HEALTH CARE FINANCING AND EXPENDITURE IN MALAWI:

DO EFFICIENCY AND EQUITY MATTER?

Masters dissertation, submitted to the School of Economics, University of Cape Town in partial fulfilment for the award of the Master of Social Science Degree in Health Economics

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MARCH, 1998

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ACRONYMS

AIDS:	Acquired Immunodeficiency Syndrome
HIV:	Human Immunodeficiency Virus
MDHS:	Malawi Health Demographic Survey
MOHP:	Ministry of Health and Population
NGO:	Non-Governmental Organisation
OECD:	Organisation of Economic Co-operation and Development
DOP:	Department of Planning
DDM:	Data for Decision Making
CONGOMA:	Council for Non-Governmental Organisations
EU:	European Union
GDP:	Gross Domestic Product
GNP:	Gross National Product
MK:	Malawi Kwacha
UNICEF:	United Nations Children's Fund
UNDP:	United nations Development Programme
ORS:	Oral Rehydration Solution
US$:	United States Dollar
PHC:	Primary Health Care
NHS:	National Health Service
USAID:	United States Agency for International Development

ACKNOWLEDGEMENTS

I acknowledge an invaluable debt of gratitude to my supervisor Dr. Diane McIntyre of Health Economics Unit, University of Cape Town for her tireless efforts in shaping my thinking and making this work a success. You are a wonderful person. May God bless you.

Special thanks should also go to the World Health Organisation-Geneva, Africa Regional Office and Malawi for sponsoring my coursework and this study. The Malawi Government-Ministry of Health and Population Headquarters deserve my thanks too for allowing me to undergo this training and facilitating fieldwork for this study.

To my late mum Agness, I say thank you very much for numerous sacrifices you made for me. Your pieces of advice are still with me. You were a special mother. To my father John, my sister Grace, my wife Jessie and my little daughter Thokozgani, I say thank you very much for your patience and endurance during my absence and for your prayers. I greatly missed you.

To my research assistants- Dave, Samuel and Globy, I say continue being nice guys. Noel, Bernade, Joseph , Eyob and Louen, I say thank you very much for keeping me company when I was away from home.

DEDICATION

To all those who care and have cared for the poor and the powerless and would like to see them with Jesus standing at the right hand of God while they are still on earth (Acts 7:55).

EXECUTIVE SUMMARY

Resources available in the Malawian health sector

The Malawian sector spent about 3.3% of its GNP on health services in 1995/96. The public sector alone spent about 6.2% of its total revenue on health services and this is much high than most other Sub-Saharan African countries (e.g. Zambia, Kenya, Uganda). Despite such high levels of public expenditure, Malawi's social and health indicators are among the worst in the world. The majority of the Malawian population suffer from a large amount of preventable illness and premature death which could be treated/prevented by simple inexpensive medical interventions.

This scenario raises questions with regard to the government stated priority to primary health care and preventive health services. This investigation therefore was undertaken in order to quantify the total health care expenditure in Malawi and its distribution and then evaluate its equity and efficiency implications for the delivery of health services.

The analyses focused on the public health sector due to the fact that the public health sector is the largest provider of health services in Malawi and its services are free of charge. It was therefore felt that a detailed analysis and evaluation of this sector could go a long way in improving the health status of the majority of Malawians within the resource envelope.

Much as there is an absolute scarcity of resources in the Malawian health sector which could justify the proposed introduction of user fees, community financing schemes and social health insurance, there is currently a maldistribution of resources. The limited resources available in the health sector are inequitably and inefficiently distributed. This means that adding more resources to such a maldistributive system would exacerbate the current inequities and inefficiencies.

It has been found that the Malawian health sector relies heavily on general tax revenue (about 47% of the total recurrent expenditure in 1995/96 financial year and donor funding as the second largest source of finance contributed 21.5%). This means that any drastic changes to this source would greatly affect the health sector. Malawi is currently undergoing a period of economic crisis, has a high population growth rate of 3.2% per annum and has a high prevalence rate of AIDS related illnesses.

This scenario places the Malawi Government in a dilemma. On one hand there are poor economic prospects, while on the other hand there is a high population growth rate and high prevalence rate of AIDS-related illnesses which would consume the very few resources available in the health sector.

Resorting to health sector reforms such as user fees and social health insurance in the face of a small formal sector and high levels of poverty would first require addressing the current inequities and inefficiencies. Further investigation is required to evaluate the efficiency of these proposed schemes as financing sources and their equity implications in terms of the delivery of health services.

