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AGRICULTURAL LIBRARIES AND INFORMATION IN MALAWI

By

CLEMENCE ROZARIO NAMPONYA

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Supervisor:
T.A. Whitehall, B.Sc.; M.I.Inf.Sc.,
Department of Library and Information Studies, Loughborough University.

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DEDICATION

To

Abitimaya Nachaza R. Samula
Akundemeka Mwatanguriwa
Wazi Elizabeth
Tamanda Rosina
Suzgo
DEDICATION

To

Abitimaya Nachaza R. Samula
Akundemeka Mwatanguriwa
Wazi Elizabeth
Tamanda Rosina
Suzgo
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CHAPTER I
INTRODUCTION

Borchardt\footnote{1} observed that none of the thousands of projects in the developing countries can be executed without the fundamental condition of the establishment of a literate and numerate society, and a system for the continuous provision of and exchange of ideas, thoughts and knowledge which the educated society can feed on and use with suitable modifications to construct its own cultural and industrial destiny. He thought that the creation of a viable national development plan must be based on the recognition and definition of national short-comings which requires comparative data, critical analysis, and statistics from both home and abroad.

1.2 The Problem

The study is centred on Malawi but takes into account the state of agricultural and information services in the neighbouring and other developing countries. The works of Mohammedali\footnote{2} in East Africa and Parker\footnote{3} in India have had some impact on the study. The former reviewed the agricultural,

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industrial and commercial information services against the economic, educational and social background of East Africa, noting the deficiencies in resources, staffing, coverage and organisational structure. His thesis then went on to propose, as a general remedy, more effective national information systems in agriculture, industry and commerce and advocated a fuller recognition of the educational role of information services.

Parker, after participating in a survey of agricultural libraries in India, prepared her guide which offers a method for assessing present library resources, personnel services, and client's needs and for analysing the existing weaknesses and the strengths of the present library situation. The model was modified for this study.

The problem as I see it is what is the role of the agricultural information resources and how can these be developed to meet the needs of Malawi.

With regard to Malawi, Mphundi reviewed the library and information problems. He attempted to formulate a plan for library archives and documentation services and to present a background to the total field of the national information resources against which local factors may be set. He saw a need for re-defining Malawi's information requirements; for the establishment of an organisation designed to fulfil these needs and recommended a national information plan based

on a national information policy.

Uta identified lack of finance and staff as the main problems hindering library development in Malawi. He suggested a positive approach to impress upon government and the public that the library has a role to play, the creation of a National Agricultural Reference Library and control literature and co-operation.

Massil and David were commissioned by UNDP at the request of the Malawi Government to advise the authorities in developing a plan for a National Documentation Centre. Massil observed the conditions of library and information services and made recommendations, while Madame David's mission covered the same ground but had further specific reference to information services and needs of the business, industrial and commercial fields in the context of national development. In addition she paid specific attention to information requirements and commitments in such fields as intermediate technology, realising new and renewable sources of energy and others where UNCSTAD, Unesco and other bodies are setting up structures for international co-ordination in the flow of information.

This study is the first comprehensive study of Malawi agricultural library and information resources.

1.3 Reasons for study and its scope

The impetus for the study was provided by the realisation that in an agricultural based economy, agricultural libraries should develop and keep pace with the development in Malawi and that the infrastructure is already there, but needs developing.

1.4 Assumptions and hypothesis

Several fundamental assumptions have been made. The first is that information is a basic resource like land and needs care and that agricultural information is a necessity in a country developing her agricultural resources.

Secondly manpower and basic materials of communication are becoming expensive thereby demanding the planning, the organisation and control of information. This assumption is supported by the increasing volume of information needed by and available to the agricultural worker. One estimate for science and technology puts the annual growth rate of scientists and technologists at 4-8% and the quantity of the literature was estimated to double every 10-15 years. Scientific journals have been estimated at about 80,000⁸. Accurate statistics for agriculture are not available and this problem is compounded by the difficulty of deciding what kinds

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⁸ Boyle, P.J. and Buntrock, H. Survey of the world agricultural documentation. 1973 (Doc.FAO/EC/AGRIS no.6 EUR 4680/1E)
of literature ought to be included among the category of agriculture.

In an AGRIS survey made by Boyle and Buntrock\(^9\) the output of documents recorded by the various secondary services relevant to agriculture was first totalled and then corrected for the estimated duplication of coverage of the same primary literature item among the 300 or so services surveyed; this averaged 7-9 times for each item. The annual output of documents of all kinds relevant to agriculture was estimated to be 200,000-250,000 for 1972. More recently, this figure has been raised to a total of about 300,000.

The problems posed by this quantity are:

1. All the literature that could be useful to any one agriculturalist may not possibly be read or committed to memory; moreover, it is in more than seventy publishing languages and no user in the world understands more than three or four.

2. Finance may not allow any one organisation to obtain all the documents of possible value to its workers, nor the facilities to process and store it.

The need for planned services to collect, store and retrieve the information contained in these documents with workers in Malawi in mind is apparent.

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The third assumption is that a general acceptance of scientific and technical information is one of the basic ingredients of advance in any aspect of research. Agricultural productivity must be matched by the acquisition of information from research and by channelling it to the people in the rural areas who are the main agricultural producers. The chances of the smallholders in the rural areas adopting improved agricultural practices are slender without a reliable information system. The validity of adoption decisions made by individual farmers correlates with the relevance, completeness and currency of the information on which they are based.

The following are the objectives of the study:

1. Determine the libraries and information services available to agriculture in Malawi.
2. Examine how agricultural information is prepared and delivered through the various channels to the farmers.
3. Determine the problems facing agricultural libraries with a view to suggesting solutions.
4. Determine the role of these libraries.

1.5 Methodology

The study falls into four distinct areas above. The libraries and information services available were determined by consulting the directory of libraries in Malawi. A questionnaire (Appendix 1) was constructed to assess the present resources and services and analyse the weaknesses and strengths of the agricultural libraries. Sixteen libraries
and institutions were visited mainly because of the size of their collections as indicated by the directory (figure 1).

The sixteen libraries are a good representative of most aspects of agricultural library provision in Malawi including both the best and the mediocre. However, there is a geographical bias towards the Southern and Central Regions. This is an accident of history; most of the early agricultural institutions were established in these Regions. Lunyangwa Research Station and Karonga Agricultural Development Project are known to maintain libraries, but it was not possible to visit them because of transport problems. It was, however, possible to meet the Officer-in-Charge of Lunyangwa while he was on a project meeting in Lilongwe and discuss library problems. It will be seen from the sample that all the libraries but two are directly under the Ministry of Agriculture. This prejudices the suggestion for improvements in chapter 8. Administrators, librarians and research officers (appendix 3) were interviewed for periods ranging from half an hour to one hour. The institutions were contacted by letter in the first instance and telephone before the visit was made to agree on the most convenient time.

The interview method was adopted because it afforded an opportunity to observe the problem on site and clarify some of the questions that would otherwise have been misinterpreted had the questionnaires been sent by post. It also afforded an opportunity to meet some of the users, examine records and identify trends and current use, problems and attitudes.
Figure 1: Institutions Visited
The first contact at each institution was the Officer in Charge or his nominee and although the main interview was based on the questionnaires, free discussion was encouraged. This turned out to be most valuable especially in institution where there was no trained librarian.

The interview was followed by a tour of the library to cross check some of the information collected e.g. classification, equipment, storage facilities. Although most of the researchers and other people met in the institutions were known to the author, information about finance, development plans and staff was not easy to come by.

With regard to the delivery of information to the farmers, questionnaire (appendix 2) was constructed. The communication and adoption of information about Hybrid Maize Seed, Dipterex, Actellic and Layers Marsh, inputs which the Ministry of Agriculture was encouraging for adoption by the farmers, was studied. Maize is Malawi's staple food and is grown by every subsistence farmer. Dipterex is used on maize crops against attack by stalk borers and Actellic is used on the harvest against post harvest attack by weevils. It is traditional for Malawians to keep chicken, which are usually slaughtered on festivities or for visitors and are a cheap source of protein. To develop chicken farming for both commercial and nutritional purposes, the Ministry of Agriculture encourages them to buy feed for their chicken.

The questionnaire was used for farmers in Unit 33 of the Lilongwe Agricultural Development Division (see figure 2).
Figure 2: Location of Unit 33 in the Lilongwe Land Development Programme
and a total of 220 farmers were met. This represented \( \frac{1}{10} \) of the farm family population. The names of the 2238 farm families were available from the Development Officer of the unit and each was given a number which was written on a piece of paper. These were put in a box, shuffled and picked from the box with the eyes closed. The first 220 numbers picked from the box represented the names of the farm families to be interviewed. The Development Officer forewarned the farmers of the interview at group meetings and accompanied the investigator on the first day.

For convenience the sample was grouped into the farm families' villages, and the investigator called on the village headman first to brief him, gain his support and have him lead the interviewer to the first farm family in the village. The interview was conducted with the head of the farm family and lasted between twenty and thirty five minutes. The reason for the interview was explained and as much discussion as possible was encouraged.

The farmers were met during May/June 1981. This is the harvesting period, so it was not possible to check on the use of Dipterex. However as the interviewer was conducted around the household to admire the harvest and other agricultural items, he was able to confirm the use and application of improved seed, Actellic and Layers Marsh in the case of the farmers whose chicken were not free-ranging. The interviewer was taken for one of the extension officers trying to diagnose problems and this belief put the farmers at ease so
that they did their best to answer the questions. The more progressive farmers were proud to display their success and took the interviewer on extended tour of their harvest and other products.

The questionnaire was divided into three stages. The first sought family data and was categorised into name, age, level of education and holding size. The second stage sought to find how the farmers learned of the four inputs: Hybrid maize seed, Actellic, Dipterex and Layers Marsh. Its aim was to highlight the main sources of information used by the farmers to know about the inputs and their application.
CHAPTER 2

AGRICULTURAL DEVELOPMENT AND CONTEXT OF THE STUDY

Malawi, like most developing countries, is trying to evolve a society which puts emphasis on changing the people. Development efforts are targeted at the rural population. Increase in national income, and the degree of industrialisation represent development but in the words of the Malawi leader, development must include better housing, enough educational facilities and adequate food. Efforts are made by the Government to interweave the traditional way of the Malawians with the social and economic advances that are sweeping most African countries. This implies rural transformation.

The first thing is to change the mentality of the rural people so that they do not always rely on the Government for everything. They must learn what they can do with the natural resources available ie. land, water etc. and to avoid obstacles like famine, poor water supplies and poor communications.

Most developing countries have shifted towards rural development. In Malawi, development plans reflect this clearly. Soon after independence development priorities were spelt out by the Minister of Finance in the following terms: "First we must increase the productivity of our agricultural smallholders, secondly we must give every facility and encouragement to the production of agricultural commodities by large estates with commercial capital, thirdly we must assist
all kinds of business enterprises and increase the participation of Malawians in commercial and industrial activities, fourthly we must maintain a reputation of good housekeeping and retain the goodwill of international institutions and donor countries on whom we rely for financial assistance.¹

The shift towards rural development has many reasons. Firstly, agriculture is the main source of growth from which all other activities are directly or indirectly derived. Although the country has some minerals, these do not exist in large enough quantities to warrant exploitation. Secondly Malawi does not have enough capital and high level manpower but relies on foreign capital for her development effort. Developing agriculture is therefore seen as a way of economising on these resources because it is less capital and less manpower intensive than other sectors.² In addition, as agriculture accounts for about ninety percent of the value of domestic exports of which about fifty percent is from smallholder crops, increasing foreign exchange earnings would imply increasing agricultural production. Thirdly, the development of agriculture is intended to assist the unemployment problem and to benefit the poorest members of the society. Mein gave the following percentages of rural householders owning some key items: "paraffin lamp 50%, bicycle 30%,

radio 8%, sewing machine 2%, ox cart 1%.

Agriculture is the most important source of employment, as can be seen from the following table:

**TABLE 1 : Structure of employment in Malawi**

<table>
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<tr>
<th>SECTOR</th>
<th>1977</th>
<th>1978</th>
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</thead>
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<tr>
<td></td>
<td>No. Employed</td>
<td>% of working Population</td>
</tr>
<tr>
<td>Agriculture</td>
<td>154,696</td>
<td>50.1</td>
</tr>
<tr>
<td>Community, Social Services</td>
<td>45,571</td>
<td>14.7</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>33,479</td>
<td>10.8</td>
</tr>
<tr>
<td>Wholesale and Retail Trade</td>
<td>25,226</td>
<td>8.2</td>
</tr>
<tr>
<td>Transport, Storage &amp; Communication</td>
<td>16,597</td>
<td>5.4</td>
</tr>
<tr>
<td>Insurance &amp; Business Services</td>
<td>6,718</td>
<td>2.2</td>
</tr>
<tr>
<td>Electricity &amp; Water</td>
<td>2,751</td>
<td>0.9</td>
</tr>
<tr>
<td>Mining &amp; Quarrying</td>
<td>558</td>
<td>0.2</td>
</tr>
</tbody>
</table>


The importance of agriculture to the economy of Malawi is reflected in the government's Expenditure on Development Account for the period 1972/73 to 1979/80.


The government also made compulsory in October 1969 the teaching of agriculture in all primary and secondary schools and teacher training colleges. The syllabus is intended to encourage students to learn the basic principles of good farming, develop skills needed in improved farming and personally experience agriculture as being interesting, scientific and profitable by making small scale experiments and running livestock projects. It is thought that by teaching this subject in schools, the development of Malawi will be accelerated because school leavers who return to the community will be equipped to deal with and understand their rural problems as well as taking part in rural development.

2.1 Development Policies: The NRDP and the road ahead

The concern of the post independence Government was to boost smallholder agriculture. Hitherto food requirements were met by expanding the acreage under cultivation: a practice which made it difficult for production to increase with the growing population and soil erosion. The Government therefore decided to effect a general rise in agricultural production to be achieved quickly and effectively by the most economical means. This was what the Malawi Congress Party had promised in its election manifesto: to commercialise and modernise agriculture.

Agricultural production would only be increased and modernised with the support of an active research organisation which would investigate and develop methods of increasing the yield and quantity of agricultural products. The Agricultural Research Council was therefore promulgated by an act of parliament in July 1967 to reinforce already existing Government technical services.

Agricultural research institutions needed the support of seed multiplication, storage and distribution facilities, introduction of new agricultural inputs, credit facilities, market institutions, transport and communication networks. The Government therefore decided to concentrate on the promising regions by establishing high productivity projects and maintaining the policy of gradual improvement of the mass of smallholder farmers through general extension and
marketing operations. 6

Pilot projects which had been introduced in the three regions of the country including irrigation, land organisation, introduction of new crops and modern methods of cultivation suggested that agricultural production could be increased considerably by co-ordinated cultivation methods. The 1971-80 development policies therefore favoured the introduction of large scale development projects: the major projects which could be concentrated within defined geographical regions in a co-ordinated manner. The four major projects were the Lilongwe Land Development Project, the Central Region Land Development Project, the Shire Valley Development Project and the Karonga Land Development Project, (figure 3).

The project sought to achieve the following: (a) the provision of infrastructure such as roads, input stores and produce markets, Health and veterinary facilities, boreholes, and office accommodation for staff (b) improvement of land (c) strengthening the extension marketing, research and public health staffing (d) establishment of credit facilities for agricultural inputs such as fertilisers, seeds, work-oxen and farm implements. 7 In 1981 the major projects were

FIGURE 3 Location of the four major development projects in Malawi.
the scene of a pilot functional literacy project which is intended to cover the whole country.

The determination of the Government to narrow the gap in the standard of living between the urban and the rural population is characteristic of most developing countries. Only in this way will industries develop because of the presence of an internal market. Malawi's rural population is the largest market. Improving the standard of living of the rural population can be enhanced by encouraging farmers to participate in the national economy, and the greatest chances lie in improving agriculture. Mellor supports this view when he writes that "the problem of farming development is not so much one of meeting one's food crisis, but one of increasing rural incomes so that people may live better, broaden their horizons and their area of choice". 8

Increasing rural incomes implies working harder and adopting improved practices of modern technology. 9 But adoption is hampered by the absence of easily accessible markets, changing technology, lack of available supplies and equipments, reasonable prices to encourage the farmer to make a profit, and lack of transport.

These constraints may be overcome, but there are also personal and cultural constraints within individual farmers.

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They need inter alia clear and reliable information in order to be persuaded to adopt improved practices. Third world countries would become prosperous if, given the fertility of most of their soils, they had information about new technology and a host of other services developed in the developed countries and other developing countries. Thousands of publications on which our own development efforts could be modelled exist and we have no excuse for not using the technology that has been developed elsewhere. Linton reminded us that "if every human being had been left to climb upwards by his own unaided efforts, progress would have been so slow that it is doubtful whether any society by now would have advanced beyond the level of the Old Stone Age". 10

People must adapt to their ever changing environment to make any progress. They must generate and diffuse innovations among themselves or accept ideas from outside the group. The United States has given us an example of how, with technology and wide dissemination of information, a country can change from a food importer to a food exporter. Soth wrote that "if you have to single out one secret behind the miracle of agricultural production in the United States, it would have to be knowledge - the application of scientific research through improved technology to farming". 11

The discovery of agriculture, i.e. the change from food gathering to food production which took place about 10,000

years ago in the Neolithic Age, was a great landmark in the development of civilisation. The lesson man learned was that he needed information and self discipline in his food gathering efforts. Seeds had to be selected and sown at certain times, plants had to be tended and protected and harvests had to be made and the food stored and divided. It is not without reason that it has been suggested that writing developed because records were needed by agricultural administrators. This view is supported by the fact that early libraries in tropical Africa were established in connection with the extractive industries of agriculture, geology, forestry and chemistry. Even the first newspaper in southern Africa was agricultural: The Central African Planter - the plant referring to tea which had been introduced in Mulanje and Thyolo, Malawi and formed the bedrock of the country's economy.

Man must learn from the agricultural history of the West which provides us in the developing countries with food for thought. France is said to have experienced sixty famine years between A.D. 970, and 1100 and in 1418 one third of Paris is believed to have died of starvation. In 1749 d'Argenson is said to have written: "I am at present on my estate in Touraine. It is no longer a gloomy sense of poverty, it is now utter despair which holds the poor in its grip. Their only desire is to die and they are no longer breeding".

The potato famine in Ireland is one example of how famine has changed the course of human history. The disease known as potato blight destroyed this main food crop in 1845-1846. As a direct result of the blight, Ireland lost about a third of its population from starvation, and disease following malnutrition and about a million and half emigrated mainly to the United States.

Precautions are now taken to avoid the repetition of this disaster. Today it is mainly the countries of the third world which are in the grip of famine or near famine conditions. These include Ethiopia, the Sahel region of Africa, Gambia, Somalia and some areas of Tanzania and Kenya. Food is important for the survival of mankind and its shortage is at the root of most of our social and economic problems.

Unfortunately, the use of information from outside is hampered by the literacy race. Only about 30% of the Malawi population is literate. The Malawi Government recognises the relationship between literacy and economic development as the following quotation illustrates: "Teaching an adult to become literate is a national investment. So long as useful reading material is readily available a grown up person can make good use of his skill immediately and add to his own and the country's wealth. No country has yet achieved a steady self-sustaining economic growth with an adult population which is less than 40% literate. Malawi's figure is still below this and illiteracy may become one of the biggest hinderances to national economic..."
development." 14

Malawi launched a functional literacy project in 1981 to help adults develop their reading and writing skill and to broaden their understanding of development related subjects such as agriculture. Ngabu, Salima, Karonga Agricultural Divisions are being used as pilot places. 15 These places have well developed facilities such as training centres, grow cotton, and are near the lake or Shire River which allow some fishing to be done. Reading materials prepared for one area can therefore be used in another. Materials on mathematics will also be integrated with the agricultural subjects and will be based on the farmers' experience of buying, selling and measuring. Short courses will be mounted to supplement the literacy classes and reading material will be prepared progressively and graded for the literacy and the post literacy phases. About 9,000 learners are expected to complete their literacy classes by the end of 1981 and these will require follow up literature and more advanced material to upgrade their knowledge. This point was emphasised by the Unesco report in the following terms: "The creation of a literate milieu for retention of literacy by the new literates is essential and will call for production of a variety of follow-up material, the improvement of the delivery and distribution system, establishment of libraries and increased use of the media, particularly radio, both for publicity,

motivation and instruction". 16

This is only the beginning. There will remain many farmers who will need to be informed differently. We in the developing countries are lucky that we can use the knowledge accumulated by the developed countries for our benefit. The few that can read should help by gathering this information in a form that can be presented to farmers. Farmers do not necessarily have to know how to read to gain from information. We have been used to thinking that a farmer has to go to a formal school to learn. Patch believed that cultural constraints must be overcome in order to effect agricultural development when he wrote that "if freedom of choice is to be effectively increased so that agricultural development becomes possible, an entire edifice and modes must fall". 17

Our values in Malawi must be changed to encourage development. Malawians are apt to accept modern values if the Government involves itself at village level and uses institution, including the encouragement of better communication which demolish the physical and psychological isolation of the villages.

The Food and Agriculture Organisation of the United Nations published a document in 1969 entitled "Indicative World Plan for Agricultural Development". It was suggested in this book that to meet the demand for food in the developing countries agricultural production would need to be


increased by not less than 4 percent per annum. By 1972 agricultural production showed a global increase of only 1-2 percent per annum. This posed questions. Would these countries be able to feed their growing population from their own agricultural production or would their food resources decrease?

These questions were difficult to answer. Agricultural production is a complex problem for it depends on many variables and a web of services - transportation, research, crop storage, credit institutions and extension services. The relationship between research and extension work is like that between an inner tube and a tyre. Research is incomplete unless the resulting recommendation have been tested and updated on the farm and farmers have had a chance to validate the technology. To fulfill its role, extension needs solid research based information. Malawi's agricultural research includes as it should a system that transmits information both to the farmers and from the farmer to the researcher.

Most developing countries have the natural resources to support increased agricultural output provided they have the following conditions:

1. Stability which allows orderly progress.
2. International Assistance.
3. Allocation and mobilisation of financial and other resources.
4. The will to accelerate the institutional changes necessary to support rapid agricultural development, particularly
education and non-formal farmer training.

The farmer who has been persuaded to adopt improved practices has to acquire the knowledge, skills, and ability through reading, visiting research station and agricultural colleges. Of 220 farmers interviewed in Lilongwe in this study, 160 or 63% had made such visits the previous twelve months to learn livestock and crop husbandry, use and application of fertilisers and early gardening and planting. The Government therefore ought to improve upon agricultural research, education and the provision of incentives and services which include library and information services in order to increase production.

A popular saying in Asia maintains that "An empty head will make the belly emptier". This saying accurately describes the basic relationship between information and food production. Agriculture today requires the use of technology whose understanding requires some form of education or information. Unless farmers or extension workers are well informed about modern agricultural technology, they face almost insurmountable handicaps in achieving greater efficiency in agricultural production. The United States has shown us how formal agricultural education and informal education through the extension service have made contributions of great value to agricultural development.

The World Bank set up a consultative group on international research in 1970 with a view to directing research efforts into new areas. The results of the international
research centres which were set up have to be adopted and made applicable to the rest of the world by individual countries. Each country has to choose the most suitable package and develop its own research capability to adopt the findings of the international centres to suit its own ecological and socio-economic conditions. And each country must develop communication services for the planners, researchers and the farmers and services between the experts on agricultural technology and the farmers. The main weakness of communication services in most developing countries is the failure to reach the vast majority of the small farmers who together with their families form the hardcore of the present poverty and nutrition problems. Most often the resources channelled into the agricultural programmes finish up in the hands of a few farmers, mostly the richer and larger or already developed farmers.

The development of Malawi agriculture depends on the human factor, the farmer himself; in fact a farmer is the world's most precious resource. The technology to feed the world exists but the farmer must know about it so that he can make it work for him. He has to learn new ways of doing things, to be a technician and a businessman as well as a tiller of the soil. No progress can be made without the farmer's willing and active participation.

Malawi is one of 29 out of 96 developing countries of the world where the rate of growth of food production per year is higher than the rate of growth of demand for food.
In Africa, Malawi is one of 15 countries out of 46 for the same statistic. What is favourable is that the rate of food production is greater than the rate of population growth. However, there is still room for improvement. Farmers' yields of the major crops like maize, rice, beans per acre are far below research station results. The livestock population is far below what the country can support and less than a quarter of the potential for irrigated agriculture has been tapped.

Malawi has sufficient land to support a higher population but every year one can see in several areas disturbing signs of soil erosion caused by overgrazing or carelessness, poor crop husbandry. It is important that these practices be curtailed so that the amount of available land for cultivation is not reduced and that we are able to feed the nation now and in future. This calls for a vast amount of information to the nation's planners, researchers, extension officers and farmers.
CHAPTER 3

AGRICULTURAL INFORMATION REQUIREMENTS

3.1 Role of Information

This chapter identifies the agricultural information user in Malawi and his needs. Wiener described information as "a name for the content of what is exchanged with the outer world as we adjust to it and make our adjustment felt upon it. The process of receiving and of using information is the process of our adjusting to the contingencies of the outer environment. The needs and complexity of modern life make greater demands on this process of information than ever before and our press, our museums, our scientific laboratories, our universities, our libraries and textbooks are obliged to meet the needs of this process or fail in their purpose."¹

A farmer in Wales, unlike his counterpart in Malawi is at a point when he has to avoid the deluge of information. Information is needed to enable people to play an active and a meaningful part in modern life. It is vital for national decision making for planners at all levels. Throughout the history of human societies, it has been demonstrated that information or knowledge is a form of power necessary for survival, procreation and progress. Examples of suppression of information flow abound in history. These were efforts

to keep people perpetually ignorant of the world around them. Plumbe was prompted to comment that "efforts of men to kill each other have been equaled only by their efforts to destroy the books of their enemies." ² Barton echoed this view when he wrote "the first recorded note on the press of the (African) continent was its destruction by Europeans before it had managed to produce a single issue. Freed slaves from North America were settled in Freetown in 1792. Two years later, a printing press was imported and plans were made to produce a newspaper. But even as the first type was being hand set, a French raiding party sailed in, looted, raped and sacked the settlement, and destroyed the press." ³

Information plays a big role in advancing national plans and contributes to a boost of developing work. The development of a self-help gravity piped water scheme in Malawi is an example. The Department of Community Development had in 1967 a project in the Chingale area which taught adult literacy, hygiene and home improvement. The people in this area had a problem with water. During the dry season, women and children walked long distances to a source of water. As most of the water from rivers is polluted, outbreaks of enteric diseases usually occurred.

A meeting of the leaders in Chingale was called to discuss the problem. There was good clean water which flowed all the year round five miles away, but the Government would have

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² Plumbe, W.J. Africa, libraries in. Encyclopaedia of library and information science vol. 1, p.118
to supply pipes if the water had to be brought to the villages. The people dug trenches for it, a local builder built an intake weir and a small tank and the Government provided pipes. Water flowed all the way up to each of the fifteen villages. The news of this first step in village improvement spread round like African wild fire. There were similar problems with water all over the country and today most of these areas have clean water throughout the year — a tribute to information. Information brings people together and facilitates the actual transmission of ideas, while lack of it hinders progress, keeps people apart, brings tension, misunderstanding and misgiving among people.

