can play a great role in consolidating this vital information into a single bag for easy and quick access.

10.0 RECOMMENDATIONS

From the conclusions, there are several recommendations that have been outlined. The fisheries department headquarters should be serious on recognizing the value of information on aquaculture and fisheries when sharing among libraries in Malawi. The fisheries department should be in a position to value the important role of the librarians in the aquaculture and fisheries libraries that they play an important role in dissemination of information in Malawi. It should also recognize the importance of the library by including it when doing their budget that the library should be included for the purchase of materials, which are by now outdated in some of aquaculture and fisheries libraries. The Fisheries Department should consider the libraries, which do not have qualified library personnel to advertise the posts that have been vacant for many years so as to recruit professional library personnel who would be conversant with the process of sharing information resources with those who are also aware of the available information in the libraries. Sharing of information is difficult because unprofessional library personnel are deployed to work in some aquaculture and fisheries libraries, i.e. messengers who have no knowledge of the dissemination process of the library information to other relevant personnel. The fisheries department should allocate computers to all aquaculture and fisheries libraries and have them connected to the Internet so that it should be an easy way of communication between aquaculture and fisheries libraries. Organizing, managing and disseminating this information is one of the most important functions of the libraries of national institutions concerned with Aquaculture and fisheries. Ensuring that this information is accessible to all at the level where livelihoods are concerned and fisheries management is implemented, is a major challenge. The maintenance of local collections and their dissemination to all stakeholders is more effective where libraries collaborate at the national level. This ensures that locally generated information is used and consequently validated. The broad subject base of fisheries makes it essential that libraries provide a wide range of information. However, inadequate budgets and institutional missions often preclude a multidisciplinary collection. Inter-library cooperation at the national level is therefore essential to provide access to the breadth of libraries-related information, including environmental and general science, socio-economics, legislation and information on

national markets and trade. To facilitate the exchange of information, aquaculture and fisheries should adopt national standard in the development of their own information system. The question now is: Can we not collect and put all this information into a single box for ease of access?

11.0 BIBLIOGRAPHY

ADiM Working Paper No.1 (2005) Capture Fisheries in Malawi and their contribution to national fish supply.

ADiM Working Paper No. 6. (2005) Commercial Aquaculture Development, Its Potential and Risk

Balarin, J.D. (1991) A short review study for the potential for commercial development of fisheries and aquaculture in Malawi. Press Corp Report.

FAO. (2003) Ensuring Access to Food for all. In. *Agriculture, Food and Water: A contribution to the World Water Development Report*, pp. 29-37. Rome, Italy: FAO.

FAO Fisheries Department (2002). The State of World Fisheries and Aquaculture. FAO. Rome, Italy.

Jamu, Daniel and Chimatiro, Sloans (2005). Sustainable agro-pisculture in Malawi. *Agriculture & Rural Development* 12 (2): 45-46.

Kadzamira, G.A.; Ngwira, M.E. & Salanje, G.F. (2004). Review of the fisheries Information Resources in Malawi. In: *Report of and papers presented at the Regional Workshop on Networking for Improved Access to Fisheries and Aquaculture Information in Africa. Grahamstown, South Africa, 3-7 November, 2003. FAO Fisheries Report No. 740, pp. 61-78.* [Online]. Available: <ftp://ftp.fao.org/docrep/fao/007/y5519b00.pdf>