Current resource distribution patterns in the Malawian health sector and its equity and efficiency implications

This investigation has found that much of the public health sector recurrent spending is on two inputs, namely salaries, and drugs and medical supplies. These two inputs consumed about 68.3% of the total public health sector recurrent expenditure in 1995/96 financial year. Efficiency gains could be achieved in the input of drugs and medical supplies but not in salaries.

There are indications that drugs are currently poorly distributed and there is irrational prescribing practices and supply is not based on *need* (MOHP, 1995). In salaries, it is unlikely that efficiency gains can be achieved as the salaries are already below the true market level and the purchasing power of these low salaries is also being seriously eroded by an inflation rate of over 60% and the high user fees for electricity, water and telephone bills. Another 8% of the total public recurrent expenditure in 1995/96 was on MOHP headquarters administration. This means that only 23.7% of the total public recurrent expenditure was spent on consumables and services such as training and maintenance in 1995/96 financial year. This situation must be reversed.

Contrary to the international experience that tertiary health care level consumes over 30% of the recurrent public sector budget, Malawian central hospitals consumed only 17.8% in 1995/96. This, however, deserves an explanation. There has been reduction of budget allocation to central hospitals in recent years without taking account of the volume of activities and quality of patient care. The results have been a lack of basic supplies at these central hospitals and poor quality of patient care (Franco et al 1995, Franco 1995). This situation need further investigation as budget cuts should not result in compromising quality of care.

The primary level care had a share of 24.9% in 1995/96 financial year and yet this is the level of care which caters for the majority of the Malawian population . Much of the public resources are disproportionately spent on curative care (about 80 % in 1995/96 financial year). Preventive care had a share of only 5.8% of the total public health sector resources.

This shows that that the public health sector is not spending its resources on cost-effective strategies. Provision of health care should aim at devising strategies which are equitable and efficient such that there is value for money. The major goal should be reducing probability of being ill (preventive health care) and not construction of many health facilities for the ill to visit them (curative care).

There is geographic inequity of resource distribution. The Northern region has the highest number of health personnel per 100,000 population apart from doctors compared to the Centre and South who have the greatest capacity to benefit from health sector spending (the South has the worst socio-economic and health indicators compared to the North and Centre). The North has the highest expenditure per capita compared to the Centre and South. Resources have to be shifted from the North to the South and partly to the Centre and this should be done gradually to avoid disrupting health services in the regions.

The urban areas have more resources than they actually need, while rural areas have serious shortages despite having the great burden of ill-health. As previously mentioned, Malawi's population is predominantly rural and the prevalence of diseases is high in these areas. This shows that there is inequity and inefficiency in health care provision. It is therefore questionable that the sound delivery of health services, as envisaged in the Health Policy Framework Paper of 1995, will ever be achieved.

There are indications that there is inefficiency in the public health sector. The administrative structure is centrally organised leaving little room for decision-making at lower levels. Hospital/peripheral managers should have adequate powers to make decisions as regards their resources without fear of reprisals from central level. Should they feel that there are efficiency gains in re-allocating expenditures on various inputs, they should be able to do so. This, however, should be seen in the light of skills available at the lower levels, otherwise it would perpetuate inefficiencies. A detailed analysis of this situation is required.

There are indications that improvement in hospital management could reduce some of the inefficiency issues noted in this study. Average lengths of stay varied substantially within levels of care in the three sampled district hospitals and this could be true for the remaining public sector hospitals. However, average length of stay were almost the same between levels of care i.e. between central and district hospitals. These differences in average length of stay are often a result of differences in discharge policies and not case mix (Bronwel and Roos, 1992).

A further investigation could show that some hospitals have more efficient discharge policies than others, but that some categories of patients are kept longer than necessary and vice-versa. In this case, efficiency gains could be achieved by standardising discharge policies according to case mix groups.

The public sector hospitals sampled in this study have high bed occupancy rates. Barnum and Kutzin (1993) noted that efficient hospitals should be operating at 85-90% bed occupancy rate. However, high bed occupancy rates dot imply that these hospitals have lower costs. The high bed occupancy rates are mainly a reflection of hospitals which are busy, overcrowded, have high bed turnover rates and long average lengths of stay. This situation requires further investigation as it could be found that they are incurring higher unit costs for staffing, administration and maintenance.

The major reason behind these inequities and inefficiencies in resource allocation could be the lack of a rational methodology for resource allocation. Resources in the public health sector are not allocated on the basis of any indicator of *need*; be it population size, morbidity and mortality, age and gender or even the workload for various health facilities. This situation must be immediately redressed as it perpetuates inefficiencies and inequities in the health care system. It could be possible to achieve huge gains from equity and efficiency improvements rather than concentrating all efforts on considering the introduction of user fees, social health insurance and community financing schemes.