Developing countries have their priority projects devoted to rural transformation and to raise the living standards of their people. But raising the living standards of people involves the dissemination of information about a lot of matters like farming and industrial techniques, health and community development. It also involves changing the whole way of life of people who have lived for years according to traditional customs. Sufficient information leads to increase production by farmers, and more production will lead to more sales, to increase economic activity, to seeking after new opportunities like education and to further economic and social development.

Development demands that people must learn to use their resources better and to learn new skills. They must be taught

4. Richardson, L. The development of self-help gravity water project in Malawi, paper presented to the University of Malawi local social science Conference 1978 on the theme social aspects of rural development 14-17 June 1978.
about marketing, mechanisation and application of recommended inputs.

Information raises the efficiency of research. Tomorrow's food must come from today's research. The development of smallholder agriculture demands among other inputs timely and systematic transmission of useful and relevant information from research stations. Relevant information can only develop from local research tests. Ideally for information to be relevant, it must help the farmer to effect major changes in his farming operations.

Agricultural communicators and rural sociologists have frequently cited the following characteristics of smallholder farmers: low level of education, lack of capital, inadequate group expression, inappropriate technology, negative attitudes towards modernisation and farm management and insecurity of tenure. But studies have shown that farmers who adopt practices have usually had information from extension agents, vocational agricultural teachers and other change agents.

Several of the above farmers' characteristics could be resolved by an improved system of information flow.

Rogers⁵ and Jones⁶ both agree on five stages through which a farmer goes through to adopt a practice:

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1. **Awareness Stage**: at which a farmer learns about a new idea or practice through neighbours, guests, visitors radio or through magazines and bulletins.

2. **Interest Stage**: at which the farmer becomes interested in the new idea and seeks additional information about it. The farmer who fancies the idea reads about it and seeks further information from personal sources such as neighbours and relatives.

3. **Evaluation Stage**: at which the farmer applies the innovation to his present and anticipated situation, then decides whether to try it or not.

4. **Trial Stage**: at which the farmer uses the idea on a small scale to determine its usefulness. The main function of this stage is to demonstrate the new idea in the individual's own situation and determine its usefulness for possible complete adoption. The farmer may seek specific information about the method of using the idea at this stage.

5. **Adoption Stage**: at which the farmer decides to continue the full use of the information.

The five stages represent different degrees of exposure a farmer is subjected to, from the time he learns or hears about a practice for the first time right down to the time he adopts the innovation.
**TABLE 3** Possible useful sources of information at the five stages of adoption of a new practice (Rogers, 1962)

<table>
<thead>
<tr>
<th>STAGE</th>
<th>DESCRIPTION</th>
<th>SOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest</td>
<td>Develops interest gathers general information and facts</td>
<td>Radio, Newspapers, Magazines, Extension agents, Neighbours, Friends, Marketing Boards.</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Application to personal situations can I do it.</td>
<td>Neighbours, Extension agents, Newspaper, Magazines, Marketing Board.</td>
</tr>
<tr>
<td>Adoption</td>
<td>Largescale, continued use; satisfaction</td>
<td>Neighbours, Friends, Extension agents, Newspaper, Radio, Magazines, Marketing Boards.</td>
</tr>
</tbody>
</table>

FIGURE 4: Adoption stages of new practices by farmers
(Jones 1967)

- Problems
- Felt Needs

INTEREST OR CONCERN

AWARENESS

INTEREST/INFORMATION-SEEKING

EVALUATION/MENTAL CONVICTION AND DECISION

TRIAL

EVALUATION

ADOPTION

Reinforcing information
Seeking and Evaluation

B. Jones, G.E. op.cit.
Although the stages in table 3 and figure 5 are the usually accepted stages of the adoption process, the situation in Malawi demands the addition of two more stages to the adoption process:

(a) Motivation: Most peasant farmers need to be persuaded to adopt innovations by offering incentives in the way of fixed and higher prices at the market for his produce. This stage implies changing the attitude of the farmer and making him want to earn money through farming. This motivation stage involves making the farmer aware of the prices offered to individual crops at the marketing board.

(b) Use of New Practices: Once a farmer has adopted a practice in U.S.A. or Europe, he is usually expected to continue with it. It is not so in Malawi. Most of the farmers may not understand the practice or they may not have sufficient motivation. A case in point is the introduction of fertilizer. When fertilizer was introduced, it was felt that local leaders should be used to introduce it. These were given demonstration of the application of fertilizer to maize with a view that these leaders would in turn teach their neighbours. Many farmers were disappointed when their maize died. What was wrong was that the appropriate measurement is known as "Kapu". Vessels for drinking tea, beer and water are similarly called Kapu. The leaders told their neighbours to use a "Kapu" full of fertilizer per planting station. As a
result the farmers used their water or tea cups for applying fertilizer.

It would appear therefore that farmers would have to be very sure of the use of many new practice. Our adoption stages would therefore be as in Table 4 which also shows the possible information sources at each stage:

**TABLE 4: Essential stages in the adoption of a new practice**

<table>
<thead>
<tr>
<th>STAGE</th>
<th>DESCRIPTION</th>
<th>SOURCES OF INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation</td>
<td>Farmer is motivated to improve his farming, to farm for money and improve their standard</td>
<td>Extension agents, Radio, Newspaper, Pamphlets and leaflets, Marketing Board.</td>
</tr>
<tr>
<td>Awareness, Information and Understanding</td>
<td>Farmer hears of the existence of improved practice and looks for information. Having got it, he evaluates the innovation and understands the risks, benefits at his disposal</td>
<td>Radio, Newspaper, Extension agents, Neighbours, Friends, Marketing Board.</td>
</tr>
<tr>
<td>Decision to Adopt</td>
<td>Farmer decides to adopt innovation</td>
<td>Neighbours, Friends, Extension agents, Newspaper and Magazine.</td>
</tr>
<tr>
<td>Use</td>
<td>Farmer learns and understands how to use the innovation</td>
<td>Extension agent, Books, Newspaper, Magazines, Radio.</td>
</tr>
</tbody>
</table>
The above underlines the importance of information at all the stages of the adoption stages. Although there are innovator eccentrics who have the ability and initiative to introduce themselves to innovations, get themselves interested and end up rejecting or adopting them, the majority would follow the stages above and the importance of information sources comes out prominently.

3.2.1 Role of Libraries

Libraries support and promote progress of formal education by providing organised collections of recorded knowledge. Policy makers to decide wisely need complete and accurate information. Plans need accurate, reliable data and supporting evidence so that proposals can be backed by persuasive, scientific and detailed information.

The task of libraries is to supply the user with literature. Penna\(^9\) identified the role of national and public libraries as "preserving the nation's literary output and supporting bibliographical services". He maintained that unless there is some other national library developing agency, a national library may also provide leadership in technical and bibliographical services for the whole of the literate population as well as backing for literary and adult education campaigns for the pupils and to some extent teachers''.

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Adeyemi\textsuperscript{10} emphasised the educational function of the library and endorsed Penna's\textsuperscript{11} assertion that an effective education system requires libraries. The former saw the educational role of the library resting on the provision of information to individuals and groups both in institutions and in adult and mass education.

3.2.2 Role of Agricultural Libraries

Penna summarised the role of special libraries in the following terms: "The material assembled by university, special and national libraries is a most important source of wealth. In the modern world, no productive activity can be carried out successfully unless adequate information can be made quickly available to specialists and researchers".\textsuperscript{12}

Parker\textsuperscript{13} in identifying the role of the agricultural librarian provided this view: "He can serve as the catalyst in providing the essential for the rapid acquisition of information for research workers, the subject specialists, extension specialists, teachers, students and others. Plumbe\textsuperscript{14} echoed his view when he wrote that an agricultural library "must provide every sort of printed and bibliographical aid

\textsuperscript{10} Adeyemi,N. The educational function of the library in a developing economy. \textit{Nigeria libraries} vol.7 no.1-2. 1971 pp 27-32.
\textsuperscript{11} Penna,C.V. op.cit. pp 26.
\textsuperscript{12} Penna,C.V. op.cit.
available to facilitate whatever research is actually in progress or which is envisaged for the future. It must be constantly in touch with the specialist agencies, bureaux, individuals and libraries within its field. It must not only acquire information promptly and conserve it but must bring it to the attention of the individuals to whom it is known to be of interest." 14

3.2.3 Role of Malawi Agricultural Libraries

Five types of agricultural information users can be identified: planners, researchers, teachers and students, extension agents and farmers in the rural areas. These are the targets for any information system. To determine the role libraries must play, it is necessary to identify the information requirements of the potential users whose requirements differ and to see how libraries can fit into the information infrastructure in agriculture.

Attempts to determine the agricultural research workers and decision makers' needs were made by Massil 15 and David 16 when they were on a joint consultancy visit over one month towards a feasibility study on the establishment of a national organisation for the storage, retrieval and exchange of information relating to the development of Malawi. These two consultants did all they could within the time they had to put forward a few issues. However, the information needs

of users can only be determined when they are aware of information or when they request certain information. It would take somebody to work closely with the users to identify recurring problems within specific fields, and to study their information seeking behaviour and analyse what they say about the information services.

3.3.1 Decision Makers and Planners

Before we can discuss the information needs of decision makers and planners, it is necessary to define the scope of agriculture. The term agriculture is an all embracing term for all those engaged in the production of food. It includes agricultural engineers, soil physists, agricultural chemists, agricultural economists, plant protectionists and agricultural meteorologists. Infact it includes those from the pure scientific disciplines who supply data on which scientific agricultural is based.

This means that agricultural decision makers and planners include those engaged in health, water and road works, lecturers and teachers in University and other training institutions, statisticians, geologists, foresters and all those engaged in mapping Malawi's economy.

Decision making and planning for agriculture involves being knowledgeable about a wide variety of subjects some of which may not have a direct bearing of agriculture. Malawi's planners include all those contributing to the development of agriculture. Almost every body in the administrative scales
is involved in decision making. As White wrote, "the process of planning impinges to an increasing extent upon the life of every individual in the community". Table 5 gives a rough idea of the number of staff involved in the Ministry of Agriculture and Natural Resources.

### TABLE 5: Civil service establishment

<table>
<thead>
<tr>
<th></th>
<th>Superscale 1979/80</th>
<th>Superscale 1980/81</th>
<th>Administrative Scale 1979/80</th>
<th>Administrative Scale 1980/81</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry of Agriculture</td>
<td>21</td>
<td>24</td>
<td>15</td>
<td>19</td>
</tr>
<tr>
<td>Department of Agriculture</td>
<td>51</td>
<td>53</td>
<td>90</td>
<td>92</td>
</tr>
<tr>
<td>Fisheries</td>
<td>4</td>
<td>5</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Forestry</td>
<td>11</td>
<td>17</td>
<td>22</td>
<td>28</td>
</tr>
<tr>
<td>Geological Survey</td>
<td>13</td>
<td>5</td>
<td>22</td>
<td>8</td>
</tr>
<tr>
<td>Veterinary</td>
<td>15</td>
<td>15</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

Source: Malawi Government staff list

Figure 5 shows the organisation of the Ministry of Agriculture. Although there is a Department of Planning, not all planners are in this department. The planning department consists of five sections: Project Planning, Marketing Evaluation, Agro-Economic Survey and Project Administration. The Project Preparation section is responsible for identification,

Figure 5: Department of Agricultural Development
preparation and appraisal covering technical, economic, financial, commercial and social organisation and management. The Marketing Section collects, collates and analyses data relevant to the internal and external marketing of Malawi's agricultural products. The Evaluation section co-ordinates all the activities of the Evaluation Units of the various Agricultural Development Divisions and assists in monitoring progress of projects in the field. The Agro-Economic Survey is responsible for collecting baseline data from areas earmarked for development while the Project Administration Section co-ordinates activities of the other four section and those of other Departments within the Ministry with respect to development estimates and project submissions though Treasury.

The Chief Planning Officer who heads the Department is answerable to the Principal Secretary of the Ministry of Agriculture and Natural Resources.

What are the information needs of the decision makers? The work of decision-making takes a lot of factors into account e.g. political and the cultural developments and what is going on within the agricultural field within and outside the country. The needs for library and information provision could be ascertained by looking at the demand: services wanted and what questions are asked. This method assumes that the clients are forthcoming and delegate their searchers to the library. It also assumes that there is nothing inhibiting the demand like the absence of personnel and the absence of an information unit.
Potential demand may be evaluated by analysing the factors which may generate particular types of library use. It would involve the interpolation of likely demand from specific indicators in the population.

Another method is to determine needs by consulting experts in the field, relying on the subjective judgement of selected set of individuals in the field. As College Librarian of an agricultural institution, the author was able to study the literature cited by agriculturalists. He also observed their modes of information gathering, talked to various people in the college and in the various sections of the Ministry of Agriculture.

Malawi's decision makers are involved in planning and determining policy or organising resources and personnel to achieve objectives; solving problems and personnel management. The information they want may be what Pollock defined as "all the information both internal and external which a manager needs to establish, evaluate and adjust objectives, to develop plans and act to measure progress and correct when performance deviates from plans and to evaluate". Potential demand for information in Malawi exists in development projects and the funding or donor agencies. It was noted in the Lilongwe Land Development Project for instance that "much useful information had not been processed, reported or used for evaluation purposes" and that "existing

project managing units implement programmes that were designed with precarious shortage of background information on the socio-economic characteristics of the communities.\textsuperscript{20}

The project management prepares monthly and quarterly reports for the Project Monitoring and Evaluation Committee to conduct spot checks on achievement in relation to agreed targets, to relate progress to planned expenditure, ensure that the project prepares regular work programmes and working budgets, provide an opportunity for project staff to summarise problems in execution and to identify constraints hindering project progress.\textsuperscript{21}

Information determines the types of decisions that can be made. In the Namwera Project for instance a major change in design resulted from the analysis of data appropriate to the problem. "During the initial stages of project implementation, it was proposed to establish an in-project road construction unit. But in the light of more information, it was found uneconomic to establish it on a permanent basis because it was going to be very expensive to maintain the unit after all roads have been completed. It was therefore decided to incorporate the unit into the central services."\textsuperscript{22}

In the Shire Valley project, management used agronomic and economic information to decide to introduce an entirely

new crop, guar bean, which far outyielded the traditional crops of cotton, millet and sorghum in terms of rate of return. The decision having been made on the basis of information available enabled a small guar processing industry to be established in the area.

Veen accepted that pressing operational decisions are frequently made despite an apparently inadequate information base: "the experiences of the decision makers and lots of luck were the decisive factors. In overall planning, the provision of evaluation data is essential; without it long term projections will be poorly based and achievements of objectives frustrated".23

The following table represents the information inputs to the work of Malawi agricultural planners:

23. Veen, J. J. Shire Valley Agricultural Consolidation Project: Background paper. Ngabu, Shire Valley, 1980 (RWME/01/19)
### TABLE 6: Information inputs to the work of planners

<table>
<thead>
<tr>
<th>Duties</th>
<th>Information inputs</th>
<th>Possible Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervision</td>
<td>Organisation and management Public Services Regulations</td>
<td>Books, Files</td>
</tr>
<tr>
<td>Project Planning</td>
<td>Identification, preparation, appraisal and implementation of projects</td>
<td>Reports, Directories, Journals</td>
</tr>
<tr>
<td>Sectorial Improvement</td>
<td>Sectorial management</td>
<td>Books, journals recommendation</td>
</tr>
<tr>
<td>Collection, Collation of market data</td>
<td>International and material markets; acreages of crops</td>
<td>Trade directories Statistical reports</td>
</tr>
<tr>
<td>Evaluation and Co-ordination, Administration</td>
<td>Manpower requirements, reports from other sections</td>
<td>National plans, teaching programmes, Syllabuses</td>
</tr>
</tbody>
</table>

The quality of the decisions may be best viewed as their capacity to produce the intended result. The probability of poor quality decisions will be enhanced when the information baseline is inadequate. Decision makers fail to get the information they need for several reasons:

(a) Their ignorance of what an information unit can do for them;

(b) Failure to specify the role of the information unit resulting in poor support;
(c) Inability of decision makers to specify their needs and work with the information unit staff;
(d) Decision makers are presented with half digested data rather than usefully interpreted information.

Let us look at the information needs of the decision maker in a hypothetical case of increasing the production of tobacco. He will need to know the present and future requirements of the market so that a marketing policy can be formulated. His decision will be concerned with the improvement of present production and planning the future production. He will want to know the potential sales, examine the demand from possible markets and assess consumer needs, initiating research and development to meet them.

Sources for getting this information will include literature sources, organisations, personal contacts, visits and even rumours.

The decision maker will also need to keep abreast of social and political trends. More and more people in Britain for instance, are stopping the smoking habit. Special treaties will have to be taken into account, so will the passing of Acts of Parliament in trading partners that are likely to affect the export of tobacco. Secondary legislation such as statutory instruments will have to be examined. Demographic and social trends are important in gauging the demand for tobacco.
It was evident from discussions and visits to research stations that information is not usually available at the time that it is needed and that even when it is available, it is usually inaccurate, and out of date. Most of the reports from research stations and other institutions, as well as consultants reports are often looked up in offices where they may be lost to other potential users.

The planners are doing their best to base their decisions on as much information as possible but they are hampered by:

(a) absence of readily available information as survey of natural resources, research findings, rainfall patterns and other local information are hidden in reports which are difficult to get;
(b) non exploitation of internal reports for their benefit;
(c) absence of readily available information from agricultural dealers of farm machinery, fertiliser and other inputs.

A library and information service would stock directories, reports, extension aids publications, statistical publications and would monitor the in-coming publications to match them with the planners' interest.

Although planners usually have access to sources of financial and marketing information the method used does not guarantee that new members of staff are rapidly informed. The practice is that documents received are treated as personal property as they are usually locked up in individual offices thereby restricting information to the top men.
Most of this information is available in government reports, the business press, the business research bureaux, trade associations, semi-official organisations, government statistics and newspapers and magazine like Financial Times and the Economist. Special surveys, the press and trade journals forecast trends.

Decision makers and planners have to take into account the various aspects of agricultural activities like financial plans, production targets, teaching programmes, export plans and research projects. They decide how much money should be allocated to individual projects, what should be grown on how many acres, what should be taught where and with what emphasis, what price the farmers should be paid for each crop, what inputs should be introduced and where. They decide how the farmers are to be informed; by radio, publications or personal contacts.

Production targets and teaching demand knowledge of soil types, quality and availability of seeds storage facilities, availability of capacity of production, availability of fertilisers, pesticides and insecticides, manpower situation, statistical data on previous production exports and forecast, world prices and market situations.

Malawi agricultural planners have access to external data which is usually available from books and other sources of financial marketing information. But internal data poses the biggest problem. This has to be collected from internal sources, extracted analysed and made ready when decisions.
are to be made. This is usually available from reports which are produced by the internal institutions.

The Economic Planning Division of the Ministry of Finance for instance has a library for its officers on Capital Hill. When the author was requested to assist in organising the library in 1975, he found that most of the current sources of information like the Economic Report, the Malawi Statistical Yearbook, consultants reports were in offices and had not been checked in the library. There are two reasons: either the documents were used very frequently, or the library was not trusted to handle them. As the author discovered the library was only entrusted with old documents. It was apparent that most of the books found their way to the library when they had acquired historical value. What is true about the E.P.D. is true of the Treasury, the Development Division and most of the Government Departments which maintain libraries.

Massil's\footnote{Massil, S.W. op.cit.} observation was that reports by consultants, Ministry reports, proceeding of conferences and other valuable documents usually required for decision making are not indexed or listed and made accessible in accordance with the needs of planners. True, the National Archives is empowered by an Act of Parliament to collect all reports but like all Archival institutions, all documents collected are on closed access and never allowed out. Most of the information of potential value to planners and decision makers in Malawi remains locked up and unknown. There is evidence
that decision makers would appreciate a better organised library service.

3.3.2 Researchers

Agricultural research in Malawi is done by the Ministry of Agriculture's Department of Agricultural Research, the University and the Tea Research Foundation of Central Africa. Administratively, agricultural research is managed under research stations. The management of the scientific side of the research is done under research projects based on crops or disciplines. There is a co-ordinator for each research project and this means that any research work done in the country under the project is done in consultation with and with the knowledge of the co-ordinator. All research projects are regarded as one national research programme coordinated by the National Research Council.

Researchers are therefore those doing investigations in the research stations, in the University and the Tea Research Foundation. Information is the lifeblood of research and the level of research is related to the level of agricultural production.

Massil observed that "the information needs and habits of the research worker can be pinpointed as the raison d'être of a good library service. In Malawi the researcher needs:

1. an extensive review of the literature in his field and related topics;
2. continuing current awareness of his work in the field;
3. rapid access to the references, that is the documents
   instanced under 1 and 2;
4. outlets for publication of his work and results".25

Agricultural research in Malawi is applied research. Results of research are expected to be of immediate appli-
cation. Over and above the general needs of the researchers, their needs will differ at each stage of their research
projects. Malawi researchers need document on Malawi, hand-
books, data books and textbooks. There is need for them to
have access to journals published in Malawi as well as out-
side, reports of research stations, conference proceedings
and reports from other countries with similar ecological
conditions.

In the past scientists would communicate with each other
easily. Periodically, they would meet to discuss their work,
or they would correspond or issue an occasional publication.
With the fields widening and the population of scientists
increasing, this is becoming more difficult. Formally and
informally meetings continue to be organised but knowing
about them is the problem. Libraries acquire and disseminate
information about forthcoming conferences at both local and
international levels and stock directories of research or-
ganisations, registers of research projects and establish
contacts with stations engaged in the same field as thier own.

25. Massil, S.W. op.cit. p. 11.
From discussion with the Principal, of Bunda College who was formerly Chief Agricultural Research Officers and other members of the teaching staff engaged in research and researchers at the research stations (see appendix 3) four stages are gone through in the execution of a research project: identification, evaluation and planning of the project, beginning and execution of the project and presenting the results. The information inputs to these stages and the possible sources of information can be drawn up as in Table 7:

<table>
<thead>
<tr>
<th>Stage</th>
<th>Information inputs</th>
<th>Possible Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>The need for a particular research project</td>
<td>National plans previous work done locally and elsewhere Background information</td>
<td>Reports, journals list of research projects, colleagues.</td>
</tr>
<tr>
<td>Making a start</td>
<td>Current research information on project, Statistical analysis information on where project might be situated. Methodology.</td>
<td>Journals, reports List of research projects. Books, Maps, Books Books, reports</td>
</tr>
<tr>
<td>Results</td>
<td>Writing up, Publication Channels, presentation Future development</td>
<td>Books, Guides to the literature, Journals.</td>
</tr>
</tbody>
</table>
Relevant information is available in Malawi but lacks organisation to be useful. This point is recognised by those engaged in research. In fact it has been recognised for some time. In April 1976, the Chief Agricultural Extension Officer urged the Chief Agricultural Research Officer to find means to improve the existing service of the Ministry Library:

"As I see it, the primary requirement at this stage is to provide a catalogue which will enable any individual to locate books, articles, reports, etc, dealing with a particular subject area with the minimum of delay and that such a catalogue should indicate where these materials are to be found. Ideally such catalogue entry should also give a brief summary of what is contained in the book/article etc.". 26

The main problems militating against libraries satisfying the requirements of researchers are:

(a) Staff inadequacy in the libraries.
(b) Difficulties in obtaining journal articles once they have been identified in the secondary sources.
(c) Postal delays.

Massil observed that Malawi researchers are forced to rely on other researchers for enlightenment or keep their own personal indexes for future requirements. 27 Conferences provide them with the best chance to meet fellow workers

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26. Library service for the Ministry of Agriculture and Natural Resources. Unpublished memorandum from the Chief Agricultural Extension Officer to the Chief Agricultural Research Officer. Ref.13/12/13 dated 15th April 1976.
27. Massil, S.W. op.cit.
and exchange ideas as journals are usually months behind and the circulation operated by the Central Library at Chitedze has never worked efficiently due to the selfishness of certain researchers.

The Malawian researcher in the Government and the Tea Research Foundation of Central Africa is deprived of basic information facilities and tools and his situation contrasts unfavourably with those in the University who have good access to the world literature through a well organised library system. Even material originating from other stations in the country is not disseminated as widely and as quickly as it should be. This is regrettable as exchange of information is the essence of research.

The NRC published a list of current research projects in 1975 but since then reliance is placed on the annual reports of the Department of Agricultural Research for lists of research projects. But these appear late. The 1974/75 report for instance was published in 1980. Yet among the functions of the Department is "to maintain adequate research services in support of the expanding programme of agricultural development." One finds it hard to see how the task can be performed satisfactorily without setting up the necessary information structure.

Student who leave the University of Malawi have often found it difficult to cut off their information umbilical cord because of the poor library services in research. It is obvious that they become illiterate in their own field. The Honorable Kibaki echoed the problem in Kenya: "You meet that
brilliant student five years later, and he has gone back to becoming quite illiterate in the science in which he got a distinction as a graduate. When you meet them, the only language in which such men and women can speak to you is that of ten years ago, when they left university. They are unaware of numerous developments in that field which challenge what they have learned which are much more immediately relevant to the situation now. They do not retain an open mind do not read anything new and are not aware of the new challenges. By the time they get to the top they are 20 years out of the university and if they are not updated their knowledge on all these matters, then you have gentlemen at the top to advise the Minister, who advice the Government on policy-supposed to be relevant now twenty years after they left university. They have not kept informed partly because many of them are unwilling to read anymore, but more important because there is no organised channel for that information which is available to reach them on a regular basis.28

The last sentence is important and suggests a role for libraries in research. Libraries have developed methods of keeping their clients informed of the most recent developments in their fields. By locating and acquiring important materials, organising and bringing the materials to the attention of those to whom they are relevant, libraries can be of tremendous help in keeping their clients up to date.

28. Kibaki, M. Opening address conference on dissemination of research fundings and technology in Kenya, Occasional paper no.7, University of Nairobi 1977 p.3-5
The volume of literature produced in Malawi may not be great but it is the effective use of them that is important. Use of information rather than its generation is what is decisive in development. The library's role is to promote this use.

3.3.3 Extension agents

To the majority of Malawian farmers, the extension service is the most important source for the acquisition of knowledge of improved practices. The need for extension agents to be regularly and fully informed on all aspects of agriculture cannot be over-emphasised. They interpret research results and recommendations into the language ordinary farmers can understand and carry this information to them. They are therefore the link between research and practical farming. The Principal Agricultural Extension Officer, two extension offices in Lilongwe Agricultural Development Division and the Principal of Colby College were asked what the main duties of the extension workers were and what problems they encountered in disseminating information. Table 8 summarises their main duties and the information inputs necessary.

The extension worker is the link between research and family community. He is the first to try out under normal farming practices, the new ideas, to investigate their economic justification and to adopt them to the necessities of agricultural production to different types of farming and to environmental conditions. His task is to influence and to advise, to be a source of information and at the same time
to inspire and lead his client to be receptive to the means of improving his farming operations. Each covers a number of villages within a subdivision and is supervised by an Agricultural Assistant who in turn is supervised by A.O.