Kaunda, E.K.W. (2003). Aquaculture research and training: An overview

- Li-nian, L.; Ning-sheng, Y. (2006).** The role of Chinese Fisheries libraries in responsible fisheries. In: *Anderson, K.L. & Thiery (eds) 2006. Information for Responsible Fisheries: Libraries as Mediators: Proceedings of the 31st Annual Conference: Rome, Italy, October 10 -14th, 2005. Fort Pierce, FL: International Association of Aquatic and Marine Science Libraries and Information Centers*
- Meecham, K., (1976).** Aquaculture in Malawi. CIFA Tech. Pap. 4 (Suppl.1): 66-72 FAO, Rome, Italy.
- Salanje, Geoffrey F. (2003).** Accessing Aquatic and Fisheries Sciences Information for change: A Case for Malawi. Paper Presented at the 1st AFRIAMSLIC Conference, Accra, Ghana. P.3
- Salanje, Geoffrey F. (2005).** Electronic Information in Aquaculture and Fisheries Science: Opportunities and Challenges in Malawi. Paper Presented at the 2nd AFRIAMSLIC Conference, Accra, Ghana, 13th - 15th September, 2005.
- Salanje, Geoffrey F. (2006).** Information sharing among fisheries and aquaculture institutions for sustainable development in Malawi. In: *Anderson, K.L. & Thierry (eds) 2006. Information for Responsible Fisheries: Libraries as Mediators: Proceedings of the 31st Annual Conference: Rome, Italy, October 10th - 14th, 2005. Fort Pierce, FL: International Association of Aquatic and Marine Science Libraries and Information Centers*
- Sikawa, D. & Kapute, F. (2007).** One-Stop information shop for aquaculture and fisheries in Malawi. *Paper presented on the 3rd Africa Regional Group of the International Association of Aquatic and Marine Science Libraries (AFRIAMSLIC) conference, Riverside Hotel – Lilongwe, Malawi 10th – 12th September, 2007.*

Webster, J.G.; Collins, J. (2005). Fisheries Information in developing countries. Support to the implementation of the 1995 FAO Code of Conduct for Responsible Fisheries. FAO Fisheries Circular. No. 1006. Rome, Italy, FAO. 127p. [Online]. Available: <ftp://ftp.fao.org/docrep/fao/007/y5847e00.pdf>

Wilkinson, S.; Collins, J. (2007). Information in support of responsible fisheries and aquaculture. Guidelines on digital publishing: a practical approach for small organizations with limited resources. Fish Code Review. No. 20. 82p.

12.0 LIBRARY QUESTIONNAIRE

Name of Library:.....

Address of Library:.....

Position of Respondent:.....

COST-BENEFIT ANALYSIS FOR SHARING AND DISSEMINATION OF INFORMATION ON AQUACULTURE AND FISHERIES LIBRARIES

1. This questionnaire is not a test.
2. Do not write your name on it
3. Answer all questions.

Gender: Male
 Female

1. When was your library established?

.....

2. What was the mission statement when it was established?

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.....
.....

3. How many staff do you have in your library?

.....
.....

4. (a) Do you have Professional Librarian? Yes No

(b) If yes, In What level? Certificate Graduate

Post-Graduate

(c) If No, Does your Institution have established post for Librarian?

Yes No

(d) If yes, when was it established?

.....

5. Does your library have access to Internet? Yes No

6. Who are the beneficiaries of the Internet in your Library?

Students Staff Researchers Scientists

Others (Specify).....

7. How many computers do you have in your library

.....
.....

8. Do you have Local Area Network (LAN) within your institution?

.....
.....

9. Do you provide training on how to operate the LAN to your customers?

.....
.....
.....

10. How do you acquire your materials in the library?

.....
.....
.....

11. (a) Do you catalogue your materials?

Yes No

(b) If yes, what type of classification do you use in your library?

.....
.....

12. How many libraries do you correspond with on inter-library loan?

.....
.....

13. (a) What type of materials do you exchange with those libraries?

.....
.....
.....

(b) How many times? Is it, i. Monthly ii. Quarterly
iii. Annually

14. In what form is the material exchanged?

Electronic copies Hardcopies

15. (a) Does your library have budget to purchase materials in the library? Yes

No

(b) If yes, is the money allocated enough for your library to meet your needs?

Enough Not Sufficient Not enough

16. Who is responsible person for purchasing Books or Non-book materials of the library?

.....

17. Aquaculture and Fisheries Libraries used to send each other accessions list, inter-lending services, distribution of duplicates and papers presented by scientists, periodicals, reprints and inviting one another to workshops, seminar, meetings. Did your libraries get involved in this service?

Yes No

18. If yes did you see any benefit from it?

.....
.....

19. Dissemination of information needs cooperation with other libraries. How many libraries does your institution cooperate with? Name them.

.....
.....
.....
.....

20. As a custodian of information, how many volumes of books are in stock in your Library?

.....
.....

21. Do you have opportunities of attending trainings or workshops with your fellow librarians as a matter of exchanging new ideas with you fellow librarians?

.....
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.....
.....

22. What problems do you face when running library activities at your institution?

.....
.....
.....

23. What are the advantages of library Cooperation with other libraries?

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