Inequities and inefficiencies must be first reduced in the public health sector by implementing decentralisation (accompanied by training of lower level personnel and appropriate equipment) and introducing a needs-based formula for funding health services. Thereafter, the revenue generation potential and equity implications of the proposed reforms (user fees, community financing schemes and social health insurance) can be investigated.

MAP OF MALAWI SHOWING REGIONAL AND DISTRICT BOUNDARIES

AFRICA

MALAWI

TANZANIA

ZAMBIA

MOÇAMBIQUE

CHITIPA

KARONGA

MZUZU

NORTHERN

CENTRAL

KASUNGU

LILONGWE

CENT.

STH.

ZOMBA

BLANTYRE

MULANJE

LEGEND

International Boundary

Regional Boundary

District Boundary

Bitumenised Road

Major Non-bitumenised Road

Railway

SECTION 1: BACKGROUND TO THE PROBLEM

1.1 INTRODUCTION

The Malawian health sector is faced with a serious recurrent expenditure crisis. Buildings are deteriorating, most equipment has ceased functioning, and the quality of patient care has declined due to a lack of drugs and supplies. Most vehicles are grounded and district supervision and support services are not routinely provided. Real wages of health workers have decreased with the inflation rate of over 60%, and this is likely to have been a major contributory factor to the fall in staff morale and diligence.

In its Health Policy Framework paper (1995), the Malawian Government has clearly identified its major constraint to efficient and effective health service delivery as inadequacy of financial resources. This absolute inadequacy of financial resources has prompted the Government of Malawi to look into alternative ways of raising additional revenue for the health sector and this has included considering the possibility of introducing: user fees for public health services, which are currently free of charge, including food for patients, transport and laundry, in a phased manner starting with central institutions; community financing schemes; and social health insurance.

While it is indeed true that there is a widening gap between the health needs of the population and financial resources available to the health sector in Malawi, caution must be exercised as increasing the financial input to a maldistributive, malfunctioning system would only perpetuate these problems. An example could be the Government's total revenue allocation to the health sector. The Malawian Government currently devotes about 7% of its total revenue to health. Despite such expenditure levels, Malawi's health and social indicators are among the worst in the world. The Malawi population suffer from a huge amount of preventable illness and premature death (Malawi Government 1995). The majority of the disease can be prevented through simple, inexpensive medical /health care interventions. This scenario raises questions with regard to the extent to which the government's stated priority to primary health care and outreach services at the village level, which would benefit a greater percentage of the population, are being met (i.e. the allocative and operational efficiency and equity of the current use of the government resources).

It should be noted that there is currently no data on total spending from all sources, how much is provided by each source and on what is it spent. Without this information, there is no basis for prioritizing among health care objectives, evaluating alternative ways of raising finance and allocating resources, or for developing efficient and effective ways of providing health services. This therefore, means that all the proposed health financing reforms will not address the critical issue of obtaining better value for money from health sector spending. Related to this is the fact that raising and allocating funds should aim to maximize the benefits to society, i.e. improve both allocative and operational efficiency. The devised mechanisms and strategies aimed at achieving the desired health objectives should be cost effective and equitable, especially in this decade of inadequate resources and 'health care cost explosion'.

1.2 AIMS AND OBJECTIVES OF THE DISSERTATION

1.2.1 Aim of the dissertation

This dissertation is mainly an attempt to quantify total health expenditure in Malawi, and to evaluate the efficiency (technical and allocative) and equity of the current health care resource distribution patterns.

1.2.2 Objectives of the dissertation

This study was undertaken in the Malawian health sector and specifically focused on:

1. Quantifying total health care expenditure in Malawi;
2. Documenting the distribution of total health care expenditure by source of finance: public, employers, households and donor funding;
3. Describing the distribution of health care expenditure by:

    i) input category: salaries, drugs, training, transport, food provision, maintenance, Ministry of Health and Population (MOHP) headquarters administration and other

    ii) level of care: tertiary, secondary, and primary

    iii) type of service: curative/preventive

    iv) geographic area: region, urban/rural

    v) service provider: public, mission, Non Governmental Organizations, firms, private practitioners and traditional healers

4. Analyzing efficiency and equity issues arising from the current health care financing and expenditure patterns in Malawi and consider the policy implications arising from this evaluation.

1.2.3 Hypothesis of the dissertation

The major hypothesis in this dissertation is that, in the face of limited resources available to the health sector in Malawi, the health status of the majority of the Malawian population could be improved through a more efficient and equitable allocation of the limited resources currently available rather than by concentrating all efforts on looking at alternative ways of bridging the resource gap, which is not yet known.