**TABLE 8: Information Inputs to the work of Extension Workers**

<table>
<thead>
<tr>
<th>Main Duties</th>
<th>Information inputs</th>
<th>Possible Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation of material</td>
<td>Recommendations from research</td>
<td>Handing over notes, Books, Reports.</td>
</tr>
<tr>
<td>Advising farmers</td>
<td>Local history, geography and agricul-</td>
<td>Handing over notes, Books, Magazines,</td>
</tr>
<tr>
<td></td>
<td>tural information eg. calendar,</td>
<td>Journals.</td>
</tr>
<tr>
<td></td>
<td>markets, local customs recommenda-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>tions, meteorological records.</td>
<td></td>
</tr>
<tr>
<td>Trials</td>
<td>Soil types, climate, agricultural</td>
<td>Books, maps, reports, district</td>
</tr>
<tr>
<td></td>
<td>calendar, latest recommendations</td>
<td>notebooks, journals</td>
</tr>
<tr>
<td>Filing, Contacting field</td>
<td>Development plans, recommendation</td>
<td>Books, Farmers' primers, bulletin</td>
</tr>
<tr>
<td>staff, distribution of books</td>
<td></td>
<td>and magazines</td>
</tr>
<tr>
<td>Teaching and writing farmers'</td>
<td>Recommendations, technical writing</td>
<td>Textbooks, primers, radio programmes,</td>
</tr>
<tr>
<td>primers, radio programmes</td>
<td>and editorial information</td>
<td>journals</td>
</tr>
</tbody>
</table>

Extension agents receive instructions and information from Regional or District Agricultural Officers. They live in rural areas and go around to farmers. Most of the information
they impart orally but occasionally handouts like Za Achikumbi are distributed. Their biggest problem is transport to travel around and meet farmers. Every division has one landrover for this purpose. The vehicles are expensive to run and deteriorate fast in the bad road conditions.

The field extension agents need a set of recommendations and technology in simple language ready for dissemination to farmers. They may also need data on current socio-economic conditions and natural resources of Malawi. This is the group with the most contact with farmers.

Those in doing experiments verify technology and develop information needed by those in the field. Those in administration supervise those in the field and their needs include management techniques, knowledge of geography and of the latest recommendations.

Those in the teaching group include those preparing the material for publication, writing radio scripts and teaching farmers in the training institutions. They need the latest recommendations, books on technical writing and editing.

The problems of those contacting farmers were:

1. The need for more copies of the Extension Aids publications like Za Achikumbe, guide to maize growing etc.
2. Publications of the MOA; old pamphlets and circulars were never in sufficient quantity.
3. Farmer training institutes did not have enough copies of the books produced for farmers.
4. Extension staff need more information and appropriate literature. These should be published for distribution at every agricultural division.

Extension workers answer a wide range of questions some of them outside the realm of their knowledge and experiences. These range from the control of pests to selection of crops, crop husbandry, agricultural machinery, market and financial information, credit facilities and harvesting and shortage of crops. They only answer these questions if they are regularly kept informed. They need latest recommendations, back up literature and access to specialised knowledge on specific questions.

In the past, it was possible for anybody together within the four walls of his study all the publications he would need for his work. This is no longer possible because of the plethora of publications and the most economical method is to provide a library service. We would suggest the development of a scientific literature service by the Extension Aids Branch of the Ministry of Agriculture and Natural Resources. This would enable them to avail themselves of technical journals through the SLS. A strong co-operative system between the research libraries and the University libraries should be developed to enable extension workers to utilise the books and journals stocked.

Farmers' primers, bulletins, leaflets and extension training material which are produced should be publicised and made available to extension agents. There have been cases
of extension workers not knowing of the existence of some of the important materials. This implies one library being a depository library for all publications and audio-visuals. It is being increasingly recognised that the main tasks of libraries are to acquire copies of documents on request, to draw the attention of their patrons to literature likely to be useful to them without their having asked for it and to provide translations of literature published in foreign languages.

The transfer of information among agriculturists including farmers involves a large amount of literature. A lot of the agricultural knowledge has its origin from this literature. The need to know what others are doing locally and internationally, the need to know the most recent advances in their own fields involves developments in agriculture as well as many associated disciplines. Ultimately it is the pool of agricultural research information which grows.

Then there is the group of planners, decision-makers, administrators, policy makers who wait for the results of research to be summarised in a language they can understand and then contribute to this literature their own memoranda, reports evaluations.
Boyle\textsuperscript{29} in the communication cycle, (fig.6) shows that communication starts with the individual scientific worker, but later on there is a substantial flow and feedback at various levels. The volume of agricultural literature involved was estimated indirectly by Boyle and Buntrock\textsuperscript{30} in an AGRIS Survey in 1973. The annual output of documents of all relevant kinds relevant to agriculture was estimated in the region of 200,000 - 250,000 for 1972. The figure has risen to about 300,000.

For researchers to keep up to date and for decision makers to receive the right information at the right time in order to forecast, plan and co-ordinate the activities in Malawi agriculture, an organised information service is imperative.

3.3.4 Teachers and Students

This group includes those the University of Malawi and those in the Ministry of Agriculture's training institutions like Thuchila Farm Institute, Mpwewe Fisherey School, Colby College and the Dedza College of Forestry. The University teachers besides their teaching commitments are also engaged in research. Their needs therefore would be similar to those of researchers. Both the teachers and students want documents on Malawi as well as textbooks, reference books, journals and local magazines. The course run at the Ministry

\begin{itemize}
\item Boyle, P.J. and Buntrock, H. \textit{Survey of the world agricultural documentation. (Doc. FAO/EC/AGRIS no.6 EUR4680/1E)}
\end{itemize}
Fig. 6 Formal elements of the communications cycle in science and technology (From Boyle, 1978)
of Agriculture training institutions are practically oriented to the conditions in Malawi. The products of these institutions work with farmers as extension officers. Their needs therefore are information sources of Malawi agriculture like the farmer recommendation, extension aids circulars, research reports as well as agricultural information from neighboring countries.

It has been easier to get funds and materials to provide library services for this group. The Chief Agricultural Research Officer while urging against proposals to improve the Ministry of Agriculture Library accepted that "the University Library is normally busy with hundreds of professional readers i.e. the students and lecturers". It seems therefore that their needs are acknowledged and we would think that improving library services at this level will have a snowballing effect on the research libraries. Having been accustomed to better services, the products of the University and the other training institutions will be sympathetic to improvements in the research libraries.

3.3.5 Farmers

When we talk of improving agriculture, we are talking about increasing the productivity of Malawian farmer. The money that is invested in research will be justified if the farmer adopts the recommendations arising from research. All the agricultural research in Malawi is intended to have

31. Report of working party on Ministry Library Service: Unpublished Memorandum ref. no. 73/55/6/209 dated 4th January 1977 from the Chief Agricultural Research Officer to The Permanent Secretary.
immediate application. General Romulo emphasised this point when he said: "If the yields are high on the experimental station, but the national average yields are low, we can be equally sure that the scientific advances are on the shelf and that for some reason the farmer is unable to make profitable use of them". 32

The Malawi farmer is characteristic of peasant farmers "producers in effective control of the land who carry on agriculture as a means of livelihood not as a business". 33

Malawi farmers adopt innovations and are prepared to learn. Fertilisers for instance was introduced to the small-holder farmers in 1960. Hitherto farm yard manure was used. The amount of fertiliser sold by Agricultural Development and Marketing Corporation to smallholders and Optichem to estates between 1970/71 season and 1976/77 were as follows:

TABLE 9 : Sales of Fertiliser to Smallholder Farmers

<table>
<thead>
<tr>
<th>YEAR</th>
<th>ADMARC SALES</th>
<th>OPTICHEM SALES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970/71</td>
<td>22845</td>
<td>18726</td>
</tr>
<tr>
<td>1971/72</td>
<td>32817</td>
<td>29292</td>
</tr>
<tr>
<td>1972/73</td>
<td>26515</td>
<td>28814</td>
</tr>
<tr>
<td>1973/74</td>
<td>34991</td>
<td>30266</td>
</tr>
<tr>
<td>1974/75</td>
<td>16539</td>
<td>29512</td>
</tr>
<tr>
<td>1975/76</td>
<td>24630</td>
<td>57515</td>
</tr>
<tr>
<td>1976/77</td>
<td>33664</td>
<td>47194</td>
</tr>
</tbody>
</table>

(Source: Malawi Statistical Yearbook 1980)

We believe that to change the mentality of a people who have lived for centuries into the modern stream of life will come gradually but that we would consider it unfair to make generalisations. The farmers who were interviewed for this study were asked what they had learned from visiting research stations or colleges, or reading magazines. The following subjects were enumerated:

(a) Livestock and animal husbandry.
(b) Curing and growing tobacco.
(c) Early garden preparation and planting.
(d) Use of fertiliser and its application.
(e) Crop husbandry.

Chipeta described the Malawi farmer in the following terms: "He is a subsistence farmer in the sense that he is concerned with production for home consumption as well as for the market. In 1973 for example, two thirds of the output was consumed and one third sold. Many keep livestock such as cattle, goats, pigs and sheep and poultry. They also construct and make their own houses, latrines and food stores, they make their own implements or even produce surplus for sale. Their wives fetch water and firewood and process and prepare foodstuffs, brew drinks and do housekeeping among other activities. With a preponderable subsistence economy the small-holders' money income is low. The typical farmer uses a hoe, a panga (a long knife for clearing bush) a water can and an axe. Not many farmers use ploughs, work oxen, carts, sprayers or fertiliser".34

Nevertheless, they want to know how they can obtain new inputs, what credit facilities are available, what the best methods for growing their crops are, and how they can care for their livestock; they want to know how many seeds per station they should plant, the distance between ridges, when to plant and when to apply fertilisers. They want to know the improved seeds and how they can deal with an outbreak of stalk-borer. This information is available in farm magazines and farmers' primers, although the extension service has consistently been mentioned as the main source of farm information in the developing countries.

Conclusion

Agricultural research has brought in a seachange of agricultural production. The green revolution has brought in new methods of production, improved farming methods, new high yielding and pest resistant varieties, mechanisation of agriculture, application of manufactured fertilisers and use of chemical pesticides and exploitation of new energy resources. All these bring in a new ray of hope in solving the food problems of the globe.

Improvements in agriculture are closely related to climate and soils. New knowledge discovered in other parts of the world must fit the Malawi conditions. In agriculture, it can be argued that innovations should be adapted to the specific conditions existing. This mean a wide range of information must be collected in research done in areas in which crops, climate and soil conditions are similar.
Then the planners will need to carefully evaluate this information and establish principles of systems, functions and design that can form basis of the development of Malawi agriculture.

But the most information for Malawi is that produced in Malawi. Access to this is important. And so is access to the world inventory of agricultural and related information based on national inventories established in the early 1970s. Access to AGRIS is of little use to researchers or planners that do not have the capability to shift through the 300,000 items presented per year. The establishment and encouragement of a national agricultural library service is therefore important. Its duties would be:

(a) collection of the existing information on agriculture.
(b) identification of the gaps of knowledge that should be filled by further research.
(c) to supply agriculturists and decision-makers in Malawi with background information they require in order to establish research and promote agriculture.
(d) encourage the growth and provision of a library for the extension service and the training institutions.

An agricultural library service dealing with multi-disciplinary information for developing the agricultural industry faces a big tasks: the range of users who have to be defined, the location and acquisition of the Malawi documents, the indexing of these documents and the presentation of this information.

Currently, Malawi is organising a national information
system to maximise the use of available information resources (see Figure 7). It will be necessary to organise her agricultural information system within the national information system framework.

The communication of agricultural information to the farmers will remain a challenge for the scientists, administrators, planners and librarians. The challenge is stronger in Malawi because of the illiteracy rate which increases with every child born.
Figure 7: Emerging national information system
The elements of communication cycle in science and technology (figure 5) shows clearly the role of information units and libraries. As Professor Havard-Williams said, "The essential objective of the information infrastructure is to exploit the materials of communication for the benefit of the community". This thesis will try to determine what Malawi can do to exploit the materials of communication that are already there and benefit from the others around the world for the benefit of the smallholder farmer. Ten years ago, we were warned by the OECD that: "Perhaps the most important event in the next decade will be the recognition of the value of information— the right information reliable and relevant to our needs, available in a useful form to all those who need it".

The recognition is there but we have to translate this into action. The first requirement will be to analyse the agricultural information infrastructure to see how it can be organised to support the functions we want our information services to perform: facilities, institutional resources and manpower, links to user communities and policies for utilising the resources.

CHAPTER 4

AGRICULTURAL INFORMATION INFRASTRUCTURE

The purpose of this chapter is to examine the infrastructure, i.e., government policy for information (4.1), the institutional and human resources (4.2) and agricultural information and its transfer. These use the elements as seen by Neelemghan\(^1\) and the National Academy of Sciences\(^2\).

4.1 Government Science and Information Policy

Unesco defined a science policy as "the sum of the legislative measures taken to increase, organise and use the national scientific and technological potential, with the objective of achieving the country's overall development aims and enhancing its position in the world. Science policy is thus assumed to embrace technological policy, the promotion of innovation, technology imports and exports and the competitiveness of industry, and to form part of a country's overall development policy, overlapping particularly with industrial agricultural and educational policies. "The function of a science policy is to put into perspective the role of research in the economic development of a country and chart out a path for development goals. Ideally, a science policy should include an information policy".\(^3\)

1. Neelemghan, P. Information systems for national development – the social relevance of information systems. International Forum for information and documentation. vol.5, no.4, December 1980, p. 4
Information transfer is a necessity and all those who are concerned with research and development i.e. individual scientists, industrial and academic research institutions, government agencies and technical societies were invited "to accept responsibility for the transfer of information in the same degree and spirit that they accept responsibility for research and development itself." 4

A system for the research, identification, storage, dissemination and use of existing knowledge are essential and basic components of any research and development activities involving both the endogenous development of knowledge within the country as well as the process of selection, adaptation, and transfer of technologies from other countries.

Going back to Unesco's definition of science policy, we may say that Malawi has had a science and technology policy from 1974 when the National Research Council was formed to enhance and co-ordinate all research activities in the various sectors of the country's economy. The N.R.C. embraces all aspects of scientific research, collects examines and disseminates research reports and information on Malawi, advises government on scientific and research policy in relation to Malawi's development programme, liaises with external organisations as the national mouth piece on matter concerned with the outside world for the routing of information and

sources of aid to assist the country's scientific efforts and maintains an updated list of research workers and their interests.

Over the last two years the N.R.C. has sought funds for consultancy visits on various aspects of information provision in Malawi and reports have been produced on:


The following general science policy statement was proposed in a document prepared by the National Research Council:

(1) Research shall be clearly related to the development needs of Malawi and shall be so organised that useful ideas and technologies are developed to the stage where they can be adopted by the producing public.

(2) Investigations will normally be into the adaptation of existing advance theory and technology to the present state of organisation and development in Malawi, developing new ideas and technologies where existing ones are
patently unsuitable.

(3) Research and development work will be organised on a project basis i.e. objectives and current limiting factors will be clearly defined before personnel and resources are committed to the solution of the problem. There will be written terms of reference for each project and these will be reviewed at short intervals and brought up to date as necessary.

(4) Projects will be entrusted to the scientists best able (in terms of ability and personnel qualifications) to carry them forward at the time, irrespective of the institutions employing them.

(5) Malawian research workers are to be recruited and trained alongside experienced scientists, so that there is a permanently resident corps of indigenous scientists to sustain the research effort in the country and to which expatriate workers can be attached for specialised duties on a contract or technical assistance basis. 5

There is no written statement on the information policy. Ideally it should be part of the science and technology policy and should have been part of 2 above. Nevertheless an interim National Information System was created in 1977 after the Director of the National Library Service had presented a paper to the 11th meeting of the National Research Council. It was agreed at that meeting that:

1. a preliminary survey should be made of existing resources in Malawi.

2. Unesco be requested to provide expert advise on the organisational structure for NATIS within Malawi.

3. the attention of the Malawi Government be drawn to the need for professionally qualified personnel.

4. the use of microfilm, microfiche, computers and other technological aids be encouraged in order to facilitate effective and rapid information retrieval.

5. the Malawi Library Association should approach the Malawi Government through the Ministry of Education for permission to form NATIS.

The objectives of the National System of Information Services are:

1. to co-ordinate information activities of the existing public libraries, the University and, College Libraries, the National Archives and the libraries in Government departments and research institutions.

2. to improve and facilitate the flow of information within the country and the exchange of information with external resources.

3. to maximise the use of local information resources.

4. to support (and develop facilities for) education and training in information science and technology, and provide
qualified manpower which will render possible the implementation of a national information policy.

5. to support research, development and innovation in information science and technology and increase both efficiency of information services and the quality of the information which these services provide.

Boadi suggested that for the optimum "utilisation of existing information services and systems, "the concept of information networks - the new trend in inter-library co-operation should be effectively encouraged among the libraries and should, indeed, be considered as an essential part of the STI policy". "The implementation of this policy, he continued, "would give meaning to philosophy of the self-insufficiency of any single library, or for that matter, any group of libraries or information systems". 6

4.2 Institutional Resources

The Ministry of Agriculture is responsible for the majority of the agricultural institutions. These generate a lot of information on which the basis for an agricultural information network could be built. For convenience the institutions will be grouped into training, research and other government institutions.

4.2.1 Training Institutions

Agricultural training is done at Bunda College of Agriculture, Colby College, and Malawi College of Forestry.

4.2.1 A Bunda College

Bunda College of Agriculture is a constituent college of the University of Malawi. Located eighteen miles south of Lilongwe, the college was started in 1967 to provide training at diploma level for agricultural extension workers.

A five year degree course was launched in 1969 to provide high level manpower requirements in agriculture and the curriculum was received in 1976 to provide a three year diploma and a five year degree of which the first three is for the diploma.

The curriculum covers a wide range of subjects and the students do practical work involving the extension of improved practices, simple experimental work on a wide range of crops grown in Malawi, the care and handling of animals and working with farmers in the neighbouring villages. In this exercise, the students are assigned to selected farmers. They then make a survey of their farms on the basis of which they advise and the farmers to improve the management of their farms throughout the entire growing season.

Research is an important aspect of the functions of the college. Hunnings, observed that "a non research all teaching undergraduate institution would be something less than a university. At a non-research institution teaching unillumined by research interests of the teacher would be lifeless. The feedback of research interests into undergraduate teaching to achieve insight into the nature of the discipline being
At Bunda emphasis is on the role of research in the formulation and implementation of national policy, experimental design and research methods, and the analysis and interpretation of research results. Bunda is responsible for all research in Malawi on beans and pigs. The functions of the college are:

(a) provision of instruction at both diploma and degree levels for training in agriculture.
(b) conducting research relevant to Malawi.
(c) dissemination of improved agricultural products.
(d) preparation at diploma and degree levels of teachers of agriculture.

The college produces annually a research bulletin in which experiments in progress are described and results are presented. This is distributed free of charge throughout the country and abroad.

4.2.1 B Colby College

Colby College of Agriculture was established in 1956 in Lilongwe to provide a two year course for field assistants in the principles and practices of agriculture in Malawi.

Training for employees of the Department of Agriculture started in 1940 at Makwapala near Zomba. Later a move was

made to a better place at Mpemba. This proved insufficient and another move to Likuni was necessary Colby was established six miles away and the colleges train jointly with the first year being done at Likuni and the second year at Colby.

The products are employed as field assistants and some go to specialist jobs in soil conservation, credit, research, development schemes and agricultural credit.

The College emphasises on practical training oriented to Malawi conditions. Textbooks used are therefore those published locally.

4.2.1 C Malawi College of Forestry

The College was started in 1952 as a Forestry Training School to train forest rangers for the Department of Forestry. The school was subsequently expanded to train foresters who qualified abroad. Like colby, the MCF offers a practical course of two years duration leading to the award of a Forestry Ranger's certificate and a diploma course which is offered as a promotion course for the forestry rangers.

Colby College and the Malawi College of Forestry together with all agriculture based certificate awarding institutions will be replaced soon by the Natural Resources College which will have an annual output of 195 field assistants, 60 farm home instructresses and 80 veterinary assistants. The aim is to produce one extension worker per 400 by 1990.
The station was established in 1940 to essay factors affecting the growth and production of montana tung. In 1950, it was expanded to include investigations into and improvements of dairy farming and the production of coffee and citrus fruits. Unit farms were introduced in 1963 to assess on ways and means of maximising smallholder's farm profit. It is now the main horticultural research station with investigations on various fruit crops, tree nuts and vegetables. The station still researches into tung, coffee, essential oil, potatoes, spice crops, pyrenthrum, pharmaceutical crops, silk production and grain storage. Bvumbwe is also the main base of the Crop Protection Unit and has plant quarantine facilities. For the farmer, the station produces planting material for a range of horticultural crops including macadamia, tung and potatoes along with advice on vegetable productions, farm management and crop storage.

The staff also carry out advisory services and training courses. Some of the assistance that was sought in 1981 include the following:

(a) the best and cheapest way of storing about a hundred tons of maize intended for labourers midday meals,

(b) advice on control of losses occurring to maize in steel silos,

(c) information on the extent to which weight of different
commodities is affected by moisture content.

4.3 B Chitedze Agricultural Research Station

This is the main research station in Malawi. It was established in 1949 to carry out work which was being carried out at Likuni. In 1956, it was joined on the site, which is located ten miles west of Lilongwe, by the Colby College of Agriculture. Work at the station falls into seven sections:

(a) Chemistry section which undertakes experiments on soil fertility problems including plant analyses.

(b) Plant Breeding Section which works on improving maize and tobacco yields.

(c) Tobacco Section which is engaged in the cultural methods and responsible for production of seed for the whole country.

(d) Animal Husbandry Section. Engaged on a programme to improve the indigenous breed of cattle by producing a type of animal with greater productivity.

(e) Plant Pathology Section which is engaged in the study of diseases.

(f) Pasture Section which is involved in research on improving and management of pastures.

The station organises field days for farmers to come and see new technology.
4.3 C Forest Research Institute

This is located in Zomba and is engaged in research on such fields as entomology, pathology, tree breeding, mensuration and silviculture. Mycorrhizal trials were conducted to assess the benefit of soil inoculation with mycorrhizal fungi.

The FRI publishes a newsletter which contains information about research findings, recommendations and anything news worth.

4.3 D Geological Survey Department

This department collects, stores and disseminates information on Malawi geology. It also carries out mineral resources exploration, investigation and evaluation for the Government and on contract to the private sector.

About thirty geologists are employed and the department publishes its findings as books and pamphlets which are usually announced in the weekly Government Gazette are sold by the library.

4.3 E Lunyangwa Agricultural Station

Located four miles North-East of Mzuzu in the Northern Region, the station was opened in 1969 as a headquarters for research work in the North.

This station was in 1940 one of six main Viphya Tung Estates owned by the Commonwealth Development Corporation. It was acquired in 1969 by the Government and an office block,
laboratory and library were erected the same year.

4.3 F Makoka Agricultural Station

The station is the main centre for cotton research and its main activities are breeding, entomology and agronomy. A biometrics unit is also established there. The station maintains the production of cotton seed and test new spraying equipments, insecticides, pesticides and the biometrics unit provides advice to other research workers on experimental design and analysis and processes work on experimental design and analyses and processes experimental data for them.

An annual report is published by the station and distributed to all other research stations and agricultural institutions. Members of the research staff also assist in preparing material for broadcast on farm programmes on the radio.

4.3 G Tea Research Foundation

The foundation was set up as an independent body which in 1966 with the responsibilities for all research work in tea. Its finances include contributions from tea grower's associations in countries of central and South Africa.

The foundation maintains three experiment stations, at Swazi and Mimosa in Mulanje and sub-station in Thyolo. The Foundation employs about thirty research scientists and publishes a quarterly newsletter, an annual report and a book of tea recommendations.

For many years, research has been done into a number of aspects of tea production much of which is of practical value.
to tea producers in Malawi. The industry is small compared to world standards but it provides 20-30 percent of exports and is the country's largest employer apart from subsistence agriculture. Because of the climate, the tea produced is of low quality and this factor puts pressure on research so that the industry becomes more efficient. A lot of research on tea is also done in Kenya and India which should filter to the Malawi researchers.

4.4 Other Government Institutions

4.4 A Lilongwe Agricultural Development Division

This came into being as part of the National Rural Development Programme (NRDP) on 1st April, 1978 and is one of eight development divisions provided for in the NRDP to facilitate more intensive and speedier development in the country's natural resources.

The Division consists of five projects under the control of a management unit which is responsible for providing a number of service including: management and administration, procurement and control of stores, direction of extension services and provision of specialist advice on crop and animal husbandry matters, training of staff and farmers, and provision of extension aids (audio-visual aids), evaluation and monitoring of all project activities. Co-ordination with other Government Ministries and with Agricultural Development and Marketing Corporation.

The five projects covered by the Division are Lilongwe
Land Development Project, Thiwi/Lifidzi Rural Development Project, Ntcheu Rural Development Project, Dedza Hills Rural Development Project and Lilongwe North-East Development Project. The areas and farm families covered are as follows:

<table>
<thead>
<tr>
<th>Project</th>
<th>Total Area</th>
<th>Farm Families</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLDP</td>
<td>468,000</td>
<td>119,052</td>
<td>595,260</td>
</tr>
<tr>
<td>Thiwi/Lifidzi</td>
<td>99,200</td>
<td>40,418</td>
<td>202,090</td>
</tr>
<tr>
<td>Ntcheu</td>
<td>245,000</td>
<td>44,873</td>
<td>224,365</td>
</tr>
<tr>
<td>Dedza Hills</td>
<td>187,000</td>
<td>27,726</td>
<td>138,630</td>
</tr>
<tr>
<td>Lilongwe N-E</td>
<td>152,600</td>
<td>46,126</td>
<td>230,630</td>
</tr>
</tbody>
</table>

These projects publish evaluation reports, newsletters, booklets for farmers and have the focus of a number of agricultural consultancies. As the Guide to the Shire Valley Library put in the "major sources of data are the projects themselves".8

Newsletters produced by the projects carry topical recommendations, news about successful farmers, prices offered to farmers for their produce.

A pilot functional literacy project introduced in the country is based on the four agricultural development projects. The LLDP is responsible for producing easy to read primers for the farmers at Shire, Karonga and Central Region, areas which produce cotton and include fishing as one of the farmers' activities. The primers are situational and contain the everyday information they need for successful production of the farmers' crops.

4.4 B National Statistical Office

The office collects, collates and disseminates various types of Malawi's agricultural information by publishing a number of periodicals and other related publications covering a number of agricultural aspects. These include the Monthly Statistical Bulletin, the Malawi Statistical Yearbook, the Annual Statement of external Trade, the Compendium of Agricultural Statistics, the Balance of Payments, the Population Census and the Economic Report.