1.3 OUTLINE OF THE DISSERTATION

This dissertation has been organized as follows:
In section 2, an overview of Health Expenditure Review (HER) and National Health Accounts (NHA), their importance, methodology, and examples of countries which have undertaken them is documented. It also reviews economic objectives of health care (equity and efficiency) in greater detail. Equity and efficiency in relation to both the delivery and financing of health care are considered.

In section 3, an overview of the general economic and social structures in Malawi relevant to the health sector, is presented. This includes a review of the administrative, political and social system, a macro-economic overview, and consideration of key socio-economic indicators. It also reviews the health sector in Malawi, the health status of people and the providers of health services .

In section 4, the methodology used in quantifying current health care expenditure and financing in Malawi is examined.

In section 5, the total health care expenditure in Malawi is presented. This is followed by a description of public health sector and its sources of finance and expenditure. It also documents the distribution of public health care resources by level of care, type of service, input category, and geographic area. In addition it examines the private health sector, its sources of finance and providers, namely the mission sector, NGOs, firms, private practitioners, and traditional healers.

Section 6 analyses the current patterns of health care expenditure in Malawi with regard to efficiency and equity. This section mainly looks at the current forms of service provision and resource allocation patterns. Ways of improving the existing use of the resources in the Malawian health sector which could benefit the majority of the Malawian population are also addressed.

Lastly, section 7 summarizes the key findings of this study with regard to the key economic objectives of health care, namely efficiency and equity, and identifies the major challenges facing the Malawi government in its efforts to improve the poor health status of the majority of the Malawian population .

SECTION 2 : AN OVERVIEW OF HEALTH EXPENDITURE REVIEWS (HER) AND NATIONAL HEALTH ACCOUNTS (NHA) AND ECONOMIC OBJECTIVES OF HEALTH CARE

2.1 INTRODUCTION

This section reviews health expenditure surveys or health expenditure reviews and national health accounts with regard to their definitions, importance and data sources and methodology used in undertaking them. Thereafter, it reviews the key economic objectives of health care, namely efficiency and equity.

2.2 AN OVERVIEW OF HEALTH EXPENDITURE REVIEWS (HER) AND NATIONAL HEALTH ACCOUNTS (NHA)

The scarcity of resources in the health sector at the time of the growing demand of health care (resulting from increase in education, diseases, growing and the ageing populations) and pressure from international organizations especially in developing countries has led many governments to call for health sector reforms. By undertaking such reforms governments expect to provide quality care more efficiently and equitably within the resource envelope (Newbrander et al 1994, Berman 1996). The major obstacle in undertaking such reforms, however, (much worse in developing countries) has been lack of comprehensive accurate information on health expenditures and financing sources (Griffiths and Mills 1982, Newbrander et al 1994, Berman 1996).

An attempt to fill this knowledge gap has been made by several international organizations and academic institutions through conducting Health expenditure Reviews (HER) and National Health Accounts (NHA). These organizations and institutions include: Sandoz Institute for Health and Socio-Economic Studies (Griffiths and Mills 1982, the World Health Organization (Mach and Abel-Smith 1983), United Nations Childeren's Fund, Organization of Economic Co-operation and Development (OECD), the World Bank, Data for Decision Making (1995).

Basically Health Expenditure Reviews (HER) and National Health Accounts (NHA) attempt to quantify total expenditure by source and use. They are similar in the sense that they both attempt to answer three basic questions namely:

1. What is the total expenditure on the health sector?
2. What are the sources of finance and how much does each source provide?
3. On what is it spent?

They, however, have some differences with regard to the methodology. HER are once-off while NHA are routine and rely heavily on statistical modelling (Berman 1996, McIntyre 1997). The other difference is that the NHA presents health expenditure data in a detailed matrix of sources and uses, i.e. shows the flow of funds from sources to uses (Berman 1996).

In order to highlight their importance and the contribution they have made towards filling the knowledge gap in total financial resources available in the health sector; and how it is distributed, a few examples of countries which have undertaken these studies will be reviewed.

2.2.1 Significance of Health Expenditure Reviews and National Health Accounts

There have been a number of detailed HER and NHA studies which have been conducted. For example, a study was conducted in Korea with the aim of providing a baseline review of health sector financing and expenditure, prior to the introduction of new medical insurance programme in 1977 (Park 1977). The results were valuable. It showed the ernomous importance of private sources of finance which accounted for 87% of the expenditures. It also showed the very rapid growth of health expenditures which quadrupled for private expenditures and tripled for public expenditures between 1970 and 1975 alone (Park 1977).

The importance of complete evaluation of expenditures and financing in the health sector was again demonstrated in the results of a study which was done in Bangladesh (Cumper et al, 1978). The importance of private sources of finance, which provided 87% (as in Korea) of current expenditures was revealed (Cumper et al 1978). The fundamental reliance on drugs was highlighted (by self-medication and prescription from physicians and traditional healers) which accounted for 80% of private current expenditures.

In addition, the study showed that they were imbalances of per capita health expenditure between urban and rural areas: there was urban to rural ratio of 3:1 for total expenditure, 2:1 for private expenditure, and 14:1 for public expenditure (Griffiths and Mills 1982).

Another study in Botswana, showed that the health sector expenditure was over three times higher than previously thought from public accounts, amounting to 5.3% of Gross Domestic Product (Kam et al 1977). Current expenditure was found to be financed from government sources (46.6%) with foreign aid being the second largest source (33.2%), and private sources accounting for only 16%.

The other most recent health expenditure review study was conducted in South Africa (McIntyre et al 1995). This study aimed at providing information on health finance and expenditure in order to manage structural change. It was found that there were substantial resources available for meeting the health needs of the South African population (McIntyre et al 1995). However, there were gross inequities in the distribution of these resources between public and private sectors, between levels of care and between geographic areas (McIntyre et al 1995). A major redistribution was therefore required, but this was to be managed in order to minimize disruption of health services.

While the above examples have demonstrated the importance of HER, NHA methodology has also been recently used in developing countries. Such studies have been conducted in Egypt (DOP and DDM 1995), Mexico, Colombia, Zambia (Berman et al 1995) and their unique contributions include:

- higher totals, especially in terms of private expenditures as compared to the earlier estimates undertaken using HER (Berman 1996).
- by systematically bringing together data on sources and uses of expenditure, they can provide answers to several policy questions simultaneously and questions which could not be expected in advance (Berman 1996).

Having seen the importance of HER and NHA as evidenced by the examples presented above, the issue now is how do we go about undertaking them? In order to conduct HER and NHA a clear analytical framework is required.

2.2.2 Analytical framework for Health Expenditure Reviews and National Health Accounts

The first most important step in conducting HER and NHA is the definition of the health expenditure. According to Griffiths and Mills (1983), expenditure on health includes expenditure on activities whose

primary purpose is health improvement. Thus, this definition excludes a large number of programmes which influence the health of an individual, but whose primary purpose is not health. Such activities include: subsidies for food, heating, housing and water (Berman 1996). Hence, different countries will include expenditure on these activities in the national expenditure depending on whether they are provided by the Ministry of Health or not. In countries in which the above services are provided by other government departments, it is less likely that such expenditure on these activities will be seen as health expenditures (Berman 1996). As Rannan-Eliya and Berman (1995) have noted this lack of universal definition for the health sector can bring problems when it comes to international comparisons.

In this study, the definition of the health sector would be all health care activities (all medical activities plus household and self care) excluding water and sanitation. This approach is in line with international definition of the health sector which has been used widely (Rannan-Eliya and Berman 1995). It should be noted that inclusion of other activities which enhance or promote health in the definition of health sector would be difficult to estimate (lack of data and complicated procedures for separating the health components), hence they are completely left out in this study. After defining the health sector, the next step is to look at the sources of finance for the health sector.

Sources of finance are in most cases analyzed in terms of public, quasi-public and private sources. The major important issue to note here, is the identification of all sources of finance and also quantifying how much is contributed by each source (Griffiths and Mills 1983). Public/quasi public sources include: general tax revenue, deficit financing, dedicated taxes, foreign aid, social health insurance and lotteries and other forms of betting. Private sources include: private medical insurance, direct household expenditure, community financing and charitable donations.

Having defined the health sector and identifying the sources of finance, the final step is to identify activities and areas on which the financial resources are spent. Griffiths and Mills (1983), have indicated that health expenditure data can be presented in a number of ways:

i) by type of service (e.g. hospital, clinics, communicable disease control etc.);

ii) by geographic area (e.g. region, district, urban/rural);

iii) by population group/service user (e.g. sex, age, social class);

iv) by input category (e.g. personnel, drugs, equipment);

v) by service provider and;

iv) by diagnosis (major or important disease groups).

While the above presentation has been a good example of the format for HER, NHA methodology is a bit different. NHA requires a formulation of flow of funds in terms of three major levels: the original sources, (i.e. not the intermediaries), financing agents (i.e. organizations which pay or buy health services and goods), and the health care providers or other categories of uses of funds (Berman, 1996). Presentation of data in this manner would end up in the creation of matrices of "sources and uses" of funds. Such matrices will be constructed in this study.