The main function is the provision of a regular series of statistics and the implementation of special surveys to collect data as required to augment the regular series. Amongst its subject divisions are those of the agricultural statistics and economic statistics. The former collects and analyses agricultural statistics while the later is responsible for the production of a regular series of statistics on external trade, retail prices, national accounts and household expenditure, the Monthly statistical bulletin and the annual statistical yearbook. These publications are available on sale from the Government Printer or from the National Statistical Office Library.

4.4 C Agricultural Development and Marketing Board

The Board was born as the Native Tobacco Authority in 1926 to protect dark-fired tobacco growers from the hazards of uncontrolled marketing. It operated tobacco markets and advised farmers to produce better tobacco.
In 1951, the Cotton Marketing Board was formed to provide similar facilities for cotton growers. A Procure Marketing Board was established in 1953 to provide facilities for the purchase of groundnut and maize. These merged in 1956 to become the Farmers Marketing Board and the name changed in 1971 to the Agricultural Development and Marketing Corporation (ADMARC).

The functions of ADMARC are to increase the volume of exportable crops, to improve the standard of production, provide efficient system of supplying the agricultural requirements of farmers on customary land, to purchase for cash the crops produced by these farmers and process them where necessary, to prepare produce for export and promote its consumption, to establish and develop agro-industrial enterprises which will more fully exploit the agricultural potential of the country.

To enable farmers to sell their produce quickly and conveniently, ADMARC maintains 52 main storage depots and markets for the various crops, supplemented by over 700 temporary produce buying stations. Warehouses are strategically throughout the country with an aggregate capacity of over 250,000 tons. Since most of the country's agricultural output is harvested over a comparatively short period, its collection, storage, fumigation and movement constitute an immense and complex annual task of organisation and transportation requiring special information and expertise. ADMARC also sells to farmers agricultural inputs like seeds, fertilisers, insecticides and livestock feeds often at subsidised
prices. Malawi has exceptionally good growing conditions for fruit and vegetables, coupled with its distance from the main market for these commodities, led to the establishment of a canning factory near Mulanje. ADMARC maintains its own plantations for tea, tobacco, macademia and cashew nuts and operates three cotton gins, eight tobacco grading centres and a groundnut grading and treatment factory.

4.5 Agricultural Education and Information Transfer

Agricultural information transfer can be diagramatically represented by figure 8. Research results by the Tea Research Foundation, the University, ADMARC and other stations reach the other researchers, planners and decision makers through reports, correspondence or conferences, so do consultants' reports. These are passed on to the Agricultural Development Department for further dissemination to the farmers through agricultural training centres, extension workers, and other methods.

The first agricultural training centre was established in Zomba Makwapala in 1940 and the main objective was to provide African agricultural instructors or extension assistants. The products from Makwapala were practical in their approach to agricultural problems of the farmers.

Agriculture was established as a subject at all levels of education from primary school through secondary schools to teachers training colleges in 1969. The syllabuses are intended to encourage students by doing i.e. by doing smallscale
FIGURE 8: Agricultural Information Transfer

![Diagram of agricultural information transfer]

**KEY**

- ADD - Agricultural Development Department
- ADD - Agricultural Development Division
- EPA - External Planning Area
- ETD - Extension and Training Department
- DIO - District Information Office
- RIO - Regional Information Office

The diagram illustrates the flow of information from various sources to decision makers, planners, and researchers. It includes:

- Ministry of Agriculture
- Tea Research Foundation
- University
- ADMARC
- Other Ministries
- Suppliers
- Reports
- Documents
- Correspondence
- Lectures
- Conference Returns
- Consultants

**Outputs to Decision Makers**

- Ministry Library Service
- Planning Library
- Publishers

**Direct Media**

- Field Days
- Agricultural Shows
- Radio
- Posters
- Circulars
- Magazines
crop experiments and running livestock projects, they learn the basic principles of good farming, develop skills needed in improved farming and personally experience agriculture as being interesting, scientific and profitable. The significance of this development is that it laid the foundation of relevant education, and the appreciation of agricultural information where it should, and that is, in the future leaders. Most of the school leavers end up on the land and their training will have equipped them to be productive farmers. Those who end up in responsible jobs will understand and sympathise with conditions on the land.

While agricultural education is the responsibility of the Ministry of Education in the schools, it is the Ministry of Agriculture through the extension services which is responsible for imparting practical agricultural knowledge to farmers through:

(a) training schools like Colby College and Bunda College of agriculture.

(b) farms institutes which inform and train leaders.

The objectives of extension education are:

(a) to bring scientific knowledge to farmers to enable them to produce more efficiently.

(b) to convince farmers of the practical value of new practices and explain national economic and technical objectives.

(c) to teach rural people to improve their level of living by their own efforts through making wise use of natural resources at their disposal in better systems of farming and homemaking for the benefit of the individual, the family, the community and the nation.

4.5.2 Extension Aids Branch

In 1959, the Ministry of Agriculture established the Extension Aids Branch to provide publicity material in support of the extension services. It produces material containing cultural practices aimed at effectively getting information across to the farmer to increase their harvest and efficiency.

Recommendations from research get to the Branch through the Chief Agricultural Research Officer in whose office they are interpreted and transformed into simple language for the farmers. A bi-monthly publication "Za Achikumbe" for farmers and written in the vernacular carries the recommendations and basic seasonal information on timely operations. The publication section is also responsible for printing and distributing leaflets, handouts, charts, posters, bulletins, circulars, textbooks and manuals. About 90 percent of these are sent to farmers while the rest go to schools, colleges, farm estates, the general public and libraries.

Usually leaflets, posters and handouts are produced to inform or advise of any outbreak of an animal or crop disease,
precautionary measures to be taken or to announce fertiliser and produce sales, new crop sales, or any other piece of information.

Circulars and bulletins are intended for extension officers and farmers and carry information about recent recommendations or policies on crops, livestock, forestry, fisheries and land husbandry. Other publications produced include textbooks, farm guide booklets and handouts in English and Chichewa on very wide and descriptive agricultural subjects which are distributed to farmers, extension staff, school teachers, colleges and estates (Figures 9-11).

A major effort is being made by the extension service to use radio to reach the majority of the farmers who cannot read. Six programmes in Chichewa, the vernacular language are put on the air per week giving a weekly total of five hours and twelve minutes of broadcasting. Scripts are written by members of the Extension Aid Branch and sent to the Malawi Broadcasting Corporation for production. To increase the effectiveness of the radio broadcasts, radio listening groups led by the extension worker were introduced. His role was to elaborate, clarify and localise the content of the broadcast, give practical demonstrations of the techniques discussed on the programmes and act as a resource person and lead discussions on other subjects not dealt with on the radio programmes but of interests to group members and report back on the listening groups for evaluation purposes.

This method of imparting information fell in line with
PREVENT TICK DISEASES BY IMPROVED DIPPING

FIGURE 9: A bilingual extension circular in Chichewa and English
MEASURES TO CONTROL AFRICAN SWINE FEVER

This circular has been prepared by the Veterinary Department to provide information on African Swine Fever and to inform farmers of measures to control the disease.

African Swine Fever is a virus disease of pigs which infects domesticated pigs and spreads rapidly. The disease attacks pigs of all ages and causes high mortality rate of 95 to 100%. The disease is endemic in Malawi, that is it is present all the time in wild pigs without causing them any sickness or death. It is contact between these wild pigs or materials such as food or bedding contaminated with their excretions and domesticated pigs which introduces the disease and kills such a large number of them.

Domesticated sick pigs spread the disease to others by their excretions which contaminate food eaten by the other pigs. Once the virus has entered the pigs body, it may appear normal for several days sometimes over a week before getting a high temperature becoming incoordinate and dying rapidly. All that time it is developing the disease the pig appears normal; it can be excreting the virus and infecting other pigs. Apparently normal infected pigs which are slaughtered have the virus in their bodies including all the meat as have pigs which die of the disease. Any of this meat could also spread the disease if other pigs came into contact with it.

Figure 10: English extension circular on African swine fever
Dipatimenti ya ziweto yalemba kabuku kofotokoza njira zopewera nthenda ya chigodola cha nkumbamba ndi cholinga chofuna kuwiza alimi njira zabwino zotetezera nkumbamba zawo ku nthenda ya chigodola.

Nthenda ya chigodola cha nkumbamba ndi yoopsya kwambiri chifukwa imafalika msanga. Nthendayi imagwira nkumbamba za misinkhu yonce ndipo ikalowa m'khola nkumbamba zonse zima. Nthenda ya chigodola ikupezeka m'dziko muno chifukwa cha nguluwe zomwe zimakhala ndi nthendayi koma osadwala kapena kuza nayo. Nthendayi imagwira nkumbamba ngati nkumbamba zikhudzana ndi nguluwe kapena kudya chakudya ngakhelenso kuhudza zogonera zomwe nguluwezo zapipta ndi mkudzo kapena ndowe.


Figure 11: Chichewa extension circular on African swine fever
Malawi's tradition in which people gathered over food or beer and threshed out problems of their area. The groups were therefore well received and farmers tended to have confidence in the information they received by radio and when they had heard a specialist on the radio recommend practices which the field assistant had advocated earlier; they had greater respect for their local extension worker's advice on other matters. As more farmers own radios, and more extension workers are recruited, the groups are petering out.

The Extension Aids Branch also employs mobile cinema to reach the rural farmers. A fleet of Mobile Cinema Landrovers, nicknamed Yellow Vans after their colour reach out to the villages to spread agricultural information. The vans go out on campaigns of two to four weeks at a time carrying puppet shows which have tape messages for performance in several villages during the day and films during the evenings. It is estimated that 400 people see the puppet shows during the day and 600 see film shows from one mobile unit in a day.

One other method promoted to bring new innovations to farmers is the utilisation of agricultural shows, exhibits and visits. These are organised by the extension service in conjunction with individual farms or they are organised by research stations and colleges of agriculture to enable farmers see the benefits of adopting modern agricultural methods.

Visits are either made for the farmers to see the operation and management of better farmers or to meet representations of input dealers, who advertise their products, and
materials and offer necessary advise and explanations on their application.

Visits made by farmers to research stations and colleges bring to them the practical aspects of what they have read or heard on the radio. Farmers usually understand better the value of certain management recommendations after seeing a crop which has been a result of those recommendations.

The government also use local leaders like chiefs, village headmen, school teachers, party officials, local courts officials and progressive farmers as intermediaries in the dissemination of information. These and their wives are usually gathered in groups at farmer training institutions for courses conducted by the members of the agricultural extension staff for periods of up to two weeks. The courses are usually co-ordinated with the actual extension programme in the area and are designed to develop agricultural leadership and awareness. On their return to their rural areas the "graduates" are encouraged to teach their colleagues and be exemplary in their agricultural practices. "Achikumbe" (master farmer) certificates are awarded to those who have shown exceptional performance in agriculture.

4.6 Constraints to Information Delivery

4.6 A Government Policy

As yet the Science and Technology Information policy is not clearly defined but there are encouraging signs that this situation will be remedied. Extension activities are the main means of getting information to the rural population.
4.6 B Production and Handling of Documents

The annual reports from the research stations and institutions come out very late. The last report for Chitedze, the main research station is the 1977/78, and the Research Bulletin of Bunda College of Agriculture is one year behind. Even the annual Malawi Science Journal which started in 1975 is only in its third volume. A lot of publications from outside are obtained in exchange with these local publications and these exchange arrangement cannot survive without the guarantee of the local publications coming out regularly.

One element in the transfer of information is the handling of documents concern was expressed by Mr. E. Clark, Agricultural Research Officer, before he left the country. A lot of publications both local and foreign are sent to the Ministry of Agriculture and not to the individuals. These which include circulars, letters, reports and journals arrive as a result of exchange arrangements or as a result of the Government being a member of some organisation.

Not all employees in the registry know how to handle and store documents. But the registry is a key office in channelling incoming documents and some of those were seen piled up on the floor, on top of filing cabinets with layers of dust to mark how long they had been there. Mr. Clark had been responsible for sorting these documents and sending them to institutions all over Malawi.

This state of affairs is not confined to the Ministry alone; it could also be seen in the secretariat of the National
Research Council. On the few shelves that existed, the books, report and periodicals were often in disorder with issues of the same journal or series scattered.

The effect of this on the flow of information can be drastic as it may mean that documents may not reach the people who would use them for the benefit of the whole country. As documents accumulate, the situation may become unmanageable.

4.6 C Foreign Exchange and Facilities

Most of the research stations are accessible by telephone and the postal service is good. But the stations are not linked by telex which would facilitate co-operative ventures.

Shortage of foreign exchange affects the availability of stationery and spare parts for equipment. Where the photocopying machines are available for instance, their potential in information transfer is stunted by lack of small things like ink and paper. The problem was responsible for the delay in the introduction of a contents page photocopy service to researchers by the Central Library at Chitedze.

Orders for books and periodicals by institutions and individuals have to be approved by the Reserve Bank and payment for them can be a lengthy process. Payment for subscriptions to periodicals or membership to international societies have to pass through the same process. The effect this can have on the information transfer is obvious.

4.6 C CO-ORDINATION

A great deal of coordination needs to be done. The library
service has not worked as far closely with the extension service and the adult literacy project to bring the benefits of modern agricultural methods to the farmers and reduce duplication of efforts and waste of funds.

4.6 D Motivation and Bureaucracy

Requests for documents or a list of publications go unheaded for no specific reason. For instance the author who was on the briefing meeting of the consultant and whose library featured prominently in the final report never received a copy of the "Massil report" from the National Research Council despite several personal and telephone requests. This inertia contributes to lack of intellectual stimulation and improvement in information provision.
CHAPTER 5

AGRICULTURAL INFORMATION FLOW TO FARMERS - RESULTS FROM QUESTIONNAIRE

The majority of the farmers in the sample interviewed were between 20 and 50 years old. Motivation should therefore be high as it means being self employed.

Table: 10 Age of farmers

<table>
<thead>
<tr>
<th>Age Group</th>
<th>No. of farmers</th>
<th>% of farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 - 35</td>
<td>95</td>
<td>43</td>
</tr>
<tr>
<td>36 - 50</td>
<td>73</td>
<td>33</td>
</tr>
<tr>
<td>Over 50</td>
<td>52</td>
<td>24</td>
</tr>
</tbody>
</table>

Illiteracy is a major problem in most developing countries. The literacy rate within a country is a significant social indicator of a country's level of development. Unesco has described an illiterate as a person aged between 15 and over who can neither read or write a short text in any language. The literacy rate in the neighboring countries is as follows:
Table 11: Literacy rate in some African countries

<table>
<thead>
<tr>
<th>Country</th>
<th>% Literate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angola</td>
<td>20</td>
</tr>
<tr>
<td>Botswana</td>
<td>25</td>
</tr>
<tr>
<td>Kenya</td>
<td>66</td>
</tr>
<tr>
<td>Lesotho</td>
<td>50</td>
</tr>
<tr>
<td>Mozambique</td>
<td>15</td>
</tr>
<tr>
<td>Zambia</td>
<td>48</td>
</tr>
</tbody>
</table>

Source: Europa Yearbook, a world survey 1981

The literacy rate in Malawi is about 30% but Husein observed that 75% of the Malawi population was illiterate. According to the national functional literacy project, the attainment of standard three qualifies one to be classified as literate. Table 12 confirms Husein's observation as the percentage of literate farmers in our sample is just 26%. The implication of this is that to reach the other 74% of the farmers, communication media other than written would have to be employed.

Table 12: Educational level of farmers

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Number of Farmers</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never been to school</td>
<td>110</td>
<td>50</td>
</tr>
<tr>
<td>Standard 1 to standard 2</td>
<td>53</td>
<td>25</td>
</tr>
<tr>
<td>Standard 3 to standard 5</td>
<td>37</td>
<td>17</td>
</tr>
<tr>
<td>Standard 6 to standard 8</td>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td>Above standard 8</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>

   (Assignment report UNDP/MLW/78/005)
One method used to import agricultural information to farmers is by carefully arranged displays and field days at agricultural institutions to which farmers are invited. The farmers in our sample were asked if they had visited an agricultural college or research station in the previous twelve months and the results are shown in table 13:

Table 13: Visits to agricultural colleges or research stations

<table>
<thead>
<tr>
<th></th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Those who had made visits</td>
<td>160</td>
<td>73</td>
</tr>
<tr>
<td>Those who had not made any visits</td>
<td>60</td>
<td>27</td>
</tr>
</tbody>
</table>

The 73% of the sample who had made visits were asked to state what they had learned from the visits and the main areas were:

1. Livestock and animal husbandry.
2. Curing and tobacco growing techniques.
3. Use and application of fertilisers.

Most of those who had made visits to colleges and research institutions tended to go back and ask for more information about certain practices. Chief Mkomera for instance, who had
attended a maize breeding course at Chitedze, visited the station to inquire about the best fertiliser for his maize crop and said he never missed a field day at Bunda. Most of these farmers had been invited in groups to specially prepared courses at the Divisional Training Centre. None of the farmers had taken the trouble to visit the libraries at the places where they attended field days, although they admitted to having seen pamphlets and other printed material hung in the rooms at the training centre. "That's where students read", "We only went there to see a film", "I cannot read", "Are the books for us?" These were the most popular replies.

The Extension Aids Branch in the Ministry of Agriculture, the Agricultural Development and Marketing Corporation issues circulars, magazines which are distributed to the farmers. The sample was asked if they had in the previous twelve months received any circulars or publications, and their replies were:

Table 14: Receipt of circulars

<table>
<thead>
<tr>
<th></th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Those who had received</td>
<td>80</td>
<td>36</td>
</tr>
<tr>
<td>Those who had not received</td>
<td>140</td>
<td>64</td>
</tr>
</tbody>
</table>

Those who received were asked what they had learned from the circulars and the main areas were:

1. Early garden preparation and planting.
2. Tobacco management.
3. Crop husbandry.
4. Fertiliser application.

The publications are distributed by the Extension Aids Branch to Schools, Colleges, Agricultural Division Officers for final distribution to the farmers through the extension workers. Those sent to colleges and schools mainly end up with the students and only a few trickle down to the farmers. This point was raised with the Principal Agricultural Extension Officer who confirmed that he was aware of the weaknesses in the hierarchical distribution system. He was disturbed that some of the publications like Za Achikumbe ended up in groceries used as wrapping for salt, soda or curry powder. He was however hopeful that most of students, and extension officers who received copies passed on the information to the farmers, and their parents. The Chief Agricultural Research Officer agreed that the link between extension and farmers is usually weak because there are too few extension workers, and even the mass media communication methods did not often reach the target. He revealed that researchers felt that there should be special liaison officers between research and the extension service.

Apparently, circulars and posters are not issued in sufficient quantities to reach every farmer. Limited numbers are issued to extension workers and these are pinned on notice boards at the unit offices, at hospitals community centres and on trees at road junctions in the villages (a popular place for topical notices) and at markets.

One such circular was a notice about a rabies tie up
order. Too many dogs had been seen in the unit and it was feared some of these could be rabid stray dogs. Veterinary Department was to destroy all dogs found in the street during two days. At the end of the tie up order they had killed very few dogs and as soon as they had decamped, many of the dogs were back looking for bones in the villages. Apparently, the information had circulated and dog owners took precautions.

The few farmers who could read and often got some publications were prepared to pass the information to their relatives and friends. One weakness with the circular distribution system was that there was no indication as to when these were pulled down and new ones put up. Most of those at the office were old and had become part of the furniture. Those on trees were at the mercy of the wind, rain or young boys. Where these had not done their work, the notices would be there for a long time. The extension workers could enhance their usefulness by explaining to traditional leaders and teachers the information being communicated.

The publication language is English and although most of the extension publications are both in English Language and in Chichewa, the vernacular. The language problem is real as it restricts the farmers from benefitting from the experiences of the neighbouring countries. Every development division publishes a newsletter in English Language for the extension workers.

The farmers were asked to state from what sources they got most of their agriculture information and table 15 gives the results:
Table 15: Sources of information

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extension workers</td>
<td>130</td>
<td>59</td>
</tr>
<tr>
<td>Radio</td>
<td>60</td>
<td>27</td>
</tr>
<tr>
<td>Friends and neighbours</td>
<td>20</td>
<td>9</td>
</tr>
<tr>
<td>ADMARC and agricultural colleges</td>
<td>10</td>
<td>5</td>
</tr>
</tbody>
</table>

The high illiteracy rate explains why extension workers and radio are the top sources of farm information. The results confirm other studies carried out in Africa on the sources of farm information. Kidd\(^2\) in a survey of Western Nigeria sought the sources of eight improved practices used in the cultivation of maize, cocoa, tobacco and in mechanisation. Half the farmers in the survey gave the agricultural extension service as their main source of information of the improved practices used in the cultivation of maize, cocoa, cotton, tobacco and in mechanisation. Half the farmers in the survey gave the agricultural extension service as their main source of information of the improved practices; a quarter gave commercial agencies as their source of information. Williams\(^3\), also working in Western Nigeria found that only 32% of those interviewed gave the extension service as their main source of farm information;


15% gave other cultivators and 29% gave mass media (radio mainly) as their main source. The same farmers reported that for further discussion on the knowledge obtained, 50% consulted the agricultural extension service and 27% other farmers. Watts,4 from research in the Embu District in Kenya reported findings similar to those of Kidd. The extension was the main source for 55% of the farmers, field days and research stations for 12% and other cultivators for 33 per cent.

Table 16: Source of farm information in other African studies

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural extension</td>
<td>50</td>
<td>32</td>
<td>55</td>
</tr>
<tr>
<td>Radio</td>
<td>10</td>
<td>29</td>
<td>-</td>
</tr>
<tr>
<td>Friends and neighbours</td>
<td>25</td>
<td>25</td>
<td>33</td>
</tr>
</tbody>
</table>

Farmers are very confident of the extension workers and most of them have struck up good understanding. The radio programmes, which confirms what the extension workers say to the farmers, strengthen this confidence. But they are few in number. Those met in the Lilongwe Agricultural Development Division felt that information should reach them faster than it does at present. Some of the farmers interviewed thought that the film shows should be more frequent than at present,

which is once or twice a year. They thought that film shows which featured successful farmers were educative. The investigator went to one of such film show at Mitundu Trading Centre. It was well attended, but there were far too many young people who made a lot of noise applauding what they saw and this tended to distract the adults from concentrating.

The sample of farmers was also asked to state their main sources of information about three inputs which were being encouraged by the Government for adoption and these were Hybrid Maize seed, Dipterex which is applied to a maize crop to fight stalk borer, Actellic which is applied to harvested maize either in the grain silos or in the bags to prevent attacks from weevils and other post harvest damages, and Layers Marsh which is used for feeding chicken. The farmers were further asked, if on hearing of the inputs they sought further information and from whom they obtained the information. Table 17 presents the results:

Table 17: Sources of information about some inputs

<table>
<thead>
<tr>
<th></th>
<th>Hybrid Maize</th>
<th>Dipterex</th>
<th>Actellic</th>
<th>Layers Marsh</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Extension workers</td>
<td>100</td>
<td>50</td>
<td>31</td>
<td>100</td>
</tr>
<tr>
<td>Radio</td>
<td>28</td>
<td>14</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ADMARC</td>
<td>44</td>
<td>22</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Neighbours and Friends</td>
<td>28</td>
<td>14</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
The table indicates that the extension agents were the main sources of information for hybrid maize (50% of the farmers who knew about it), dipterex (100% of those who knew about it) and layers marsh 57%. The Agricultural Development and Marketing Corporation, which sells Actellic to farmers, was the main source of information about it.

When asked whether the farmers, on learning the improved practices, sought further information and from whom they got this further information, the results were not different from above as table 1B reveals:

Table 18: Sources of additional information

<table>
<thead>
<tr>
<th>Sources</th>
<th>Hybrid Maize</th>
<th>Dipterex</th>
<th>Actellic</th>
<th>Layers Marsh</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Those who sought</td>
<td>160</td>
<td>80</td>
<td>31</td>
<td>100</td>
</tr>
<tr>
<td>additional information.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extension workers</td>
<td>110</td>
<td>69</td>
<td>31</td>
<td>100</td>
</tr>
<tr>
<td>ADMARC</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Radio</td>
<td>30</td>
<td>19</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Friends and Neighbours</td>
<td>20</td>
<td>12</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Tables 17 and 18 confirms the importance of the extension service in the dissemination of information to farmers. Almost all those who had heard about hybrid maize, dipterex, actellic and layers marsh wanted to know more about the inputs and
their main sources of this additional information were the extension agents, radio, friends and neighbours.

The extension workers form the end of the structure in the information transfer. Presently the ratio of the extension workers to farm families is 1:680 and it is intended to reduce it to 1:400 by 1990.

Radio is also encouraged by the Government and radio broadcasts are part of the educational work of the Extension Aids Branch. A survey by the Extension Aids Branch revealed that there has been a great increase in access to radio over the last nine years and that for every ten adults in the rural areas, we can expect two or three to have their own radio while a further three four or five may listen fairly often to other people's radios.

But the usefulness of radio broadcasts was reduced by the time the farm programmes were on the air. Most of the farmers said that they missed some broadcasts because they were on the air in the morning hours or soon after midday when they had just returned from the fields and were tired to follow. The farmers said that they preferred to listen in the afternoons when they were resting. An Extension Aids Branch Study Report found that none of the Branch's programmes were broadcast during the farmers' preferred times.

Another weakness was that most of the farmers found very few messages on the broadcasts were new i.e., they had already

heard them, or were inappropriate eg. a cotton broadcast was less useful in a non cotton growing area.

The extension workers wanted to be notified in advance of the radio programmes so that they could warn their farmers; more co-operation between Malawi Broadcasting Corporation and Extension Aids Branch so that programmes could be made more closely to the work of the extension workers in particular areas.

Za Achikumbe magazine is published in the vernacular every two months for farmers and carries topical news and recommendations. The sample of farmers was asked to state whether they received it regularly. Table 19 presents the results:

Table 19: Knowledge and receipt of Za Achikumbe magazine

<table>
<thead>
<tr>
<th></th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Those who had seen a copy</td>
<td>90</td>
<td>41</td>
</tr>
<tr>
<td>Those who had not seen one</td>
<td>130</td>
<td>59</td>
</tr>
<tr>
<td>Those who received it regularly</td>
<td>30</td>
<td>14</td>
</tr>
</tbody>
</table>

Source of Za Achikumbe

Extension personnel

90 100

The distribution of the magazine needs improvement as only 14% of surveyed received it regularly. Like the circulators, the magazine is sent to farmer training institutes, schools, colleges and development offices for extension workers
for final distribution to farmers. The system has the same faults as that for circulars as more copies than necessary end up in the butcheries, groceries, and market stalls to be used as wrappers - an indication of the general shortage of paper. Even the development offices which are the focal points of farmer activities did not have full sets of the magazine. At the Extension Aids Branch, only the Principal Agricultural Extension Officer had a full set; there was none in their library.
Chapter 6

AGRICULTURAL LIBRARIES

The suggestion that writing was invented to help agriculturalists to keep their records is strengthened by the fact that early African libraries were established in connection with the extractive industries of geology, forestry, chemistry and agriculture to assist the colonials exploit their territories. It may be pertinent to precede discussion of the libraries and information units by examining the bibliographical output in the country for publications are the foundation on which libraries are built.

One of the earliest publications in Malawi was a newspaper called the Central African planter, founded in 1895 and still going strong as the Daily Times, which was intended "to serve the agricultural community". The momentum which was set seems not to have been maintained and local publishing has never been aggressive. Most of the local agriculturists report their research findings in such international journals as Tropical agriculture, Experimental agriculture, Turrialba, Crop science and Agronomy journal. The reason is not hard to find as the publish or perish syndrome demands that they not only publish but that their articles appear in respected journals. Malawi agricultural researchers therefore rely heavily on outside publications which are well monitored by such international abstracting and indexing journals as AGRINDEX, CAB abstracts, Abstract of Tropical Agriculture and the Bibliography of Agriculture.
Nevertheless the local societies and associations publish a few serials containing results of research and other matters of purely local interest. The Society of Malawi's Journal, and the Malawi Journal of Science emanate from the society of Malawi and the Association for the Advancement of Science in Malawi while Luso is an independent journal sponsored mainly by University of Malawi scientists.

Research results are also reported in the Bunda College Agriculture Bulletin, the Quarterly Newsletter of the Tea Research Foundation, and the Forest Research Institute Newsletter and the annual reports of the various government departments. The usefulness of the latter is limited by delays in publication, as the following table shows:

Annual Report Department of Agricultural Research

<table>
<thead>
<tr>
<th>Year</th>
<th>Published In</th>
</tr>
</thead>
<tbody>
<tr>
<td>1968/69</td>
<td>1972</td>
</tr>
<tr>
<td>1970/71</td>
<td>1973</td>
</tr>
<tr>
<td>1972/73</td>
<td>1975</td>
</tr>
</tbody>
</table>

Annual Report Department of Veterinary Services

<table>
<thead>
<tr>
<th>Year</th>
<th>Published In</th>
</tr>
</thead>
<tbody>
<tr>
<td>1969</td>
<td>1971</td>
</tr>
<tr>
<td>1970</td>
<td>1972</td>
</tr>
<tr>
<td>1971</td>
<td>1973</td>
</tr>
<tr>
<td>1973</td>
<td>1975</td>
</tr>
</tbody>
</table>

Only one magazine is intended for farmers, that is Za Achikumbe. It is published every two months by the Extension Aids Branch and distributed throughout the country to schools, colleges, farmer training institutions and farmers. It
contains recent recommendations, news about successful farmers and organisations. Extension workers have their own forums of exchange of news which are prepared by regional agricultural offices.

6.2 Books and Theses

The Extension Aids Branch and the Government Printer have between them a monopoly of the few agricultural publications in print today. The former publishes mainly for farmers and extension workers, and boasts about forty titles in print on various aspects of agriculture.

The Department of Survey publishes maps on various aspects of agricultural development while the National Statistical Office is responsible for agricultural statistical publications.

Most of the Malawians who go overseas for higher degrees return to conduct their research in Malawi for their degrees and these contain useful review literature and original research results. There is currently no formal mechanism for consistently acquiring theses, and libraries which need them often have to identify them through the well known abstracting and indexing publications like Dissertation Abstracts and Aslib Index.

6.2 A Non-conventional literature

This group which falls outside the categories of the regularly issued material and is difficult to obtain includes memoranda, pamphlets, brochures, translations, preprints,
and consultants reports. Some ideas of the importance of this literature is given by the fact that 20% of the output of AGRIASIA (the South East Asian contribution to AGRIS) has been classed as non-conventional. At the International Rice Research Institute about 30% of the literature (currently about 5500 records annually) has been classified as non-conventional and estimates put the literature of sociological and development interest up to 60% of the expected annual output of 100,000 documents.¹

It can be estimated that about 70% of the publications listed in the annual Malawi National Bibliography would be classed as non-conventional. The Malawi National Bibliography lists publications received by the National Archives under the Printed Publications Act, 1967 which requires every publisher to send every publication to the National Archives. Periodical articles, books on Malawi published outside, consultants' reports and theses are not covered.

6.3 Library Objectives

Only four of the libraries visited, the Central Veterinary Laboratory, Tea Research Foundation and Bunda have written objectives. These laid down the functions, mode of operation and regulations of the libraries. However, only at Bunda College is the library treated and accepted as an equal to every other department. All the other libraries are treated as part of some section of their stations. The objectives of the Central Veterinary Laboratory is to support the research work of the laboratory and the Department of Veterinary

medicine; those of the Shire Valley are "to serve as a data bank for all substantive documentation relating to the division or Shire Valley area, and also as a source of general reference material of immediate relevance and assistance to division staff in the course of their duties". The Tea Research Foundation Library's objective is to serve the need of its senior staff. Bunda College Library provides the main learning resource for all agricultural undergraduates and postgraduate students, and acts as a resource for teaching staff members for the preparation of lectures, serve as a research library for staff members and postgraduate students pursuing research linked with increasing agricultural production in the country, and provides a back-up service for the Ministry of Agriculture Library at Chitedze which is twenty-eight miles away. As the country's largest agricultural library, it is frequently visited by consultants and other experts preparing briefs for Government and various developments projects within the country.

Although the other libraries did not have written library objectives, it was clear that they were maintained to support the research and other efforts of their stations. Mr. Mkaonja, the Senior Forest Research Officer had a clear vision of the Forest Research Institute Library when he stated to the author that the library was primarily there to acquire forestry publications from outside for the staff, store and facilitate the publications from the department of forestry, and distribute forestry publications.
6.4 **Staff**

The libraries are understaffed (see table 20). They cannot perform the functions the libraries must perform. There is a serious need for a training programme to produce the staff that can guide the services, co-ordinate and maintain some efficiency. At the moment there is no career structure in the Government scales for librarians. "Librarians" have usually been drawn from the administrative section to sink or swim. A post can be Library Assistant or Senior Assistant Librarian, depending on where it is located and who is behind the establishment of the post. There is no prospect of filling the vacant posts with trained people as there are few librarians in the country - all of them getting higher salaries than the vacancies can offer.

The need for staff has been recognised for some time and the Ministry has since 1976 sought opinions on the best way to improve its library services. All consultants have stressed the futility of providing books and library facilities without qualified librarians to take charge of them and ensure that the money put into the services earn maximum value.

The Chief Agricultural Extension Officer in the Ministry headquarters and the Officers in charge at Chitedze agree that the present staff cannot cope with the duties now demanded of them and the Ministry Library Consultant said she would emphasise to the Ministry the need for staff training, prospective career structure grading and status.
Table 20: Staff in Agricultural Libraries

<table>
<thead>
<tr>
<th>Institution</th>
<th>Establishment</th>
<th>In Post</th>
<th>Qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bunda College</td>
<td>Librarian</td>
<td>1</td>
<td>FLA</td>
</tr>
<tr>
<td></td>
<td>Assistant Librarian</td>
<td>1</td>
<td>BA, MLS, MLA</td>
</tr>
<tr>
<td></td>
<td>Assistant Librarian Trainee</td>
<td>1</td>
<td>BSc</td>
</tr>
<tr>
<td></td>
<td>Senior Library Assistant</td>
<td>1</td>
<td>MALA Certificate</td>
</tr>
<tr>
<td></td>
<td>Library Assistant</td>
<td>4</td>
<td>O'levels MALA</td>
</tr>
<tr>
<td></td>
<td>Clerk/Typist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colby College</td>
<td>None</td>
<td>½ Tutor</td>
<td></td>
</tr>
<tr>
<td>Economic Planning</td>
<td>None</td>
<td>½ Clerk</td>
<td></td>
</tr>
<tr>
<td>Extension Aids</td>
<td>None</td>
<td>½ T.O.</td>
<td></td>
</tr>
<tr>
<td>Fisheries</td>
<td>None</td>
<td>½ Clerk</td>
<td></td>
</tr>
<tr>
<td>Forest Research</td>
<td>Assistant Librarian</td>
<td>Vacant</td>
<td></td>
</tr>
<tr>
<td>Geological Survey</td>
<td>None</td>
<td>½ Clerk</td>
<td></td>
</tr>
<tr>
<td>Lilongwe Agric. Development</td>
<td>Executive Officer/Librarian</td>
<td>1</td>
<td>Certificate In Agriculture</td>
</tr>
<tr>
<td>Makaka</td>
<td>None</td>
<td>½ Technical Officer</td>
<td></td>
</tr>
<tr>
<td>Mikolongwe</td>
<td>None</td>
<td>½ Clerk</td>
<td></td>
</tr>
<tr>
<td>Shire Valley</td>
<td>Library Assistant</td>
<td>1</td>
<td>O'levels</td>
</tr>
<tr>
<td>Tea Research</td>
<td>Librarian</td>
<td>1</td>
<td>MSc.</td>
</tr>
</tbody>
</table>
Table 21 reveals that only 47% of the libraries have full time posts. The libraries at Chitedze and Forest Research Institute advertised their posts in March 1980. The duties of the Chitedze Librarian are "general administration and supervision of staff, controlling expenditure of Library funds, ordering books for all stations in the Agricultural Research Department, arranging for subscriptions to periodicals and journals, and books on inter-library loan system, dealing with correspondence on library matters and any other duties pertaining to the library profession".2

The Forest Research Institute, being managed on a part-time basis by an entomologist, advertised for an Assistant Librarian (with a diploma in library administration) whose duties include "ordering of papers, journals, books and publications as advertised by senior officers, making summary cards, filing, indexing and cross referencing of new books, paper and periodicals, despatching and possibly selling literature produced at the Institute, control of books, periodicals and papers and general maintenance of the Library".3

The two vacancies had not been filled by December, 1981. There are only about twenty professional librarians in the whole country. To attract any of them, the post would have to be pegged higher. But this would only be a temporary measure as it would create a vacancy elsewhere. The situation should have been solved back in 1966. Then a working party consisting

of the Senior Agricultural Research Officer at Chitedze, the Director of the National Library Service and the Principal Agricultural Officer, Extension and Training recommended to the Chief Agricultural Research Officer the following staffing pattern for the Ministry of Agriculture Library:

<table>
<thead>
<tr>
<th>Posts</th>
<th>Title</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Senior Ministry Librarian or Ministry Librarian</td>
<td>S9</td>
</tr>
<tr>
<td>½</td>
<td>Senior Library Technician</td>
<td>PO/CTO</td>
</tr>
<tr>
<td>1</td>
<td>Library Technician</td>
<td>STO</td>
</tr>
<tr>
<td>2</td>
<td>Library Assistant</td>
<td>SCO</td>
</tr>
</tbody>
</table>

The Chief Agricultural Research Officer felt that the proposals were "too ambitious and rather unrealistic" and put forward the following proposals:

<table>
<thead>
<tr>
<th>Posts</th>
<th>Title</th>
<th>Grade</th>
<th>Qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Librarian</td>
<td>PO/CTO</td>
<td>with a degree or equivalent qualification</td>
</tr>
<tr>
<td>1</td>
<td>Assistant Librarian</td>
<td>STO</td>
<td>with a diploma or certificate or equivalent in Librarianship</td>
</tr>
<tr>
<td>2</td>
<td>Library Assistants</td>
<td>CO</td>
<td>O'Levels</td>
</tr>
<tr>
<td>2</td>
<td>Library Attendants</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Proposals for developing information (Library) services within the Ministry of Agriculture and Natural Resources. Minutes of the Ministry's Working Party, held on 4 May 1976.
Only the post of Assistant Librarian existed, the rest needed establishing. Unfortunately no positive action was taken although the Chief Agricultural Research Officer had offered to go ahead to draw up a project in more precise term for funding and implementation.

Nothing happened until 1981 when the Government engaged a consultant through the Malawi research project.

Her report recommends that a staff of thirteen will be needed to run the Ministry library:

<table>
<thead>
<tr>
<th>Post</th>
<th>No</th>
<th>Grade</th>
<th>Qualifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry Librarian</td>
<td>1</td>
<td>S7-5</td>
<td>BSc or BA and MLS</td>
</tr>
<tr>
<td>Central Library Director</td>
<td>1</td>
<td>SEO/CEO</td>
<td>Diploma in Library Studies</td>
</tr>
<tr>
<td>Senior Library Assistants</td>
<td>4</td>
<td></td>
<td>MCE and MALA Certificate</td>
</tr>
<tr>
<td>Secretary</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clerk/Typist</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Messengers/Cleaners</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The most urgent need is to establish a development policy for the libraries based on the needs of the clients and organise the libraries with this policy in mind. The needs have already been identified but they have not been given enough attention. A development policy could be formulated on the strength of the findings of consultants and on the
basis of new developments. Decisions on staffing in the past have been taken by people who had the libraries at heart. The post of librarian for the Central Library was filled by Mr. E. Mphaya who had been sent to New Zealand for a certificate course in the 1960’s and to a special British tour of agricultural libraries in 1971. His rank was that of executive officer but promotion prospects were next to zero and he left in 1977 to become senior executive officer in the Ministry of Education.

One would have thought that the Faculty of Agriculture of the University at Bunda should have experienced less problems. The library was run by Dr. Bennett, a Chemistry lecturer with the assistance of Messrs Kuphote and Kamunga, his secretary and laboratory assistant respectively. Later Mrs. E. Black, wife of one of the lecturers, became full time librarian from January 1968.

The University librarian suggested the employment of a qualified person who should hold A.L.A. and would be responsible to the Principal for the development of the library.

A Librarian was obtained through the British Voluntary Service Overseas from September 1968 and when her replacement was nominated two years later the University Librarian

5. Unpublished correspondence from the Chief Agricultural Research Officer to the Permanent Secretary Ref. 13/55/6/209 dated 4 January 1977.
6. Baldwin, D.F. Library/Information Center; Malawi Agricultural Research project, Centre for Tropical Agriculture International Programs, Institute of Food and Agricultural Sciences, University of Florida/The Department of Agricultural Research, 1981.
protested: "I cannot regard this young lady as in any way suitable for the assignment at Bunda College: she is totally unsuitable". The Deputy University Librarian was requested to move to Bunda College but the Principal felt that "the salary would make the library the most expensive department in terms of its contribution to our curricula" and doubted that "a professional librarian with qualification above ALA or equivalent is needed at Bunda College; "to accept ex cathedra pronouncements about the importance of the library to a University is one thing; to use such philosophical statement as one guideline for implementation of a college's programme with a total disregard for the resulting inbalance is quite another".

People in top positions can encourage or enfeeble library development of which staffing is very crucial.

6.4 A Salary and Status

In the Faculty of Agriculture Library, the library staff are equated in terms of salary and conditions of service with the academic staff.

In the Government libraries, most of the staff are related to public service salaries and conditions. Those earning higher salaries achieved them outside the library although this may change in a few years time when the vacancies at

Chitedze, the Forest Research Institute and the Ministry of Agriculture are filled.

6.4 B Sub-Professional Training

The Malawi Library Association started a City and Guilds-equivalent certificate course for library assistants from 1980. The course is run over six months and candidates are sponsored by their employers. The Geological Survey Department, took advantage and sent a candidate in 1981, and the Central Library at Chitedze was expected to send a candidate to this 1982 course.

The MALA Library assistant's certificates enables the holders to occupy sub-professional posts in libraries in the country. It can be in no way a substitute for diploma and degree certificate which are needed for the people in the higher posts in the agricultural libraries.

6.4 C Professional Education

In her report presented to the British Council, Mrs. Casteleyn draws attention to the need within the country for staff trained at a higher level than the MALA certificate to work in special, business and research libraries. 8

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6.5 Committees

Table 21: Committees

<table>
<thead>
<tr>
<th>Library</th>
<th>Whether there is a committee or not</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bunda College</td>
<td>Yes</td>
<td>Advisory</td>
</tr>
<tr>
<td>Buumbwe</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Central Veterinary Lab</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Chitedza</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Colby College</td>
<td>Yes</td>
<td>Advisory</td>
</tr>
<tr>
<td>Economic Planning</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Extension Aids Branch</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Fisheries</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Forest Research Institute</td>
<td>Yes</td>
<td>Advisory</td>
</tr>
<tr>
<td>Geological Survey</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Lilongwe Agric. Development</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Makoka</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Malawi College of Forestry</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Mikolongwe Vet. School</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Shire Valley</td>
<td>Yes</td>
<td>Advisory</td>
</tr>
<tr>
<td>Tea Research Foundation</td>
<td>Yes</td>
<td>Advisory</td>
</tr>
</tbody>
</table>

There was a clear need for the libraries which could be discerned by talking to the officers in charge and researchers and reading the objectives which were written down in some libraries like the Shire Valley Agricultural Development, the Tea Research Foundation and Bunda College. At Shire Valley the Guide to the Library states that the library is "intended
primarily to serve as a data bank for all substantive documentation relating to the Shire Valley, and as a source of general reference material of immediate relevance and assistance to staff in the course of their duties". The Tea Research Foundation simply states that the library serves "the needs of its senior staff" who are the planners and the researchers.

Only five of the libraries, or 31% had a library committee whose function was advisory, interpreting the needs of the users and providing a sounding board for plans and policies.

It was discovered that back in the 1960, Chitedze Library was governed by a committee consisting of various members of the Ministry of Agriculture whose functions were:

Investigating the whole library service system in the Department of Agriculture with a view to:

1. producing a statement of funds available for the purchase of books and journals and running the library services under the various divisions of the Department i.e. Extension Services, Research, Training and Extension Aids Branch;

2. showing whether adequate lists of books held at department station exist and where these lists were held;

3. reviewing present methods of ordering and circulating books and journals and considering necessary action for improvement;
4. obtaining from Extension Aids Branch a statement of the type of publication apart from its publication which should be available in the Extension Service at the below District level;

5. obtaining a list of United Nations and other international organisations publications on agriculture received in the country;

6. considering procedures for the retention of significant departmental reports and conference papers so that they are available at the centre for reference;

7. consulting with the National Archives to ensure that relevant material from the Department was being sent to the Archives;

8. reviewing the places of retention of journals and library books in order that they are utilised to the best advantage and considering where more than one copy should be ordered;

9. making specific and detailed recommendations for the organisation, staffing and financing of an adequate Departmental Library Service. 9

With the departure of expatriate staff the library committee was responsible for dispensing funds but ceased to function in the early 1970's. It is now difficult to operate a Ministry-wide service without an advisory committee to act as a cushion for plans and recommendations. The lack of qualified staff means that there is really no voice.

<table>
<thead>
<tr>
<th>Institutions</th>
<th>Publications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bunda College</td>
<td>Research bulletin</td>
</tr>
<tr>
<td></td>
<td>Accessions list</td>
</tr>
<tr>
<td></td>
<td>Miscellaneous Publications</td>
</tr>
<tr>
<td>Bvumbwe</td>
<td>Quarterly report</td>
</tr>
<tr>
<td></td>
<td>Annual report</td>
</tr>
<tr>
<td></td>
<td>Miscellaneous research report</td>
</tr>
<tr>
<td>Central Veterinary Lab.</td>
<td>Research reports</td>
</tr>
<tr>
<td></td>
<td>Quarterly report</td>
</tr>
<tr>
<td>Chitedze</td>
<td>Library accession list</td>
</tr>
<tr>
<td></td>
<td>As at Bvumbwe</td>
</tr>
<tr>
<td>Colby College</td>
<td>Calender</td>
</tr>
<tr>
<td></td>
<td>Quarterly reports</td>
</tr>
<tr>
<td>Economic Planning</td>
<td>Economic report</td>
</tr>
<tr>
<td>Extension Aids Branch</td>
<td>Annual report</td>
</tr>
<tr>
<td></td>
<td>Circulars</td>
</tr>
<tr>
<td></td>
<td>Various publications for extension Personnel and farmers</td>
</tr>
<tr>
<td></td>
<td>Films</td>
</tr>
<tr>
<td>Fisheries research</td>
<td>Research reports</td>
</tr>
<tr>
<td>Forestry Research Institute</td>
<td>Annual report</td>
</tr>
<tr>
<td></td>
<td>Various research reports</td>
</tr>
<tr>
<td></td>
<td>Newsletter</td>
</tr>
<tr>
<td>Geological Survey</td>
<td>Geological maps</td>
</tr>
<tr>
<td></td>
<td>Annual reports</td>
</tr>
<tr>
<td></td>
<td>Research memoirs &amp; reports</td>
</tr>
<tr>
<td>Lilongwe Agricultural Division</td>
<td>LAD news (magazine for extension workers)</td>
</tr>
<tr>
<td></td>
<td>Research reports</td>
</tr>
<tr>
<td></td>
<td>Quarterly reports</td>
</tr>
<tr>
<td></td>
<td>Library accession list</td>
</tr>
<tr>
<td>Makoka</td>
<td>Quarterly reports</td>
</tr>
<tr>
<td></td>
<td>Annual reports</td>
</tr>
<tr>
<td>Malawi College of Forestry</td>
<td>Calender</td>
</tr>
<tr>
<td>Mikolongwe Veterinary School</td>
<td>Annual report</td>
</tr>
<tr>
<td>Shire Valley</td>
<td>Advice (magazine for extension personnel and farmers)</td>
</tr>
<tr>
<td></td>
<td>Research reports</td>
</tr>
<tr>
<td>Tea Research Foundation</td>
<td>Quarterly reports</td>
</tr>
<tr>
<td></td>
<td>Annual reports</td>
</tr>
</tbody>
</table>
Although Malawi agricultural researchers publish most of their findings in international journals, their first avenue is the local quarterly or annual report.

6.6 Users and their Location

The libraries were used mainly by researchers, planners, extension workers, teachers and students. Most of these were on site and used the libraries for finding information to support their work. A few were students preparing for degree qualifications and these tended to use more than one library, then there are the occasional consultants. Bunda College of Agriculture had external users mostly from the development projects, and the Ministry Headquarters and consultants. Some travelled over hundred miles to browse or use the periodical collection.

Chitedze was used by planners from the Ministry Headquarters which is ten miles away, student and staff from the University of Malawi and those from Colby College. The researchers in the Department of Agricultural Research scattered all over the country used the library by postal loans, occasional visits and indirectly by getting periodicals circulated to them. Table 23 indicates the libraries and their clients:

Most of the libraries are located outside urban centres where research is being conducted. Their use is therefore limited to those who are there and those who can travel from their station to the next. This is not usually possible. Those from Kasungu Agricultural Development Division headquarters for instance can use the Lilongwe Agricultural Development
Table 23: Libraries and their clients

<table>
<thead>
<tr>
<th>Library</th>
<th>Clients</th>
<th>Where they come from</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bunda</td>
<td>Lecturers, Researchers, Visitors</td>
<td>on site, and from other stations</td>
</tr>
<tr>
<td>Bvumbwe</td>
<td>Researchers</td>
<td>on site and from other stations</td>
</tr>
<tr>
<td></td>
<td>Extension workers</td>
<td>on site and from the neighbourhood</td>
</tr>
<tr>
<td>Chitedze</td>
<td>Planners, Planners, Researchers</td>
<td>on site headquarters, All over the country and on site.</td>
</tr>
<tr>
<td></td>
<td>Extension staff</td>
<td>On site and from the neighbourhood, from University and Colby College.</td>
</tr>
<tr>
<td></td>
<td>Students, Visitors</td>
<td></td>
</tr>
<tr>
<td>Central Veterinary Laboratory</td>
<td>Researchers</td>
<td>on site, in the Veterinary Department.</td>
</tr>
<tr>
<td>Colby College</td>
<td>Teachers and Students</td>
<td>On site</td>
</tr>
<tr>
<td>Economic Planning</td>
<td>Economist and Planners</td>
<td>on site</td>
</tr>
<tr>
<td>Extension Aids Branch</td>
<td>Editors, Planners, Extension staff</td>
<td>on site, on site, All over the country</td>
</tr>
<tr>
<td>Makoka</td>
<td>Planners, Researchers, Extension staff</td>
<td>on site, on site, From the neighbourhood</td>
</tr>
<tr>
<td>Lilongwe Agricultural Development Division</td>
<td>Planners, Researchers, Extension staff</td>
<td>All over the project, In the project, In the project</td>
</tr>
<tr>
<td>Malawi Forest College</td>
<td>Students and teachers</td>
<td>On site</td>
</tr>
<tr>
<td>Mikilongwe Veterinary Station</td>
<td>Students and teachers</td>
<td>On site</td>
</tr>
<tr>
<td>Tea Research Foundation</td>
<td>Planners and researchers</td>
<td>on site</td>
</tr>
</tbody>
</table>
Division but when they want to use Chitedze Library ten miles away and Bunda Library eighteen miles away which they often do, they have to requisition transport most times two days in advance. Otherwise public transport is not reliable. The problem is worse for extension workers who are often working in remote areas, often well away from library resources. And the absence of a telephone service in the rural areas exacerbates the problem.

Teachers and students in general were frequent users of the libraries. Researchers tended to use the libraries when they were stuck and most of them kept personal indexes of important papers. One departmental head at Bunda kept a copy of every important paper but sometimes this failed him and he resorted to the library. Some of these met in the Ministry libraries said that they asked their friends or consulted a departmental file if they were stuck and refiled on serials being circulated to them.

The administrators and planners were the least library users - going to the library only to read the current newspaper if it had missed then in circulation, to check a bit of information from some annual or the least Government Gazette. They tended not to regard the library as a source of assistance in their information needs. Most of the quick reference books were usually kept in their offices.
6.7 Services

External and internal pressures dictate the services offered by any library. These factors which differ from one library to another are:

(1) Economy: The state of a country's economy will affect how much is allocated to libraries for the purchase of publications and equipment and to pay for the staff.

(2) Proposals: The ability of the staff to prepare and set out the needs of the Library and their ability to transmit to the appropriate bodies will determine the availability of essential services.

(3) Foreign Aid: Most developing countries rely on external funding for most of their projects and ability to get this is an important factor.

(4) Demand: Clients influence the type of services offered.

(5) Staff: Staff able to recognise the demand must be available to satisfy the demand.

(6) Finance: This is a very important factor and goes hand in hand with (1) above.

(7) Physical Facilities: Breadth of service will depend on the accommodation available.

The libraries surveyed suffered from the following factors:
1. The Ministry of Agriculture's libraries did not have reasonable budgets and most of the publications came through the Books Presentation Programme. All the officers were sympathetic and thought that libraries should have a fair deal "but where do we get the money?"

2. The above problem was compounded by the lack of staff to fight for the fair deal. Most often it was a few vocal researchers who influenced the officers in charge to purchase particular items needed in connection with research.

3. The Books Presentation Programme has had an immense impact on services (see section of finance) as valuable books and journals have been purchased through this programme. Almost all the agricultural libraries have had some assistance or another. Bunda and Chitedze Libraries are looking for funds for extension to their libraries and the IDRC is building the Natural Resources College. However funds for capital expenditure have not been easy to get.

4. The area most influenced by clients' demands has been the acquisition of new materials. It has been difficult to get them influence the services mainly because of lack of staff to operate the services. However, their cries for better services have not fallen on deaf ears as there is a possibility of getting staff seconded from the University of Florida through a link with the Department of Agricultural Research.