Having defined the health sector, identified the sources of finance and the activities on which the financial resources are spent, a decision has to be made as to whether expenditure data for one financial year or time trend will be collected (McIntyre 1997). If time series data are analyzed, then it will be necessary to adjust the data to take into account of the inflation levels (McIntyre 1997). In this study, however, data for one year (1995/96) will be analyzed.

Much as the importance of HER and NHA could be appreciated and a very clear analytical framework could be developed, the question now is, how do we go about undertaking them and where do we get the information?

2.2.3 Sources of information for Health Expenditure Reviews and National Health Accounts

As pointed out earlier on, several manuals (Griffiths and Mills 1982, Mach and Abel-Smith 1983, DDM 1995) provide methodologies for undertaking HER and NHA. They also show that data sources are many but require estimation. They indicate that much information from the public sector could be obtained from expenditure accounts. However, they have indicated that in most cases such information is incomplete. Griffiths and Mills (1983) have therefore indicated that in such situations estimation is required. In addition, they have indicated that estimation is also required in situations where there are virtually no records.

Griffiths and Mills (1983) have stressed that in these situations expenditure information could be obtained through special surveys and interviews with samples of various service providers concerned, household surveys, costing of prescription statistics and trade production statistics for drugs and medical supplies, and estimates of revenue or expenditure from national income accounts.

The other most important thing to note is that data should be assembled using the national accounting principles of exhaustiveness and consistency (WHO 1978). This would assist in building up a matrix which would eventually show the value of current transactions (payments and receipts) between the health sectors and sub-sectors and other main sectors of the economy (WHO 1978). It is also important that double accounting is removed or avoided (WHO 1978). This could be done by recording expenditures by the original sources of finance only and not the intermediaries (Griffiths and Mills 1983, Berman 1996). When using government accounts it should be realized that only actual expenditures should be recorded and not budget figures (WHO 1978).

In order to diagnose how well the Malawian health care system is addressing the health needs of its people, health care expenditure and finance will be analyzed from the perspective of two economic objectives of equity and efficiency in relation to the stated objectives and priorities of the Malawian health sector.

2.3 ECONOMIC OBJECTIVES OF HEALTH CARE

"if scarcity did not exist, there would be no need to consider equity (who gets and who pays what and how much) or efficiency (what are the costs and what benefits of different arrangements)...." (Wagstaff and Van Doorslaer 1993 p83.)

From the quotation above, it is clear that there is a scarcity of resources (in the health sector) and at the same time the growing need for providing quality health services for all in response to the growing and ageing populations. The pursuance of two main economic objectives, namely efficiency and equity has been accepted as a major goal of health policy amongst policy-makers in most health care systems (Wagstaff and Van Doorslaer 1993).

Let's now briefly examine each of these two economic objectives. We will begin with efficiency and thereafter we will look at equity.

2.3.1 Efficiency in the delivery and financing of health care

In order to clearly understand the issues surrounding efficiency, it is deemed necessary that we begin by defining it. Efficiency could be defined as the allocation of resources in a manner which obtains the best value at the least cost. In health care, efficiency could be categorized into three groups and these are: technical; allocative and scale efficiency (Newbrander and Barnum 1992).

Having defined efficiency and noted the forms it takes in the health care, it is important that we briefly examine the forms of these efficiencies. This will ease our investigation as we will be better equipped to know which efficiency could be present in the Malawian health sector.

2.3.1.1 Technical efficiency

Technical efficiency could be defined as production of any given output at a minimum cost, or maximization of output with a given level of resources (McGuire et a1988). For example, resources in the health care system may be used in a technically inefficient manner if the number of inputs used e.g. personnel, drugs, diagnostic procedures are not producing as many outputs as possible. The most practical measure of output could be the number of lives saved or improvement in quality and quantity of life, however, such measures require extensive data, hence the number of patients treated is often used as a measure of outputs (Barnum and Kutzin 1993).

Conversely, achieving the same number of outputs using a number of different combinations of inputs (at a lower cost) is another way of achieving technical efficiency. However, not all input combinations used in the process of health care delivery could be technically efficient. Situations could arise where inappropriate inputs are combined and this might lead to wastage of scarce resources (Barnum and Kutzin 1993). Such scenarios are common in developing countries and have included poor deployment of staff, poor distribution of drugs and medical supplies and inappropriate use of equipment (World Bank 1994).

2.3.1.2 Allocative efficiency

Allocative efficiency could be defined as allocation of resources between the most cost-effective interventions with the aim of maximizing the net benefit to the society. In this case interventions whose cost to benefit ratio is lower are undertaken. When resources are efficiently allocated, it is not possible to make someone better-off without making another person worse-off i.e. pareto optimality (McGuire et al 1988). According to McGuire et al (1988), they hold that if pareto optimality was possible, then individuals' well-being could be increased by changing the current resource allocation patterns.