5. Accommodation is not very good; most of the libraries are cramped and unable to accommodate new acquisitions. Lack
of staff and finance do not help to improve the situation.
Table 25 summarises the services available. There is a
new concept of the functions of the modern library that
the library should provide information to its client with­
out their having asked for it.

Agriculturists use libraries to "answer the problems
encountered in their daily routines, to gain awareness of the
current development in the field all over the world; to re­
view the results of all investigations previously made on the
subject being studied; to find information about current
trends of investigations, the possibilities of future deve­
lopments and to browse in related fields as well as in new
or fields different from their own". 10

tural libraries: preliminary edition. Oxford,
International Association of Agricultural Librarians
Table 24 shows that most of the libraries, obviously constrained by the absence of professional staff, can only afford to provide loans, circulate publications and supply photocopies. A loan register in the form of an exercise book in which staff sign for material borrowed is maintained at all libraries, except Bunda College which uses a modified Browne System. An examination of the registers at Chitedze, Makoka, Bvumbue and the Central Veterinary Laboratory and a brief tour of the laboratories and offices revealed that many items, especially new books and periodicals were borrowed indefinitely. These tended to sit in the laboratories and showed signs of damage by cockroaches. The skeleton staff in the libraries could not cope with the control of materials, and this reduced the value of the collections and exposed the books to insects and to higher temperatures and humidities of the laboratories.

Loan slips, provided for completion by the officers each time an item was borrowed, would provide a better method of monitoring overdue items. The slips could be filled in alphabetically by author/title and destroyed when the items were returned.

While all the libraries circulate newly arrived literature, especially periodicals, within their sections, Chitedze circulates its journals to all libraries in Malawi. Heavy losses makes this method unpopular and is likely to be dropped soon in favour of sending photocopies of contents pages of journals.
Table 24: Services to clients

<table>
<thead>
<tr>
<th>Institution</th>
<th>Loans</th>
<th>Circulation of periodicals</th>
<th>Photocopy of periodical articles</th>
<th>Scanning and indexing</th>
<th>Retrospective bibliographic Reference service</th>
<th>Other documentation service</th>
<th>(a) Abstracting</th>
<th>(b) Retrospective inf. file</th>
<th>(c) Circulation of contents of journals</th>
<th>(d) Unions lists</th>
<th>(e) Reprography</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bunda College</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Avumbue</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Central Vet. Lab.</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Chitedze</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes, Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Colby College</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes, Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Economic Planning</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Extension Aids</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes, No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Fisheries</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes, No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Forest Research</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No, No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Geological Survey</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No, No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Lilongwe Agric Dev.</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>N</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No, No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Makoka</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Malawi Forest College</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Mikolongwe Vet. Sch.</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Shire Valley</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Tea Research Foundation</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
6.8 Materials Collected

The collections range from a total of approximately 200 volumes to nearly 24,000 (as table 25 shows) consisting of reference books, maps, serials, pamphlets, records, microtexts, papers and statistics collected by clients and project plans.

Table 25: Bibliographical resources

<table>
<thead>
<tr>
<th>Research Institutions</th>
<th>Building</th>
<th>Books</th>
<th>Periodical Titles</th>
<th>Pamphlets</th>
<th>Maps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bunda College</td>
<td>210'x210</td>
<td>23000</td>
<td>420</td>
<td>1500</td>
<td>200</td>
</tr>
<tr>
<td>Bvumbue</td>
<td>20'x 30</td>
<td>1900</td>
<td>30</td>
<td>-</td>
<td>100</td>
</tr>
<tr>
<td>Central Veterinary Lab</td>
<td>20'x25</td>
<td>300</td>
<td>20</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Chitedze</td>
<td>30'x72</td>
<td>3000</td>
<td>225</td>
<td>1000</td>
<td>200</td>
</tr>
<tr>
<td>Colby College</td>
<td>20'x 40'</td>
<td>1000</td>
<td>20</td>
<td>200</td>
<td>20</td>
</tr>
<tr>
<td>Economic Planning</td>
<td>-</td>
<td>300</td>
<td>15</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Extension Aids Branch</td>
<td>-</td>
<td>200</td>
<td>10</td>
<td>100</td>
<td>150</td>
</tr>
<tr>
<td>Fisheries</td>
<td>-</td>
<td>350</td>
<td>40</td>
<td>-</td>
<td>150</td>
</tr>
<tr>
<td>Forest Research</td>
<td>30'x36</td>
<td>2000</td>
<td>35</td>
<td>00</td>
<td>100</td>
</tr>
<tr>
<td>Geological Survey</td>
<td>15'x20'</td>
<td>2000</td>
<td>9</td>
<td>-</td>
<td>100</td>
</tr>
<tr>
<td>Lilongwe Agric. Development</td>
<td>10'x20'</td>
<td>300</td>
<td>-</td>
<td>-</td>
<td>100</td>
</tr>
<tr>
<td>Makoka</td>
<td>20'x30'</td>
<td>300</td>
<td>140</td>
<td>-</td>
<td>15</td>
</tr>
<tr>
<td>Malawi College of Forestry</td>
<td>20'x30'</td>
<td>1000</td>
<td>20</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mikolongwe</td>
<td>12'x 27'</td>
<td>500</td>
<td>12</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Shire Valley</td>
<td>-</td>
<td>1440</td>
<td>15</td>
<td>-</td>
<td>16</td>
</tr>
<tr>
<td>Tea Research Foundation</td>
<td>15'x 20'</td>
<td>400</td>
<td>70</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Some of these are comprehensive and specialised collections like the former Agricultural Research Council collection on cotton at Makoka, that of the Forest Research Institute for forestry and that of the Central Veterinary Laboratory for Veterinary medicine. Except in the teaching institutions, like Colby, Bunda and Malawi Forest College, there was very little material for general reading.

Reference material like dictionaries, encyclopaedias data books and directories were not very much in evidence except at Bunda. Where some existed, they tended to be superseded. For instance, at Makoka the library had the 1968 edition of the CRC Handbook of Chemistry and Physics during the visit when it was in its 1980/81 edition. But all the libraries were rich in locally produced literature like books, annual reports, bulletins, circulars, research reports and periodicals, especially in areas in which the parent institutions specialised. Maps tended to be kept away from the library although they were regarded as library material. These however were not up dated and lacked the current series.

Microtexts were being collected at Bunda but although Chitedze had a microfilm reader, it did not have any policy for collecting old material which in most cases is available only on microfilm. There is no facility for producing microforms in the country. Chitedze has a slide projector but no slide collection.

Materials are collected by purchase, gifts and by exchange. The Ministry headquarters received publications from
international organisations and these are passed on to the libraries. The absence of someone to do this regularly and of a trained librarian in the Ministry is responsible for delays in the receipt of the publications and these delays can be anything from a year to three years. Gaps in the collections were evident quite rightly as clients only order books in their fields.

None of the agricultural libraries is mandated to collect the various publications, consultants reports and audio-visual produced by the various departments.

The stock at most of the libraries need weeding and updating especially at the teaching institutions where fiction usually acquired as gifts from departing expatriate staff fill the shelves.

Although it is the bits of information found in them that decides the adequacy of material, it is hard to believe that the collections meet the demands placed on them. The map collections were neglected.

6.8 A Serials

The serial collections are extensive, with some of them going back many years. They are supplemented by the abstracting and indexing journals as shown in table 27.

The most urgent need is a union list of serial holdings in the libraries. This has never been compiled and every librarian feels that it could assist reduce unnecessary duplication, and assist inter-library loans. Shawa made a humble
Table 26: Holdings of abstracting and indexing journals

<table>
<thead>
<tr>
<th>BC</th>
<th>BV</th>
<th>CT</th>
<th>CVL</th>
<th>FRI</th>
<th>MAK</th>
<th>TRF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A.I.D. Research &amp; Development Abstract</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>2. Abstract on Tropical Agriculture</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>3. Abstract of Mycology</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>4. Agricultural &amp; Biological Abstract</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>5. Agricultural Engineering Abstract</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>6. Agrindex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>7. Agronomy Abstract</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>8. Animal Breeding Abstract</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>10. Biological &amp; Agricultural Index</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
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<tr>
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<td>12. Chemical Abstracts</td>
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<td>13. Dairy Science Abstract</td>
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<td>14. Field Crop Abstract</td>
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<td>15. Food Science &amp; Technology Abstracts</td>
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<td>17. Forest Products Abstract</td>
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<td>18. Helminthological Abstracts A.</td>
<td></td>
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<td>20. Herbage Abstract</td>
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<td>✓</td>
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<td>21. Horticultural Abstract</td>
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<td>✓</td>
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<td>22. Nutrition Abstract and Reviews</td>
<td></td>
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<td>23. Plant Breeding Abstract</td>
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<td>✓</td>
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<td>24. Review of Applied Entomology A.</td>
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<td>✓</td>
<td>✓</td>
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<tr>
<td>No.</td>
<td>Title</td>
<td>BC</td>
<td>BV</td>
<td>CT</td>
<td>CVL</td>
<td>FRI</td>
</tr>
<tr>
<td>-----</td>
<td>-------------------------------------------------</td>
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<td>----</td>
<td>----</td>
<td>-----</td>
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</tr>
<tr>
<td>25.</td>
<td>Review of Applied Entomology B.</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>26.</td>
<td>Review of Medical &amp; Veterinary Mycology</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>27.</td>
<td>Review of Plant Pathology</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>28.</td>
<td>SADEX</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>29.</td>
<td>Soils &amp; Fertilisers</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>30.</td>
<td>Tropical Storage Abstracts</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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</tr>
<tr>
<td>31.</td>
<td>Weed Abstracts</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>32.</td>
<td>WAERSA</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>33.</td>
<td>Veterinary Bulletin</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

**KEY TO THE LIBRARIES**

- **BC**: Bunda College of Agriculture
- **BV**: Bvumbwe Agricultural Research Station
- **CT**: Chitedze Agricultural Research Station
- **CVL**: Central Veterinary Laboratory
- **FRI**: Forest Research Institute
- **MAK**: Makoka Agricultural Research Institute
- **TRF**: Tea Research Foundation of Central Africa

**KEY TO ABBREVIATIONS**

- **SADEX**: Southern Africa Index
- **WAERSA**: World Agricultural Economics and Rural Sociology Abstracts.
beginning when he compiled a list of periodical holdings at Bunda College, Central Veterinary Laboratory, Chitedze and Colby College libraries. 11

It is a humble beginning which could pay dividends in reducing unnecessary duplication. In Shawa's list for instance 118 out of 611 are found at both Bunda and Chitedze, libraries which are just twenty eight miles apart.

A bindery is seriously needed for the Ministry libraries as so many complete volumes were seen tied with string to await funds for bindings. The Government Press was used for binding previous volumes but it was apparent that it could no longer cope and danger of some parts of periodicals going missing is real.

The serials are usually shelved alphabetically by their titles but at Chitedze, Makoka and Bvumbwe and the current issues were arbitrarily arranged on tables, most times with different issues of the same title in different places. Users find this rather confusing as they cannot find any issue in a specific place in relation to the others. It would seem wiser to shelve the indexing and abstracting journals in a separate alphabetical sequence and then the back sets of the journals after.

Another limiting factor in the usefulness of the serial is the delay in their receipt. Lawani 12 in his study of the

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holdings of tropical agricultural periodicals in Nigeria libraries provides a list of the periodicals which carry articles on tropical agriculture. It was decided to determine how late or early a selected list of tropical agricultural periodicals are received in Malawi to test Massil's statement that periodicals are received late in Malawi. From Lawani's list, ten titles received at both Bunda College in Malawi and Tropical Products Institute, England were selected and the dates on which the first four issues of the 1981 volumes were received at Bunda and at the TPI libraries were noted by correspondence in the case of Bunda and by using the KADEX file kept in the Tropical Products Institute library. On average, Malawi agriculturists see the issues two months after their counterparts at TPI have seen them. The table below gives the results:

Table 27: Dates of receipt of some serials at Bunda College Malawi and Tropical Products Institute, London.

<table>
<thead>
<tr>
<th>Serial</th>
<th>Date Received</th>
<th>Average Delay</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agriculture Gazette</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>of New South Wales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vol. 92 (Aust)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bunda Nos. 1</td>
<td>21/9 27/10</td>
<td>2 months</td>
</tr>
<tr>
<td>TPI</td>
<td>19/6 3/11</td>
<td></td>
</tr>
<tr>
<td>Vol. 92 (Aust)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australian Journal of Agricultural Research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vol. 32 (Aust)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bunda 13/8</td>
<td>21/9 27/10</td>
<td>3 months</td>
</tr>
<tr>
<td>TPI</td>
<td>13/7 23/11</td>
<td></td>
</tr>
<tr>
<td>Vol. 32 (USA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic Botany</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vol. 35 (USA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bunda 23/5</td>
<td>15/10 17/11</td>
<td>2 months</td>
</tr>
<tr>
<td>TPI</td>
<td>9/7 24/8</td>
<td></td>
</tr>
<tr>
<td>Vol. 35 (USA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Euphytica</td>
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<tr>
<td>Vol. 30 (Holland)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bunda 20/10</td>
<td>14/10 24/7</td>
<td>3 months</td>
</tr>
<tr>
<td>TPI</td>
<td>30/6 28/4</td>
<td></td>
</tr>
<tr>
<td>Vol. 30 (Holland)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental Agric.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vol. 17 (UK)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bunda 16/4</td>
<td>11/8 9/7</td>
<td>3 months</td>
</tr>
<tr>
<td>TPI</td>
<td>6/4 13/7</td>
<td></td>
</tr>
<tr>
<td>Vol. 17 (UK)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>International Pest Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(UK)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bunda 20/6</td>
<td>24/7 14/10</td>
<td>4 months</td>
</tr>
<tr>
<td>TPI</td>
<td>18/2 3/7</td>
<td></td>
</tr>
<tr>
<td>Vol. 20 (UK)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Journal of Stored Products Research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vol. 17 (UK)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bunda 12/12</td>
<td>10/9 12/10</td>
<td>5 months</td>
</tr>
<tr>
<td>TPI</td>
<td>3/6 29/9</td>
<td></td>
</tr>
<tr>
<td>Vol. 17 (UK)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plant Disease</td>
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<tr>
<td>Vol. 65 (USA)</td>
<td></td>
<td></td>
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<tr>
<td>Bunda 30/3</td>
<td>11/10 20/10</td>
<td>1 month earlier</td>
</tr>
<tr>
<td>TPI</td>
<td>28/9 4/11</td>
<td></td>
</tr>
<tr>
<td>Vol. 65 (USA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tropical Agriculture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vol. 58 (UK)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bunda 11/8</td>
<td>13/6 8/10</td>
<td>3 months</td>
</tr>
<tr>
<td>TPI</td>
<td>5/2 5/8</td>
<td></td>
</tr>
<tr>
<td>Vol. 58 (UK)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Queensland Agric. Journal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vol. 107 (Aust.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bunda 23/9</td>
<td>28/10 5/1</td>
<td>2 months</td>
</tr>
<tr>
<td>TPI</td>
<td>2/7 8/12</td>
<td></td>
</tr>
<tr>
<td>Vol. 107 (Aust.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indian Journal of Agric. Science</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vol. 51 (India)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bunda 18/5</td>
<td>11/8 21/9</td>
<td>2 months</td>
</tr>
<tr>
<td>TPI</td>
<td>5/5 16/6</td>
<td></td>
</tr>
<tr>
<td>Vol. 51 (India)</td>
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</table>
None of the libraries has a complete collection of the Malawi reports, consultants reports, list of current research projects, audio-visuals produced in the Ministry of Agriculture to support teaching programmes, the farmers' primers and Malawi journals which could be exploited for the benefit of all.

6.9 Clients Needs

A librarian would know of the needs of his clients by:

1. keeping a dialogue and profile of communication between library staff and library users in order to develop a record of users' needs. This profile is then used to provide those series that will be most useful to each user.

2. participating in staff meetings of the institutes in order to be informed of contemplated changes so that the library will be ready to offer library materials and services when the new developments occur.

3. keeping the researchers informed of the library's responsibilities, functions and activities of the library so that he can enlist the support.
Table 28: Librarians' methods of knowing clients' need

<table>
<thead>
<tr>
<th>Institution</th>
<th>Dialogue/Profile</th>
<th>Membership of Committees</th>
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</thead>
<tbody>
<tr>
<td>Bunda College</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Bvumbwe</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Central Veterinary Laboratory</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Chitedze</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Colby College</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Economic Planning</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Extension Aids Branch</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Fisheries</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Forest Research Institute</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>Geological Survey</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Lilongwe Agric. Development</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Makoka</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Malawi College of Forestry</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Mikolongwe Veterinary School</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Shire Valley</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Tea Research Foundation</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Dialogues and profiles are kept at 19 percent of the libraries and librarians are members of their institution's meetings at 44% of the libraries surveyed. The result revealed that these libraries managed by professional libraries or research officers keep a healthy dialogue with their clients and have their staff on the committees which review progress, plan new programmes.

6.10: Knowledge About New Materials

The clients are usually notified about newly arrived materials by accession lists, by special display of new
materials and by having the material circulated to them. The clients will usually receive items they requisitioned soon after it had been displayed in the library. The accessions lists give details about author/title and location in the library. Those prepared at Chitedze, Lilongwe Agricultural Development Division and Bunda College are circulated to other libraries in Malawi. At Bunda, pertinent papers are listed, indexed and brought to the attention of staff while those discovered in the abstracting and indexing journals are usually obtained from the British Library.

Table 29: Clients' method of knowing about new materials

<table>
<thead>
<tr>
<th>Institution</th>
<th>Accession List</th>
<th>Display of</th>
<th>Circulation</th>
<th>SDI of Bulletins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bunda College</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Bvumbwe</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Central Vet. Laboratory</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Chitedze</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Colby College</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Economic Planning</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Extension Aids</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Fisheries</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Forest Research Institute</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Geological Survey</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Lilongwe Agric. Division</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Makoka</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Malawi Forest College</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Mikolongwe</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Shire Valley</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Tea Research Foundation</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Table 30 reveals that existing material is brought to the attention of clients by organised tours or user education programmes usually conducted on the clients' first appointment. Retrospective Bibliographies are prepared on demand or access to computer facilities. The Extension Aids Branch,
the Geological Survey and the Tea Foundation prepare lists of their publications mainly for the benefit of outsiders. These are usually prepared by the administrative units and not the library. Bunda College prepares lists of papers and publications by staff in connection with students projects or research projects and mounts displays of materials which are usually accompanied by a handout.

User education programmes or conducted tours alleviate the reliance by new members of staff on their colleagues or on serendipity to discover what is available. These introductory periods were appreciated by new members of staff.

At Ditedze there was a display of publications and circulars published by the Extension Aids Branch and these drew researchers. The expatriate staff members who were new to the Department of Agricultural Research found the display useful as it was indicative of the research that had been done and the recommendations which had come out of them.

Circulations of material was the most popular method used but its usefulness was questionable. At Mikolongwe the complete volumes of the Review of Medical & Veterinary Mycology were not in the library but in the office of the Officer in Charge because he was afraid they would be lost in the library as the security was poor.
Table 30: How clients know about old material in their subject

<table>
<thead>
<tr>
<th>Institution</th>
<th>Bibliographies</th>
<th>Topical Displays</th>
<th>User Education/Tours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bunda College</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Bvumbwe</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>Central Veterinary Laboratory</td>
<td>No</td>
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</tr>
<tr>
<td>Chitedze</td>
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<td>Yes</td>
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<tr>
<td>Colby College</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Economic Planning</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Extension Aids Branch</td>
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<td>Yes</td>
</tr>
<tr>
<td>Fisheries Research</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Geological Survey</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>Lilongwe Agric. Development</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Makoka</td>
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<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Malawi Forest College</td>
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<tr>
<td>Tea Research Foundation</td>
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<tr>
<td>Forest Research Institute</td>
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</tbody>
</table>

As the libraries were poorly organised it is a pity that new researchers have to rely on browsing to find out what is available. Bibliographies are not prepared, nor are displays mounted to synchronise with new research projects (see table 30). The Extension Aids Branch, the Forest Research Institute, the Geological Survey and the Tea Research Foundation publish lists of their publications but these are only useful in a small way from the point of view of the libraries. And since the library catalogues do not provide for a subject approach, the usefulness of the libraries as sources of information is severely hampered.
Most of the officers met considered this a major handicap as it meant they had to wade through pamphlet boxes, cupboards and piles of papers to know what was available. Time and frustration did not often allow an extensive search.

6.11 Influence of clients on materials collected

The usual method is for clients to recommend what should be ordered for the library to the Officer in Charge who approved it by passing it on to the library for purchase. Users discover newly published material in periodicals, publishers prospectuses or from colleagues. At Chitedze, the investigator found publishers prospectuses displayed on tables. This would later be listed under 'Catalogues' in the Monthly Accession List. At Bunda prospectuses are passed to clients most identified by the subjects of the books listed or to departments for circulation. The method used at Chitedze seemed popular in the Ministry libraries, but its usefulness could not be seen by the investigator. The majority of the libraries had no arrangement for them to receive these as they came out. The occasional one came with journals. The investigator could not help thinking that some of the libraries did not know the use to which they could be put.

The clients met indicated that they did not systematically make recommendations for purchase because they were put off by the delays in the receipt of material and because they often did not know how much money was available for purchasing library material. Most of those in charge of the libraries did their best to enlist recommendations from their clients,
and make purchases in areas they were familiar with. Institutions like Shire Valley requested every officer to ensure that at least one copy of every substantive circular, paper, or report produced in his section is sent to the library and to ensure that the library received every relevant publications. Some officers even arranged for material to be sent to the library from institutions with which they had contacts. Selection as can be seen in table 31 is mostly done by clients.

Table 31: Clients' influence on material collected

<table>
<thead>
<tr>
<th>Institution</th>
<th>Clients Select Material</th>
<th>Librarian Selects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bunda College</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Bvumbwe</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Central Veterinary Laboratory</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Chitedze / Colby</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Economic Planning</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Extension Aids Branch</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Fisheries</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Forest Research Institute</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Geological Survey</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Lilongwe Agric. Development</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Makoka</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Malawi College of Forestry</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Mikolongwe Veterinary School</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Shire Valley</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Tea Research Foundation</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

6.12 Collection Policy

Every library tries to identify itself with its clients and carefully selects its materials to serve their needs.
Table 31 reveals that in the majority of libraries selection is done by the clients. Ideally selection of material should be shared between library staff and the clients. Only three libraries had written selection policies stating what should be collected in relation to current research, planning and development needs. The policy at Bunda encourages (a) the acquisition of material before programmes are introduced, (b) the building up of relevant literature in new and expanding related fields.

6.13 Binding

One problem that stood up prominently was the lack of binding facilities. In most of the libraries, complete volumes had been tied with string to await binding. But the librarians had no funds. Only Bunda College has access to a bindery; the rest have to rely on commercial binders and the stations do not budget for this. It would not be surprising if the libraries started re-ordering back journals in a few years times as most issues are bound to be lost. It will cost more than the original price to replace most parts, and most of them may be out of print and unavailable.

6.14 Finance

Financial provision was minimal with too much reliance placed on gifts. Historically the Department of Agriculture had provided an annual vote to support the library before the Department split into other departments. The early reports given the following figures:
<table>
<thead>
<tr>
<th>Year</th>
<th>Estimate</th>
<th>Actual Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1910</td>
<td>£ 57.10-1</td>
<td>-</td>
</tr>
<tr>
<td>1911</td>
<td>£ 68. 4-1</td>
<td>-</td>
</tr>
<tr>
<td>1931</td>
<td>£ 50.00</td>
<td>£ 50.7.2</td>
</tr>
<tr>
<td>1932</td>
<td>£100.00</td>
<td>£ 76.0.9</td>
</tr>
<tr>
<td>1934</td>
<td>£ 20.00</td>
<td>£ 9.16.2</td>
</tr>
<tr>
<td>1935</td>
<td>£ 40.00</td>
<td>£ 38.2.1</td>
</tr>
<tr>
<td>1937</td>
<td>£ 50.0.0</td>
<td>£ 44.8.7</td>
</tr>
</tbody>
</table>

Raw Data: Department of Agriculture, Annual Reports.

The pattern continued until the middle of 1960's when provision started to diminish. Nevertheless Research Stations continued to put aside a certain amount annually to purchase books or meet the cost of subscribing to periodicals.

Table 32: Annual budget for books and periodicals at the libraries

<table>
<thead>
<tr>
<th>Institution</th>
<th>Annual Budget for Books and Periodicals in Malawi Kuacha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bvumbwe</td>
<td>-</td>
</tr>
<tr>
<td>Central Veterinary Lab.</td>
<td>-</td>
</tr>
<tr>
<td>Colby</td>
<td>-</td>
</tr>
<tr>
<td>Economic Planning</td>
<td>-</td>
</tr>
<tr>
<td>Extension Aids</td>
<td>-</td>
</tr>
<tr>
<td>Fisheries</td>
<td>1,000</td>
</tr>
<tr>
<td>Forest Research Institute</td>
<td>2,000</td>
</tr>
<tr>
<td>Geological Survey</td>
<td>1,000</td>
</tr>
<tr>
<td>Lilongwe Agricultural Development</td>
<td>50</td>
</tr>
<tr>
<td>Makoka</td>
<td>-</td>
</tr>
<tr>
<td>Malawi College of Forestry</td>
<td>600</td>
</tr>
<tr>
<td>Mikolongwe Veterinary Station</td>
<td>-</td>
</tr>
<tr>
<td>Shire Valley</td>
<td>1,000</td>
</tr>
<tr>
<td>Tea Research Foundation</td>
<td>1,400</td>
</tr>
</tbody>
</table>

Figures available at the two biggest libraries Chitedze and Bunda for the year 1974-79 for books and periodicals are:
Table 33: Annual allocations at Bunda and Chitedze in Malawian Kwacha

<table>
<thead>
<tr>
<th>Year</th>
<th>Bunda</th>
<th>Chitedze</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974</td>
<td>20*</td>
<td>4,500</td>
</tr>
<tr>
<td>1975</td>
<td>20*</td>
<td>4,500</td>
</tr>
<tr>
<td>1976</td>
<td>8,000</td>
<td>4,500</td>
</tr>
<tr>
<td>1977</td>
<td>16,000</td>
<td>4,000</td>
</tr>
<tr>
<td>1978</td>
<td>20,000</td>
<td>4,000</td>
</tr>
<tr>
<td>1979</td>
<td>22,000</td>
<td>2,000</td>
</tr>
</tbody>
</table>

* The library had received a donation of K40,000 from Wenela and the budget was reduced.

The other stations had fixed sums of money allocated for books and periodicals.

Most of the institutions bought their books and other library materials from a miscellaneous or stationery vote. Any new recommendations for purchase would be approved by the officer in charge and debited against the stationery or miscellaneous vote.

Since 1975 the libraries have benefited from the British Books Presentation Programme. Under the programme which is administered by the British Council libraries obtain British books and periodicals to the amount donated and the following libraries benefited.