In the health care system allocative efficiency could take the form of allocation of resources between different types of diseases, patients, geographical areas (urban/rural), socio-economic groups, services (curative/preventive), and levels of care (tertiary, secondary and primary) (Griffiths and Mills 1983).

2.3.1.3 Scale efficiency

This is another form of efficiency. The operating costs of health care facilities are largely dependent on the size of the facility and the number of patients that it sees (Barnum and Kutzin 1993). An example here could be a situation whereby as the number of patients increase, fixed cost are spread over a greater number of patients, thus reducing total costs. In this scenario, therefore, a health facility which sees few patients is likely to have higher unit costs. It is possible to find an optimum range of bed numbers, outpatients or inpatient days at each level of facility, below and above which average costs will increase. This is what is known as scale efficiency or sometimes referred to as economies of scale. Analyzing efficiency using this criteria could be done by developing cost functions for the short-run where some costs would be fixed (Wagstaff and Barnum 1993).

2.3.1.4 Other efficiency issues

Culyer (1991) has looked at efficiency as:

- providing only those services, a regulatory environment and so on that are effective in the sense that patients enjoy better health with them than without them;
- providing effective services at least resource cost;
- concentrating resources on those services that are provided at least cost and offer the biggest pay-off in terms of health;
- providing such a mix of effective services at the least resource cost and on such a scale that the benefit from using resources is neither larger nor smaller than their cost.

He argues that the elements of efficiency presented above can be thought of as consistent with equity. He further asserts that the distinction between efficiency and equity is that efficiency is about maximizing health out of existing resources while equity is about getting the distribution right.

Having looked at the definition of efficiency and the forms it takes in practice, it is necessary that we develop a framework for its evaluation.

2.3.1.5 Framework for evaluating efficiency

There is great need to develop a practical framework for evaluating efficiency in the health sector, especially in developing countries where inefficiency is rampart (World Bank 1994). According to McGuire et al (1988), evaluation of efficiency in the health sector has mainly been in terms of allocative efficiency using the cost benefit analysis framework. Other studies, however, have derived hospital cost functions so as to assess whether hospitals are efficient or not (Montfort 1981, Wagstaff and Barnum 1993) but only a few of these have been undertaken in developing countries.

However, due to limited data and time which was available for this study, efficiency issues will not be evaluated in detail, therefore a practical framework relevant for evaluating efficiency in low income countries will not be developed. An attempt will be made to provide some insights into some of efficiency issues in public health sector. It is hoped that the distribution of resources between geographic areas (rural/urban) relative to the prevalence of diseases will provide a good insight into the efficiency of the Malawian health sector. Another insight into efficiency issues will be provided by examining the distribution of resources between levels of care and types of services using internationally recognized norms of health care delivery (the cost-effectiveness of preventive vis-à-vis curative health services, primary level vis-à-vis secondary and tertiary level, World Bank, (1994)).

Management and control of inputs into the health care system will also be briefly examined so as to provide some additional insights into the efficiency issues in the Malawian health care system. Comparison of unit costs between levels of care will be made. Hospital service indicators such as average length of stay, bed occupancy and bed turnover rates will also be examined so as to check whether they are outside the internationally recognized standards.

It is necessary, however, that a brief explanation of these hospital service indicators be presented as they will be used in evaluating efficiency in this study.

Average length of stay (ALOS) is the average amount of time spent in a hospital which is usually defined as the mean number of days that an inpatient stays in a hospital from the time of admission to discharge. The bed occupancy rate is defined as the proportion of beds occupied by patients at any given time. Related to the bed occupancy rate, is the bed turnover rate which is defined as the average number of patients per bed per annum. These hospital service indicators are strongly influenced by case mix, case severity and admission/discharge policies at a particular hospital.

We have looked at one of the economic objective of health care i.e. efficiency, let's now examine the issues surrounding the other economic objective i.e. equity in health/health care in the health care systems in the world.

2.4 EQUITY IN HEALTH/HEALTH CARE

" equity, like beauty is in the mind of the beholder..." McLachlan and Maynard 1982 page 82

As can be seen from the above quotation, it should be noted that much as equity in health/health care has been accepted as a health policy goal, it has not yet been resolved as to what exactly it constitutes. It should be noted, however, there has been an agreement that equity cannot be interchanged with ' equality' (Wagstaff and Van Doorslaer 1993, Culyer and Wagstaff 1993).