MK$^{1} = £ 0.51$
### Table 34: British Books Presentations, 1975/1979

<table>
<thead>
<tr>
<th>Institution</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bunda</td>
<td>-</td>
</tr>
<tr>
<td>Bvumbwe</td>
<td>-</td>
</tr>
<tr>
<td>Central Veterinary Laboratory</td>
<td>-</td>
</tr>
<tr>
<td>Chitedze &amp; Colby College</td>
<td>£5,000</td>
</tr>
<tr>
<td>Fisheries</td>
<td>-</td>
</tr>
<tr>
<td>Forest Research Institute (for Viphya)</td>
<td>-</td>
</tr>
<tr>
<td>Lilongwe Agricultural Div.</td>
<td>-</td>
</tr>
<tr>
<td>Makoka</td>
<td>-</td>
</tr>
<tr>
<td>Malawi College of Forestry</td>
<td>-</td>
</tr>
<tr>
<td>Mikolongwe</td>
<td>-</td>
</tr>
<tr>
<td>Shire Valley</td>
<td>-</td>
</tr>
</tbody>
</table>

In addition Bunda, Bvumbwe, Colby, Chitedze and Lunyangwa libraries received £125 worth of books on crop storage. The British Council Representative was hoping that in the 1981/82 presentation, £4,000 will be approved for the purchase of books for the newly created eight agricultural development division headquarter libraries which were expected to develop their own research and extension functions. Mikolongwe Veterinary Station and Malawi College of Forestry were expected to get £700 each while Mpwepe Fisheries Training Centre would get £500.
6.15 Classification and Cataloguing

Effective exploitation of library stock depends on its organisation which must ensure that clients find what they want or discover that what they want is not available with minimum delay.

Four of the libraries or 27% use no scheme at all. Shire Valley Agricultural Division adopted the one used by the bigger Lilongwe Agricultural Development Division. Although the system was easy to use, the idea for covering aspects of project history administration for which it was custom built, it was not sufficiently sophisticated to cater adequately for the ever increasing range of general reference material which the library acquired. In 1974, it was decided that a new system was needed and it was appropriate to introduce a card system at the same time. U.D.C. was introduced after discussion with the Librarian of the Polytechnic and classification is done by the library assistant and checked by the Library advisor.

At the Forest Research Institute, the Oxford Decimal System of Classification for Forestry by the Commonwealth Forestry Bureau is used. Books at the headquarters of the Department of Forestry, and the Malawi College of Forestry have their cards available at the institute. A problem cropped up in 1978 when the Commonwealth Forestry Bureau decided to abandon the scheme, it was decided to retain the scheme as the library had "a large collection of books and other documents classified by the Oxford Decimal Classification and to switch to another scheme would be neither practicable nor sensible. We register our dismay and strong disapproval of
Table 35: Classification and Cataloguing

<table>
<thead>
<tr>
<th>Institution</th>
<th>Classification Scheme Used</th>
<th>Cataloguing Code Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bunda College</td>
<td>Library of Congress</td>
<td>AACR</td>
</tr>
<tr>
<td>Svumbwe</td>
<td>Dewey</td>
<td>None</td>
</tr>
<tr>
<td>Central Vet. Lab.</td>
<td>Alphabetically Arranged</td>
<td>None</td>
</tr>
<tr>
<td>Chitedze</td>
<td>Dewey</td>
<td>AACR</td>
</tr>
<tr>
<td>Colby College</td>
<td>Dewey</td>
<td>None</td>
</tr>
<tr>
<td>Economic Planning</td>
<td>Alphabetically Arranged</td>
<td>None</td>
</tr>
<tr>
<td>Extension Aids Branch</td>
<td>&quot; &quot;</td>
<td>&quot; &quot;</td>
</tr>
<tr>
<td>Fisheries</td>
<td>O.D.C.</td>
<td>None</td>
</tr>
<tr>
<td>Forest Research Institute</td>
<td>Home made</td>
<td>None</td>
</tr>
<tr>
<td>Geological Survey</td>
<td>Home made</td>
<td>None</td>
</tr>
<tr>
<td>Lilongwe Agric. Dev.</td>
<td>Alphabetically Arranged</td>
<td>None</td>
</tr>
<tr>
<td>Makoka</td>
<td>O.D.C.</td>
<td>None</td>
</tr>
<tr>
<td>Malawi Forest College</td>
<td>Broad Subject</td>
<td>None</td>
</tr>
<tr>
<td>Nikolongue Vet. School</td>
<td>U.D.C.</td>
<td>None</td>
</tr>
<tr>
<td>Shire Valley</td>
<td>Home made</td>
<td>None</td>
</tr>
<tr>
<td>Tea Research Foundation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Summary of Classification Schemes Used

<table>
<thead>
<tr>
<th>Scheme Used</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dewey</td>
<td>3</td>
<td>18.5</td>
</tr>
<tr>
<td>Library of Congress</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Oxford Decimal Classification</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>Universal Decimal Classification</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>Home Made Schemes</td>
<td>3</td>
<td>18.5</td>
</tr>
<tr>
<td>No scheme used</td>
<td>5</td>
<td>31</td>
</tr>
</tbody>
</table>
the relinquishment of Oxford Decimal Classification by the Forestry Bureau but convenience to the mandarins in Oxford apparently outweighed the practical difficulties created in the forestry outposts of the world which the Bureau purports to serve.¹⁴

A library is judged by the way it is classified and catalogued. Requests from the Economic Planning Division, from Chitedze and Colby libraries were for organising their collections. Complaints about the libraries by clients were mainly about inability to find materials in the libraries. The Chief Projects Officer requested: "In order for the Ministry staff in their day to day work are not faced with hours of sorting or not wasted in duplicating work that has already been written up, I propose that you visit our library and attempt to devise a simple card index cross reference system so that reports can be filed for reference and located under, for example, author, (normally a department), subject and area headings".

All the libraries have large backlogs of cataloguing, some going to about 5,000 titles of serials books and maps. Because of this backlog, new books at the research stations were usually passed straight to the clients as soon as they arrived before they had been properly catalogued.

The cataloguing consisted mainly of author and title entries. They had no subject, nor corporate entries except the Bunda catalogue. This restricted access to the author/title approach as clients could not find books by their

subjects. No library has attempted to provide analytical entries for reports, bulletins, conference proceedings and maps. Yet these contain the most important documentation of research done in the country; one wonders how duplication of research projects can be avoided, especially since there is a high research staff turnover.

Although Chitedze is the Central library, it does not have a central index of what the other research stations have nor do the later know what is available at Chitedze.

The primary need, as expressed by the Chief Agricultural Extension Officer was "to provide a catalogue which will enable any individual to locate books, articles, reports etc dealing with a particular subject area with the minimum of delay and that such a catalogue should indicate where these materials are to be found. Such a catalogue can exist in all the main centres where staff may require information on a particular topic and would therefore need to be replicated at each station, at the Ministry etc. So far as I am aware, no such catalogue is in existence at the moment for the Ministry and it would therefore also be necessary where staff who could produce a catalogue based on the existing stocks of books, publications etc. held within the Ministry Library. (By Ministry above, it means research stations, Colby College, Ministry Headquarters, Forestry, Fisheries, Veterinary, etc.)"15

15. Unpublished memorandum from the Chief Agricultural Extension Officer to the Chief Agricultural Research Officer reference 13/12/13 dated 5th April 1976.
CHAPTER 7

THE ROLE OF AGRICULTURAL LIBRARIES IN MALAWI

7.1 Supporting Researchers

The preceding chapters have tried to show the importance of agriculture in Malawi's economy. These have attempted to highlight the role of information in raising the efficiency of research from which tomorrow's food will come. Apart from the efforts of the researchers themselves, it has been argued that successful and productive research depends on availability of scientific literature. Proper use of Malawi's land to meet the food needs of the growing population implies that every avenue must be exploited.

The United States Agricultural Research Council made a brief survey in 1960 to provide a rough estimate of a researcher's time spent in keeping abreast of scientific developments. It was estimated that agricultural research workers "utilise an average of 13 percent of their official time in library research". 1

Table 7 in chapter 3 summarised the main duties, Malawi agricultural researchers and indicated the main possible resources of information inputs to their work. Most of these useful sources of information are available in the libraries but have no confidence in the libraries. The usefulness of the libraries in supporting the work of researchers is thereby reduced. Consequently, Malawi researchers keep their own

indexes to important papers and keep important publications close to them in their offices.

The role of the libraries in supporting the work of researchers consists of locating, selecting and acquiring the publications which are important to the users, organising these materials so that they are readily available and providing personal services through abstracts, bibliographies, photocopies, reference and loan facilities. That improvements of services are required is evidenced by the presence of so much correspondence on it to the formation of the working party on Ministry libraries and by the support given to the consultants on library matters.

The problems encountered by the researchers which described above also affect planners whose information needs may be met by reports, directories, books and national plans (table 6) usually found in libraries. The role of the library would be to stock these and bring to their attention pieces of information likely to be useful to their work.

7.2 Supporting extension workers

Research findings are useless unless they are applied by the farmers. It was shown in chapter 5 that the extension worker is the most important source of information for the farmers. He is the link between research and the farmers. He tries out under normal farming practices the new ideas from research, investigates their economic justification and adopts them to the necessities of the agricultural production to the different types of environmental conditions. He advises, is
a source of information and inspiration and leads the farmers to be receptive to new ideas. Each extension worker covers a number of villages and his main duties are shown in table 8 which also shows the information he needs. These include books, reports, maps, handling over notes, farmers' primers, bulletins and magazines both local and from the neighbouring countries.

The extension workers operate in remote areas and far from libraries. The nearest contact is one of the farmer training institutions which usually keep collections for farmers. Otherwise, they will have to go to the agricultural development division headquarters, usually located near a town. Although the extension workers have had some training, they need to be reminded and even taught the importance of understanding the farmers' conditions and problems by their superiors so that they can interpret and act as the farmers' spokesmen. The need for continuing education is evident and this needs the support of agricultural library and information services.

The constant recording of information, the constant reference to what has gone before in this area, to what is recommended and to the local conditions implied by their duties need the support of up-to-date information and the role of library is to supply this. It will not be easy at first to re-orientate their thinking to the library as their source of this information. It will be gradual and will need the support of top officials in the Ministry who should plan and support the libraries as part of the agricultural information provision.
The role of the libraries would be locating and selecting agricultural materials likely to be useful to practical farming like recent recommendations in research reports, recent publications and guides to growing individual crops, pamphlets on the control of recent outbreaks of crop diseases. The libraries could produce abstract and summaries of this material for deposit in farmer training institutes, agricultural colleges and different agricultural offices where the extension workers may see them. The libraries would follow this up by providing the extension workers with the original documents or photocopies on demand.

Another possible service is a scientific literature service whereby tables of contents of recent journals, books, pamphlets and reports are photocopied and sent to the extension workers through divisional agricultural officers, from which they can select titles for borrowing or request photocopies of these articles or pamphlets from a Central Library.

Co-operation between agricultural colleges, research centres and the extension service would enable extension workers to make use of library facilities of nearby colleges or research stations by enabling them to borrow, and to use reference services offered.

The teachers and students of agriculture, the role of the libraries would include encouraging him to study and to make use of books by selecting and acquiring main texts, standard reference books and technical periodicals and by running intensive user-education programmes.
7.3 Supporting farmers

Farmers hold the key to increased food production. The efforts of the Government at making them as well informed as possible are testimony to this. It was shown in table 12 that only about 30% of the farmers are literate. But the Government launched a functional literacy project in 1981 as a component of Malawi’s agricultural development. Farmers are being taught to read with comprehension specially prepared agricultural literature aimed at increasing their produce; to react thoroughly to the literature they read in order to adopt innovations on the farm; to acquire writing skills; and to solve simple arithmetic problem that they may meet in day to day life. After the course, they are expected to be able to read and prepare their own input need: for instance how much fertiliser they will need for their maize crop or how much Actellic should be purchased for the year’s harvest; to be able to write letters to extension workers calling for assistance; to keep accounts of farm operations; to read and understand instructions on fertiliser bags and pesticide packages and to make use of simple extension bulletins and newspapers.

Creation of literacy must include its maintenance, and so a system of disseminating reading material is being established. Correspondence courses linked with radio broadcasts are also being organised. In the stages of adoption of a new practice (tables 3 and 4) the possible sources of information at each stage were highlighted. The functional literacy classes are conducted at the farmers’ training institutes (figure 12). It will be remembered that 73% of the farmers
Figura 12: Farmer training institutions
interviewed in this study (table 14) had visited these institutes and that although they had seen posters, pamphlets and other publications at these colleges, they did not associate them with their information needs.

The institutes are located in the rural areas, within the farmers' reach. They are also accessible to extension workers. Libraries at these institutes should be developed and their role should be to relate their services to the solutions of agricultural programmes. There are no library services for the farmers and they do not know what they can be offered. The libraries would also benefit the extension workers and could stock magazines, local maps, area notebooks, handing over notes, meteorological records and audio-visuals.

The point is that libraries must develop together with other institutions like the functional literacy project, as part of the nation's information programme aimed at developing the whole country. In her efforts to disseminate information as rapidly as possible, the country is employing all means of communication. The libraries should therefore be for farmers just as they are for planners, researchers, students and extension workers. They should be regarded as part of the information delivery system and developed to support the agricultural efforts of the country. Husain saw the development of libraries as necessary for the teaching of literacy. "Rural libraries," he wrote, "have to be set up as well as circulating libraries. The question is linked up with wider aspects of rural development and the country's commitment to a planned
and sustained effort to maintain a continuous flow of reading material for adult education".2

7.4 Bibliographical control of Malawi agricultural literature

A serious problem which emerged from the study is that the agricultural literature produced in Malawi is not well known outside the organisation of origin. At present the only Malawi agricultural material included in Agrindex for instance is that which has appeared in the international journals. By indexing the local publications at the inputing stage, bibliographical control of Malawi literature will be facilitated. It would be possible to provide retrospective computer search services and selective dissemination of information services to scientists, administrators, extension workers etc. by regularly feeding them with lists of references to the literature within their fields of interest.

An FAO report in 1977 made the following observation: "it would seem to the mission that Chitedze Library is best placed to serve as the Malawi input centre for agriculture. The Chitedze Library is in an unique position to control and disseminate a knowledge of the existence of this material to a wider audience through the Agris system and in turn receive the services of Agris which are aiming towards a world wide coverage of agricultural literature".3 Chitedze is the main agricultural research station. Most of the agricultural reports

owe their origin to the station and the library has one of the strongest collection of Malawi's reports and agricultural publications. Most of the journals taken by the library are circulated to other stations all over the country. The station is close to the Colby College which trains extension workers. Chitedze is therefore already a focus of agricultural information dissemination.

Participation in Agris is not automatic; it has to be preceded by a Government decision agreeing formally to participate and accept responsibility, accepting to locate and report new available information; agreeing to pay whatever charges may be levied, and accepting that participation will benefit the whole country and not a single institution.

The Malawi's agricultural libraries will need to be improved before the country can participate and benefit from Agris.
CHAPTER B

SUGGESTED SOLUTIONS TO THE PROBLEMS FACING MALAWI AGRICULTURAL LIBRARIES

The state of the libraries visited which was described in chapter six reflects badly on the educational, social and political development of Malawi. Efforts were made to discover who the clients were, for what purpose they used the libraries, and what services were offered. The evidence shows a lack of proper library provision. There is however a cause for some optimism and with proper planning and awareness of the needs of the users, progress can be made, though perhaps slowly.

Three developments to date are seen as a cause for optimism:

1. As a result of pressure from researchers for better library services, a working party on the Ministry of Agriculture Library Service was formed in 1976 and its findings were presented to the Chief Agricultural Research Officer. The basic findings were that the library services needed improving; that the subsidiary libraries and the literature kept in offices should be part of Chitedze Library and that the indexing and classification required overhauling;

2. At the National Level, S. Massil and Madame A. David were commissioned to advise on the establishment of a National Documentation Centre;

3. As a result of a link relationship between the Department of Agricultural Research and the University of Florida's

1. Proposal for developing information (library) services within the Ministry of Agriculture and Natural Resources. Minutes of the Ministry's Working Party, held on 4th May 1976
Centre for Tropical Agriculture a consultant librarian was seconded to Chitedze Library and has made proposals for improving the service.

These developments are an acknowledgement of the importance of libraries in the development of Malawi agriculture. The following suggestions are made to improve the libraries themselves. In making them, it has to be remembered that the Ministry of Agriculture is the parent of most of these libraries and so most of these suggestions are for this body to consider.

8.1 Library Advisory Committee

A committee composed of representatives from the National Research Council, the Departments of the Ministry of Agriculture, the faculty of agriculture of the University of Malawi, the Tea Research Foundation and chaired by the Deputy Secretary of Agriculture should be established. Its main duties will be:

1. Assisting in the preparation, implementation and running of the Ministry libraries;
2. agreeing and establishing policy guidelines;
3. raising funds;
4. taking recruitment decisions;
5. approving and allocating of resources;
6. planning for a Malawi Agricultural Library System (see section 8.8)

An opportunity should be taken to bring the state of the libraries on equal footing with the agricultural development.
of the country. Although the committee will be responsible for advising on most management of the libraries, the final decision should rest with the director of the libraries who will act as secretary of the committee:

Since the Tea Research Foundation and Bunda College are outside the direct control of the Ministry of Agriculture, it is suggested that those institutions should maintain their own advisory committees consisting of the librarians and representatives of the users. The duties of these committees will be to advise the librarians of the users' needs.

8.2 Library Staffing

One of the requirements for building a library service is to staff it well. Malawi planners must be congratulated for giving high priority to qualified manpower as a prerequisite for developing agriculture, but library development has with some exceptions shown a tendency to put the need for qualified staff at the bottom of the list. When aid agencies like the British Council stepped in with book and journal donations, these were accepted without any thought about staff to organise and assist in the exploitation of the materials.

Efforts in the Ministry of Agriculture to resolve the problem of poor library staffing have not proved universally acceptable. Some of the officers looked upon them as a way of obtaining through the back door support for a case which was too weak to justify support.
Professional librarians working in agriculture are very few (table 21). Yet they are badly needed to develop collection policies, to plan the services and to train staff. Library staff will need a good knowledge and experience of information gathering and handling techniques, knowledge about the agricultural activities in the country, an instinctive feeling of the needs of the planners, researchers, teachers, students, extension workers and farmers. They will have to sift continuously the existing mass of local and outside publications and bring those likely to be useful to the attention of the clients. They will need to classify and index this material (table 34) in terms of the needs of the users and supply information to meet the demands of the inquirers, or more important on their own initiative, to stimulate creative work. These services have yet to be developed (tables 25, 30 & 31). The staff will also have to work closely with researchers and other users to select and acquire useful material.

In this respect it will be necessary to employ only persons from the ranks closer in qualification to the clients. The qualities required in connection with the above duties are such that persons recruited are those produced by professional training courses. The first appointment should be that of director of Ministry of Agriculture Libraries. There are only about twenty professional librarians in the country. It will therefore be necessary, in the short term, to recruit from outside. His main duties will be:

1. The development of library and information services in the Ministry of Agriculture;
2. Integration of the Ministry's library and information services with other national and international services;
3. Training and developing of staff skills;
4. Maintaining relationships with the Office of the President and Cabinet, National Research Council and the Deputy Secretary for Agriculture;
5. Acting as Secretary of the Library Advisory Committee;
6. Budgeting and administering funds;
7. Development of library services in farmer training institutions for extension workers and farmers in close association and in consultation with government departments producing agricultural information and agencies responsible for education and literacy;
8. Establishing links with the University library and other libraries with the intention of creating back up services like inter-lending and photocopying;
9. Co-ordination of agricultural information service activities. The director should seek the assistance of volunteer workers like V.S.O. to assist him develop the services. In the long term, three graduate trainees should be recruited to work initially at Chitedze, Bvumbwe and the Forest Research Institute under the supervision of the director. Their duties would include up dating the stocks, creation of reference collections and refereeing inquiries to the director. They should have an interest in library and information work and should preferably have undergraduate degrees in subjects related to agriculture eg. botany, biology or agricultural economics.
There are no training facilities in Malawi. There are no special courses for agricultural information workers in Africa either. But the School of Librarianship and Information Science at the University of Pittsburgh in cooperation with the College of Agriculture and Forestry of West Virginia University started in 1979 a course specially geared to preparing individuals as agricultural information specialists which leads to degrees of Master of Library Science and doctor of philosophy. It includes supervised internship in the Agricultural Engineering Library of West Virginia University.

It is suggested that the three recruits should be sent their postgraduate degrees there.

A cadre of trained assistants will have to be built up to operate loan systems, shelving, initial cataloguing, periodical records and other duties. Initially every research station should have at least one post at this level. The majority of the recruits at this level come straight from school after their O'Levels and have no experience of using an organised library. The Malawi Library Association runs a certificate course for library assistants working in libraries in the country. The course lasts for six months and includes a residential period, correspondence courses and supervised projects. It is suggested that all library assistants in the agricultural libraries should be encouraged to get the MALA Library Assistant's Certificate.

Although there are library staff in the Ministry, there is no grading and status of the staff. It is important that these be drawn up. A suggested structure is:
Table 36: Suggested library staff structure

<table>
<thead>
<tr>
<th>Library Grade</th>
<th>Civil Service Equivalent</th>
<th>Qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td>57 to 55 2</td>
<td>University graduate with higher degree in library or information studies plus higher administrative effectiveness &amp; experience</td>
</tr>
<tr>
<td>Senior Assistant</td>
<td>Professional Officer / 58</td>
<td>University graduate plus higher professional responsibility</td>
</tr>
<tr>
<td>Assistant Librarian</td>
<td>Senior Executive Officer/Chief Executive Officer/Professional Officer</td>
<td>Degree/Diploma in Library Studies</td>
</tr>
<tr>
<td>Senior Library Assistant</td>
<td>Senior clerical officer</td>
<td>M.C.E. plus MALA certificate</td>
</tr>
</tbody>
</table>

The library service envisaged will require a somewhat larger staff than the traditional book warehouses that are the present agricultural libraries. Given the problems of cataloguing and classification and the service envisaged, it is suggested the minimum numbers of staff suggested in table 37 be established where they do not exist. These take into account the suggestions made in section 8.8 about re-organisation and therefore assume that there will be centralised processing of materials in the Ministry of Agriculture Libraries.

Since the Research Foundation Library is outside the direct control of the Ministry of Agriculture being an independent body and is going to be responsible for most of its

2. New graduates enter at Professional Officer Grade and the promotion to Super Scale (58-1) of which the bottom is 58
own services, it should create two extra posts at Senior Library Assistant level and use the facilities offered by the Malawi's Library Association for training its staff. The staff should be encouraged to visit other libraries so that they can be able to assess how their own library fits into the agricultural libraries and information services.
Table 37: Suggested minimum library staff

<table>
<thead>
<tr>
<th>Institution</th>
<th>Establishment</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bvumbwe</td>
<td>1</td>
<td>Assistant Librarian</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Library Assistant</td>
</tr>
<tr>
<td>Chitedze Central Library</td>
<td>1</td>
<td>Director</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Assistant Director/Librarian</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Senior Library Assistant</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Library Assistant</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Secretary/Typist</td>
</tr>
<tr>
<td>Economic Planning</td>
<td>1</td>
<td>Senior Library Assistant</td>
</tr>
<tr>
<td>Extension Aids Branch</td>
<td>1</td>
<td>Senior Library Assistant</td>
</tr>
<tr>
<td>Fisheries Research</td>
<td>1</td>
<td>Senior Library Assistant</td>
</tr>
<tr>
<td>Forest Research Institute</td>
<td>1</td>
<td>Assistant Librarian</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Library Assistant</td>
</tr>
<tr>
<td>Geological Survey</td>
<td>1</td>
<td>Senior Library Assistant</td>
</tr>
<tr>
<td>Lilongwe Agricultural</td>
<td>1</td>
<td>Senior Library Assistant</td>
</tr>
<tr>
<td>Development Division</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Makoka</td>
<td>1</td>
<td>Assistant Librarian</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Library Assistant</td>
</tr>
<tr>
<td>Shire Valley</td>
<td>1</td>
<td>Senior Library Assistant</td>
</tr>
<tr>
<td>Colby College</td>
<td>1</td>
<td>Assistant Librarian</td>
</tr>
<tr>
<td>Mikolongwe</td>
<td>2</td>
<td>Library Assistant</td>
</tr>
<tr>
<td>Malawi College</td>
<td>1</td>
<td>Clerk/Typist</td>
</tr>
<tr>
<td>of Forestry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tea Research Foundation</td>
<td>1</td>
<td>Senior Assistant</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Librarian</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Senior Library Assistant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clerk/Typist</td>
</tr>
</tbody>
</table>

**TOTAL** 32
The director or his apointee should at frequent intervals visit the smaller libraries not under the charge of professional librarians to give guidance, assistance and supervise the staff, and to review the purchases of new books and journals.

8.3 Financing Libraries

Funding is inadequate (chapter 6, section 14 and tables 33 and 34). Far too much reliance is placed on donations. Consequently, it is difficult to staff and build good collections. The most urgent needs are for funds for binding to build up reference collections, to fill gaps in the collection of abstracting and indexing journals and to enable collections of up to date books to be made.

It is suggested that for the Ministry of Agriculture Libraries, budgeting should be done centrally by the director as suggested in 8.1 but individually for Bunda College and the Tea Research Foundation. This should not be less than 10% of the research budget in the case of the Ministry of Agriculture libraries and of the total institutional budget in the case of the Tea Research Foundation and Bunda College.

It will be necessary to set aside annually a certain amount of money for the purchase of British Library photocopy coupons. At an estimate of five books of coupons per research station, about £200 - £400 would be required annually for this purpose.
8.4 Library Collections

Most of the books in the libraries are out of date. Local material which comes out as a result of research, consultancies, development projects and special studies is not consistently collected. There is no policy for building up and up dating the reference collections, for collecting audio-visuals, maps and few exchange arrangements with other institutions outside the country (chapter 6 section 8).

Although the National Archives has legal deposit rights, it is not guaranteed to receive anything produced especially reports and non-conventional literature. The more elusive material which is produced in great quantity in agriculture goes undocumented. It is with this reason in mind that it is suggested that Chitedze should be made a depository for all agricultural material.

Collection development policies should be developed for all libraries, taking into consideration the needs of the clients. Library staff should work closely with clients to fill gaps in the collections, update the reference and monograph collections, collect audio-visuals produced in conjunction with the extension service and fill gaps in the back sets of periodicals with the aid of the union list of periodicals suggested in 8.6.4. Exchange arrangements with libraries in the neighbouring countries should be entered into.

Books in some agricultural areas may not age well. Some books only a decade old are not only useless but in some
cases dangerous too since the information in them has been proved wrong. The fall from favour of D.D.T. as a pesticide comes to mind. Weeding of outdated material should be done on the basis of quality and usefulness.

Arrival of foreign material is delayed because of foreign exchange, transport problems and because local book dealers are not prepared to order material like proceedings of learned societies. It is suggested that arrangements should be entered into with local book dealers for the supply of certain foreign publications. Procedures for obtaining foreign exchange should be standardised with the Reserve Bank of Malawi and agreements should be made with shipping agents for quicker delivery. Material urgently required should be ordered with a request for them to be sent by accelerated surface post.

Farmer Training Institute should make a vigorous effort to collect magazines, local maps, district notebooks, farmers' primers, handover notes and meteorological records relating to the areas in which they are located.

8.5 Cataloguing and Classification

The collections are not properly organised and recorded. This point is acknowledged by the users who find it difficult to find any material in them. It should be the first step in improving the libraries to enable the users determine quickly and easily what material is available.

Generally speaking past generations of librarians spent too much time and money on cataloguing and classification and
materials were unavailable to clients for long periods while staff decided their classification numbers. Staff contacts with their users were thereby reduced, and both users and the library were worse off as a result.

It is important that cataloguing be done as quickly and economically as possible. The University of Malawi buys catalogue cards from Blackwell's in North America who supply the bulk of its books purchases. The catalogue cards carry Library of Congress and Dewey Classification numbers. The cataloguing is done by experts and is of high quality. The data is obtained from the Library of Congress which catalogues almost all the books in Western languages. Books ordered by the University are provided with a full set of cards for each book and the cost of each set is almost fifty tambala (25p).

It has to be remembered that there is no way local librarians - if they were available - could produce anything like the same quality of cataloguing at an equivalent cost.

It is suggested that in uniformity with Bunda College of Agriculture and the University libraries, the Ministry of Agriculture libraries and the Tea Research Foundation should adopt the Library of Congress Classification Scheme (their stock will need re-cataloguing anyway), and take a decision to buy catalogue sets for that stock that has to be retained. This will speed up the re-classification. New books should be ordered with their cards, leaving accessioning and filing of the cards as the only in house processes. The Library of Congress Scheme is progressively revised to take in new subjects and allows reasonable subject relationships.
A team of cataloguing staff should be created as soon as possible to visit the Ministry’s libraries and take the records of these books whose catalogue records can be obtained commercially and catalogue those needing in house cataloguing. Analytical indexing of conference proceedings, and locally produced reports should be undertaken to unearth the agricultural information buried in them.

The catalogue should have author, title, subject and added entries on cards and divided into three sequences: author title, classified and subject index to cater for the various approaches users may choose. The cataloguing code adopted should be the AACR II. Original cataloguing and classification will have to be done for most of the local material. The indexing of annual reports, conference proceedings, maps and audio-visuals should form the basis for inputting into Agris. The possibility of the Ministry library showing this work with the other libraries should be examined.

8.6 Library Services

The services are under-developed and lack the sharing of resources through inter-library loans, reference and bibliographic services (table 35 and chapter 6 section 7). It is suggested that once trained staff have been recruited the following should be offered:

1. Reference services: this is missed especially by planners and students.

2. Current awareness services: to keep planners, researchers
and other users informed of what has recently been published and received in the libraries. This would include selecting/scanning and indexing relevant material and bringing it to their attention through bulletins and even verbal communication. For the small research stations and extension workers, photocopies of contents pages of relevant periodicals should be photocopied and sent to them so that they can request those articles they would like to see. Accession lists, topical or demand bibliographies, topical displays should also be organised. At the Farmers' Training Institutes, newly published material should be put on special displays in relation to the courses running at any one time. Films or slides could be shown to them and extension workers should be encouraged to call at the institutes to use the facilities especially when they have just recently arrived in the area.

3. Documentation of locally produced literature. The need for indexes, abstract and bibliographies of local materials was expressed by administrators and researchers. Tables 24 and 30 show that this is underdeveloped. Reports and conference proceedings farmers' primers and extension publications have to be analytically indexed and brought to the attention of potential users. It is suggested that the Chitedze Library should be made responsible for this task.

4. Inter-Library Loan Arrangements should be developed between all libraries to maximise the usefulness of material. Each library should depend on other libraries to provide what
is lacking of its own collection. A union catalogue of periodical holdings in the agricultural libraries should be prepared to facilitate this service.

5. **Photocopying service** should be developed to assist those users who want to keep copies of articles they judge useful.

6. The library circulation system should be re-organised to ensure that at any one time it is possible to know who has what and when the material is due to return. A feasibility study for introducing a cassette service to the farmers' institutes should be undertaken. The service would collect the farmers' radio programmes on cassette and these would be used for farmers to listen to at the institutes. Their discussions and views on the programmes could be recorded and used as feedback to the researchers and planners.

7. The director should establish libraries in the following areas:

**Planning Library**: An amalgamation of the present library and the collections at the Ministry of Agriculture headquarters to serve the planners and economists at Capital, Hill Lilongwe.

**Natural Resources College**. This college which is under construction will be responsible for training of all extension workers. A 475 m² building is included and it is envisaged that it will contain not only books, but also audio-visuals. It will also stock locally produced materials
and those of relevance from the neighbouring countries for farmers and the extension workers. It should assist the students and staff and develop an awareness of them of the role of information. It should contain the films produced for farmers as well as the radio programmes on cassettes.

Farmer Training Institutes. The role of these libraries has been described in chapter 7 section 3. They will serve both extension workers and farmers.

8.7 User Education

User education programmes should be introduced to make the clients know about the libraries can do, to assist them to identify their information seeking programmes and to assist them in their search strategies through the various abstracting and indexing journals.

8.8 Malawi Agricultural Library System (MALIS)

One omission which was revealed by this study was the lack of co-ordination of the libraries. It was evident that libraries had developed independently of each other in response to the needs of the researchers, and planners scattered all over the country. The nature of agriculture is such that given the size of the country and its varied ecological conditions, the institutions needing libraries cannot be reduced.

But large and strong libraries cannot be built at each of these institutions; the capital costs of books, backsets of periodicals and buildings would be too expensive for the
country. What is best for the whole country is to establish a system which will make it possible for all users to obtain materials they need at minimum cost to the country.

The existing services fail to satisfy the users because of lack of overall co-ordination and ignorance of a general awareness that information needs can be met by co-ordination and pooling resources together into a system. The improvement of the libraries suggested in 8.1 to 8.7 should be a prelude to building that system. The Malawi Agricultural Library System, as it will be called should be headed by the director of the Ministry of Agriculture libraries. In the system, even the smallest library will be as important as any. The resources will be pooled together and the activities of the libraries will be co-ordinated. Figure 13 represents the MALIS. It will be noted that all the libraries in the Ministry of Agriculture will have centralised technical services as suggested in 8.5 while those of Bunda College and the Tea Research Foundation will be decentralised.

8.8.1 Goals of MALIS

The goals of MALIS will be to develop an effective national agricultural literature, to promote use of information by all users by sharing the available resources, to develop the methods for sharing material and to create a strong national focus for Agris and other outside bodies, to foster closer liaison between libraries of different authorities in cataloguing and classification, to develop inter-loans and methods for referring requests from libraries to those which can answer them.
These goals can be attained by re-organising the library into a system based on co-operation in the acquisition of materials, training of staff, inter-lending of materials and other services. Since the libraries are under three different authorities, namely the Ministry of Agriculture, Tea Research Foundation and the University, formal agreements will need to be entered into between the institutions. (Figure 13 shows the location of the libraries that will start the system). The system cannot be established without the approval and direct encouragement of the Government. This will have to be sought.

8.8.2 Organisation of MALIS

The components of the system (Figure 14) will be the Co-ordinating Centre, the main libraries of the departments of the Ministry of Agriculture, the Tea Research Foundation and Bunda College as centres, and their branch libraries as sub-centres. For instance the Department of Forestry will have the Forest Research Institute as the Centre but Malawi College of Forestry and Viphya Pulpwood Project as sub-centres (figure 14).

The Co-ordinating Centre will have been made a depository for all agricultural material, will have a team of professionals and will have organised the largest agricultural collection. Its function will be to co-ordinate and provide information services to those engaged in agriculture, to train staff engaged in library work, to be a referral centre for agricultural information, to be the input centre for Agris to compile and update the union list of periodicals, to compile bibliographies
Figure 13: Location of the libraries that will start with MALIS
Figure 14: Proposed Malawi Agricultural Library System

- National Documentation Centre
- Geological Survey (Centre)
- Dept. of Forestry (Forest Research Institute)
- Makoka (Sub-centre)
- Dept. of Agric. Research
- Bvumbwe (Sub-centre)
- Lunyangwa (Sub-centre)
- Natural Resources College (Centre)
- Extension Aids (Centre)
- Tea Research Foundation
- ADMARC
- Other institutions
- Bunda
- University
- Agric. Development Division Libraries
- Farmer Training Institutes (Sub-centres)

--- Decentralised Processing
--- Centralised Processing at Ministry Library
and accessions lists and maintain a union catalogue of Malawi agricultural literature.

8.8.2.1 The Co-ordinating Centre

The co-ordinating centre must have a comprehensive collection (especially of Malawi materials) which is properly catalogued and classified. It must have the staff to provide the services and the backing of financial resources. At the moment those qualities favour Bunda College of Agriculture which has a stock of over 20,000 to support the teaching and research needs of staff and students and which has staff who are better paid and qualified than those in the Ministry of Agriculture Library.

But Bunda has no experience of running a country-wide service. The administrative set up favours the Central Library at Chitedze which has been promised aid by USIAD to bring up its services and train staff. In addition, Chitedze is good at Malawi's agricultural materials. Almost every report that has been produced in Malawi is stored. It receives FAO and Commonwealth Agricultural Bureau publications for distribution to all stations in Malawi and is likely to be made the national depository for World Bank publications. It is likely to receive sympathetic ear, once its staff and services have been upgraded, for funding from the Ministry of Agriculture for a country-wide service. It will be the depository library for Malawi agricultural publications (it has enjoyed its right unofficially for some time now) as suggested in 8.4 and will have professionally trained staff to provide services demanded of it.
Chitedze would operate a country-wide information service of agriculture, provide training facilities for library staff and library users, be a referral centre for inquiries, serve as an input centre for Agris, and co-ordinate agricultural information activities and use of computer technology.

8.8.2.2 Centres

These will offer services like reference, current awareness services, loans and photocopying services to their clients; refer those they cannot satisfy to the co-ordinating centre; clear queries from sub-centres, reports details of new publications, or newly acquired material to the co-ordinating centre for input into the data base; and keep profiles of their users. Centres will be established at the Ministry of Agriculture Departments, Bunda College and the Tea Research Foundation.

8.8.2.3 Sub-Centres

These will be the smaller supporting libraries in the departments which will work closely with the Centre to make available their resources and utilise those of other members of the system.

8.8.2.4 Advisory Committee

The advisory committee in 8.1 will become the Advisory Committee of MALIS and its secretarial will be located at the Ministry of Agriculture's Central Library. Formal agreements and legislation will be drafted by the committee.
8.8.3 Advantages of MALIS

The main reason for the establishment of MALIS is to afford the researchers, planners, extension workers, farmers and teachers to obtain the materials they need at minimum cost. The alternative would be to develop and maintain large and strong libraries in each of the institutions which could be unrealistic, as the cost of purchasing books, backsets of journals and buildings would represent large claims on foreign exchange.

What is best for the whole country is therefore a system in which all the resources and services are co-ordinated in a nation-wide agricultural library system by building on and maximising the use of existing resources. As members of the system, the institutions will have access to the whole agricultural resources of the country no matter where they are located, minimise unnecessary duplications while ensuring a wider coverage of the world agricultural literature. The system will depend on balanced selection by the participating libraries on which emphasis will be given to the subjects the library specialises in. For instance, although Bunda College teaches animal science, to general diploma and degree students in agriculture it would depend for most of its journal requirements on veterinary medicine on the resources of the Central Veterinary Laboratory which specialises in investigating animal diseases. It may be necessary to work out subject specialisations between the libraries which have common interests so that each participating library in the system may know the extent of its responsibility. Some of the existing
material may have to be shifted to new libraries. For instance, some material on cotton which is now at Chitedze may have to be transferred to Makoka where it will have more use. The goal is to create a system which allows maximum use of materials.

In short the advantages will be:

1. Elimination of duplication of expensive but rarely used works like the McGraw-Hill encyclopaedia of science and technology.
2. Re-allocation of materials from low use to likely higher use areas.
3. Creation of the union catalogues to facilitate inter-library loans.
4. Centralised processing will free staff at the smaller libraries to support better services.
5. Possibility of better in-service training of staff.
6. Participation in international schemes like Agris.

8.9 Conclusion

This study has considered the role of information in the development of agriculture in Malawi. In doing so, the existing resources have been reviewed to determine their weaknesses and strengths. Weaknesses which have been revealed include the lack of national policy, poor services and lack of cooperation and co-ordination between the libraries. Suggestions for improvement have been made on the basis of these weaknesses and these include the need for an integrated development of institutions and services to form a Malawi Agricultural Library System for the provision of agricultural information services.
Co-operation has many benefits and one wishes that the ideas developed in this study will be taken up. There is a correlation between the quality of library services and the amount of money spent on it. The suggestions made in the study amount to a request for more funds and these can be provided if the administrators, politicians and scientists are convinced of the value of information. The Malawi's Library Association should mount a campaign of persuasion to convince those in authority that the value of information is in its transmission and that the libraries can be turned into instruments of development from mere depositories of documents.
BIBLIOGRAPHY


BALDWIN, D.E. Library/Information Centre: Malawi Agricultural Research Project. Centre for tropical agriculture, International Programs Institute of Food and Agricultural Sciences, University of Florida/The Department of Agricultural Research, 1981.


JONES, G.E. The adoption of agricultural practices. World agricultural economics and rural sociology abstracts, vol. 9, no. 3 1967 pp 1-34.

KIBAKI, M. Opening adress, Conference on dissemination of research findings and technology in Kenya. Occasional paper no. 7 I.D.S. University of Nairobi, 1977 pp 3-5.


MALAWI. Principles and objectives and programme of the community development department. Zomba, Department of Community Development, 1961 pp 61.


NEELMEGHAN, P. Information system for national development; the social relevance of information systems. International Forum for Information and Documentation vol.5, no.4, December 1980 pp 4.


POLLOCK, N.C. Information needs of top management. Information Scientist. vol. 6, June 1972, pp 61-74.

RICHARDSON, L. The development of self help gravity water project in Malawi; paper presented to the University of Malawi local Social Science Conference 1978 on the theme Social aspects of rural development 14-17 June 1978.


SHAWA, G.P.M. Union list of periodicals of libraries concerned with agriculture. MALA Library assistant certificate project, 1981.

SOTH. The farming revolution. *Horizon USA.* vol.17, 1976, pp25-32

UNESCO. National science policies in Africa situation and future outlook. Paris, Unesco, 1974, pp 120.


WILLIAM, S.K. Sources of information on improved farming practices in some selected areas of Western Nigeria. *Bulletin of rural economics and sociology.* vol.4, no.1, 1969, pp 30-51.

Appendix 1
University of Malawi
BUNDA COLLEGE OF AGRICULTURE

MALAWI AGRICULTURAL INFORMATION FLOW QUESTIONNAIRE

BY
C. R. NAMPONYA

Name .............................................. Age ..............................................
Dzina ................................................ Zaka ..............................................
Address ..............................................
Adelesi ..............................................

1. (a) Munalima ma ekela angati? __________________ ma ekela
(How many acres do you operate?) acres
(b) Mwakhala muli kulima zaka zingati? ______________ Zaka zolima
(How many years have you farmed?) Years
(c) Munaimba Kalasi ciani ku sukulu . ______________
(Highest class attened at school)

2. Ndi ziti mwa zomwe ziri pansizi munagwiritsa ntshito pa caka cathaci?
(Which of the following sources of information have you used during the last twelve months)

<table>
<thead>
<tr>
<th>Simunagwiritse nchito</th>
<th>Munagwiritse nchito</th>
<th>Munagwiritse nchito</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>pang'ono</td>
<td>kwambi</td>
</tr>
</tbody>
</table>

(a) Powerenga Magazini a zolima-lima (Farm Magazine) __________________
(b) Powerenga manyunzi pepala (Newspapers) __________________
(c) Pomvetsela wailesi (Radio) __________________
(d) Powerenga zocokera kwa alangizi (Extension Aids Circulars) __________________
(e) Pomvetsela zonena za alangizi (Extension Aids Personnel) __________________
(f) Kucokera kwa anasi kapena ena omwe muli nowo pafupi (Friends and Neighbours) __________________
3. (a) Kodi caka cathaci munayendera ku sukulu ya malimidwe kapena ku malo kumene a mafufunza za mbeu kapena ku Lane Inde/Iai. (For the past twelve months, have you made visits to a research station, an agricultural college or a LLDP centre? Yes/No)
(b) Ngati munapitako, munakaphunzirako ciani? (If yes, what did you learn from the visit?)
(i) ........................................................................................................
(ii) ........................................................................................................
(iii) .......................................................................................................
(iv) ........................................................................................................

4. (a) Kodi pa caka cathaci kapena munavâ zina zace kucokera kwa alangizi, ADMARC, Optichen kapena aja a Shell Chemicals? Inde/Iai (For the past twelve months, have you received any circulars from Extension Aids, ADMARC, Optichen or Shell Chemicals? Yes/No)
(b) Ngati munava, munaphunzirapo zotani? (If yes, what did you learn from them?)
(i) ........................................................................................................
(ii) ........................................................................................................
(iii) .......................................................................................................
(iv) ........................................................................................................
(v) ........................................................................................................

5. Pogwiritsa nchito m'ndandanda malinga ndi funso laciwiri, ndi ziti zomwe mumagwiritsa nchito kawiri-kawiri? (Using the sources of information in question 2 above, what sources of information do you regularly use?)
1. ....................... 2. .............................. 3. ..............................

6. Mwa zinthu zimene munava ndi ziti zomwe mumagwiritsa, nchito pofuna kudziwa zambiri ndipo ndi ziti mwa zomwe mukuganizira kuti zimakuthandizani zedi? (What source of information do you think has the greatest amount of knowledge about new farm practices that you are using or planning to use?)
1. ....................... 2. .............................. 3. ..............................
7. Mwa zinthu zomwe munagwiritsa nchito ndi ziti zomwe muganiza kuti munagwiritsa nchito kweni-kweni? (Of the sources of information you used which ones did you find most useful?)

1. ........................... 2. ........................... 3. ...........................

8. (a) Kodi munaona, kapena kuva za cimangâ ca haibilidi? Inde/Iai (Have you seen or heard of hybrid maize? Yes/No)

(b) Ngati munaona kapena kuva, munavela kucokela kwa ndani? (If yes where or from whom did you first receive information about it?)

(a) Za Achikumbe (Farm Magazine) .................................................................

(b) Boma lathu (Newspapers) ...............................................................

(c) Pa wailesi (Radio) .................................................................

(d) Powelenga zocokera kwa alangizi (Extension Aids Circulars) .................................................................

(e) Povetsela zonena za alangizi (Extension Aids Personnel) .................................................................

(f) Kucokela kwa anasi kapena ena owu mulinawo pfupu (Friends and Neighbours) .................................................................

(g) Kucokela kwa ogulitsa mankhwala aja a shell chemicals optichen Salesmen from shell chemicals optichen .................................................................

(h) Kucokela kwa zomwe munaona pa suku ku ya zaulimi kapena suku ku ya zofufunza mbeu Agricultural College and Research Station Staff .................................................................

(i) Chulani ena owu owu munavako (Other, please say from whom) .................................................................

(c) Kodi munafufuza zina kuti mudziwe zina zonena za chimangaci? Inde/Iai Did you obtain additional information about it? Yes/No)

(d) Ngati munafufuza, ndi ndani yemwe anakuuzani zina zonena za chimangaci? (If yes where and from whom you receive this further information?)

1. ........................... 2. ........................... 3. ...........................

9. (a) Kodi munagwiritsa nchito mankhwala aja ochedwa (Dipterex) ophe la kapuchi kumbeu yanu ya chimanga? (Did you apply Dipterex (Stalk borer killer) to your maize crop?)
(b) Munava kucokela kuti? Nanga ndani yemwe anakuuzani inu za manhwhala amenewa?  
(where or from whom did you first hear about it?)

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(c) Kodi inu munafufuzanso zina zonene za manhwhala amenewa a Dipterex?  
(Did you obtain additional information about Dipterex?)

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(d) Ngati munapeza zina zonene za manhwhala amenewa ndani amene anakufotokozelani zimezezi?  
(If yes where and from whom did you receive this further information?)

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<tbody>
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<td>2.</td>
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10. (a) Kodi munathila manhwhala aja ochedwa (Actellic) ku nkhokwe yanu? Inde/Inai  
(Have you applied Actellic to your nkhokwe Yes/No)

(b) Ngati munathila, ndi kuti kapena ndani amene munayamba kuvako zonena za manhwhala amenewa ochedwa (Actellic)?  
(If yes where or from whom did you first hear about it?)

(c) Kodi munapeza zoonjezerapo zonena za manhwhala amenewa a Actellic?  
(Did you obtain additional information about Actellic?)

(d) Ngati munapeza zonena zina ndi kwandani kumene munapeza zonena zinazi zokhudza manhwhala Actellic?  
(If yes where and from whom did you receive this further information about Actellic?)

11. (a) Kodi munaona kapena kumva za cakudyca cija ca nkhuku coyikilitsa mazila ndiposso cija cokulitsa? Inde/Inai  
(Have you seen or heard about Layers marsh and Growers marsh? Yes/No)

(b) Ngati munava, munava kucokela kuti? Ndipo ndani amene anakuuzani inu za cakudyca cakhukuci?  
(If yes where and from whom did you hear about it?)

(c) Nanga mutava, ndiyie inu munayesaso kufufunsana ku ena monga zokhudza za cakudyca cakhukuci?  
(If you obtain additional information about layers' marsh or growers marsh? Yes/No)

(d) Ngati munayesa kufufudza-fudza ndi kwandani komwe munapeza zonena zina Zokhudza cakudyaci?  
(If yes from whom did you obtain this additional information?)
12. (a) Kodi munsona kapena kuva za manyunzi aja ochedwa za Achikumbe?
(Have you seen or heard about Za Achikumbo magazine
Yes/No)

(b) Munava kucokela kwayani, kapena ndikuti kumene inu munava?
(Where or from whom did you hear about it?)

(c) Kodi munalandila kawiri-kawiri manyuzi amenewa?
(Do you receive it regularly? Yes/No)

CRN/ham
September 10, 1980
Appendix 2

SURVEY OF AGRICULTURAL LIBRARIES IN MALAWI

BY

C.R. NAMPONYA

A. NAME OF LIBRARY

B. GENERAL INFORMATION

1. When was the library started?

2. What is the area of the library building?

3. Please give the number of employees and their qualifications:

<table>
<thead>
<tr>
<th>Position</th>
<th>Academic Qualifications</th>
<th>Professional Qualifications</th>
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<tbody>
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<td>a.</td>
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<tr>
<td>b.</td>
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<tr>
<td>c.</td>
<td></td>
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<tr>
<td>d.</td>
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<td>e.</td>
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<td>f.</td>
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4. Is there a committee responsible for the library?

5. If the answer to 3 is Yes what are its terms of reference?


6(a) What publications does the institution produce?


(b) Are there any samples that could be spared?


7. Who are the clients and where are they?

8. What services are the clients given? Please tick.
   Loans
   Circulation of Periodicals
   Photocopies of periodical articles
   Scanning and indexing of current periodicals
   Retrospective bibliographies
   Reference Services

Other documentation Services:
   (a) Abstracting
   (b) Retrospective Information File
   (c) Circulation of Copies of Contents of Selected Journals
   (d) Union Lists
   (e) Reprography

9. What agricultural materials are collected and how many of each does the library have.

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<th>Material</th>
<th>Quantity</th>
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10. How does the librarian get to know about the clients needs?

11. How do the clients get to know about
   (a) New materials in their subject area
(b) Existing material in their subject area?


(c) Answers to factual enquiries?


12. How do the clients influence what is collected?


13. What is the policy for collecting material in detail?


C. MAINTENANCE OF COLLECTION

Do you have a bindery? Yes ________ No ________

1. If no what arrangements do you have for binding complete volumes of periodicals and worn out books?


2. How much are you charged per volume?

D. FINANCE

1. What funds have been allocated to the library the last four years and what percentage has this been of the institution's total budget?

<table>
<thead>
<tr>
<th>Year</th>
<th>Books</th>
<th>Periodicals</th>
<th>Staff</th>
<th>Other</th>
<th>% of Institution</th>
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<tbody>
<tr>
<td>1977/80</td>
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<td>1978/79</td>
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2. Does the library have branch libraries? If so where are they?
E. TECHNICAL PROCESSES

(a) What classifications scheme are you using?

(b) What cataloguing code are you using?
### List of Institutions and Persons Visited

**Bvumbwe**  
Siddique, Dr. M.A.  
Mgomezulu, Mrs. M.A.  
Principal Research Officer

**Chitedze**  
Nyirenda A  
Mwamwendera, Dr. H.K.  
Library Attendant

**Central Veterinary Laboratory**  
McKoa, Dr.  
Mvula, Dr. A.  
Senior Executive Officer

**Economic Planning**  
Mhango, I.  
Khonyongwa, J.  
Ministry of Education

**Extension Aids**  
Mphaya, E.  
Senior Executive Officer

**Fisheries Department**  
Muyanya, S.T.A.  
Agricultural Extension Officer

**Geological Survey**  
Mambo, R.R.  
Mandala, G.M.  
Consultant Librarian

**Lilongwe Agricultural Development Project**  
M'Busika, F.W.  
Chipeta, Mrs. V.A.  
Principal Tutor/Librarian

**Makoka**  
Thengo, L.  
Executive Officer/Librarian

**Makopa**  
Muso, F.A.  
Ngondo, D.D.C.  
Agricultural Officer

**Forest Research Institute**  
Mthindi, G.  
Warren, D.D.F.  
Agricultural Research Officer

**Colby College**  
M'Busika, F.W.  
Chipeta, Mrs. V.A.  
Principal Tutor/Librarian

**Mikolongwe Veterinary Station and School**  
Mateyo Dr. L.R.  
Veterinary Officer and Officer in Charge.

**Shire Valley**  
Ween, J.J.  
Project Manager

**Tea Research Foundation**  
Nenula, Mrs. D.  
Velthuis Mrs.  
Clerk
Bunda College of Agriculture

Ngwira, Mrs. M. E.
Lungu, Dr. N. F.
Edje, Prof. O. T.
Msuku, W. A. B.
Phoya, R. K.

Assistant Librarian
Principal and formerly Chief Agricultural Research Officer.
Head, Crop Production Department.
Lecturer
Lecturer

OTHER PEOPLE MET

Chilemba, E. M. T.
Clark, E. K.
Evans, B
Golozi, L. F.
Jere, A.
Manda, D. R. B.
Mataka, P. D. D.
Mphundi, B. G.
Sauti, R. N.
Wheeler, Ken

Liaison Officer, Tobacco Authority
Principal Agricultural Officer
Assistant Representative British Council, Malawi
Publications Officer, National Statistical Office
Secretary, National Commission for Unesco
Principal Agricultural Research Officer
Principal, Chitala Farm Institute
Director, National Library Service
Acting University Librarian
Officer in Charge, Luyangwa Agricultural Research Station.
Representative of the International Development Research Centre engaged in planning the National Resources College.