The equity concept could be defined as 'a system of justice based on conscience and fairness' while 'equality' is 'the condition of being equal', McDonald (1973). Wagstaff and Van Doorslaer (1993) have noted that equity largely implies fairness, hence it could be judged fair to be unequal while equality is about equal shares. A good example of equity in health care could be a situation where it could be judged equitable to have unequal access to services whereby groups which are more vulnerable and have ill-health have greater access (Wagstaff and Van Doorslaer 1993).

Thus, equity can only be achieved if a resource allocation formula is designed is such a way that it distributes health care resources in a fair/just way within each society (Wagstaff and Van Doorslaer 1993). However, it should be cautioned that fairness is a value judgment issue. This therefore implies that an equity goal adopted in health care system A can not be exactly the same as that adopted in health care system B or C. This also means that a clear understanding of equity in health care system can only be possible if one has the knowledge of the ideologies which influenced the definition of the equity goal adopted in a particular health care system in a particular country. It is therefore important that we review theories of social justice so as to have a thorough understanding of equity in health/health care.

2.4.1 An overview of theories of justice in the health sector

As noted above, ideological perspectives influence a particular health care equity goal in a particular country. At this point therefore, it is essential that we look at several theories of social justice that are relevant when one looks at the concept of equity with regard to health care. The theories include:

1) Libertarian theory : This theory considers resource allocation through market forces to be fair. With market forces, this would mean the 'invisible' hand would allocate resources in a society, hence its limitation as far as justice is concerned. This theory could be the basis for arguments that health services be privatized so that resources are optimally allocated and that the government has no moral obligation for the have-nots .

2) Utilitarianism theory: This theory supports the idea of maximizing the utility of the greatest number of people. This theory is therefore much more related to efficiency as opposed to equity. Efficiency deals with the optimum allocation of resources so as to maximize utility, while equity is about a fair distribution of resources and not maximization of utility.

3) Maximin theory: This theory looks into maximizing the utility for the worst-off . According to Rawls (1972), he suggests that if people were operating behind a 'veil of ignorance' where they do not know their position in society, they would prefer to give priority in the distribution of social goods to those who are worst off.

4) Egalitarianism theory: This theory refers to equal shares of a commodity, be it health or health care. As seen from the definition, this could mean the equality of health or health care and it is regarded as the most strict definition of equity as it implies that all individuals in society should derive equal health within the health sector context.

5) Marxist theory: This theory depicts the importance of needs in the distribution of services. It has been defined as 'from each according to his/her ability, to each according to his/her need.' In this case it also implies that the distribution of health care resources should be on the basis of need rather than the ability to pay (Wagstaff and Van Doorslaer 1993).

As seen from the above theories, it is now clear that a health care equity goal adopted by a particular health care system is dependent on an ideology. In addition, it is highly unlikely to find only one theory of social justice prevailing in one particular health care system in a particular country. For example, pure

egalitarian, pure libertarian or pure Marxist. In practice therefore, Wagstaff and Van Doorslaer (1993) have noted that only two of the above theories of social justice, namely egalitarian and libertarian are found in most health care systems but in a mixed manner with different degrees of emphasis on equity. For example, in Malawi, the government has realized the problem of over reliance on egalitarian type of health care system and is currently considering pursuance of a policy based on some market forces.

Related to the above, it could be said that, since the health care equity goal adopted by a particular country is a function of theories of social justice, it is therefore more likely that the definition of equity in practice is strongly influenced by these theories. Thus, it is important to see how these theories of justice have influenced the definition of equity in health care systems. In most cases, the concerns for equity is interpreted generally as providing a basic level of health services to all (Wagstaff and Van Doorslaer 1993). While this definition might be plausible, it has its shortcomings hence, a review of definitions by Mooney (1986) is required.

2.4.2 An overview of alternative definitions of equity in the health sector

It has been argued by Mooney (1986) that there are seven alternative definitions of equity in health including:

1) *equal expenditure per capita*: this is aimed at attaining an equitable allocation of financial resources to each individual in society.

2) *equal inputs/resources per capita*: this reflects different price levels and therefore different ability to purchase health care inputs in different areas.

3) *equal inputs/ resources for equal need*: this definition reflects differential need for health services, for instance relating to different age and gender profiles in different areas.

4) *equal access to health care for equal need*: this particular definition relates to differential costs to individuals in obtaining access to health care, for example transport and time costs.

5) *equal utilization of health care for equal need*: this reflects the consideration of both supply and demand factors, and discriminating positively in favour of those less willing to use health services.

6) *equal marginal met need*: this definition mainly looks into improving the geographic equity of resource allocation and is based on the cost-benefit approach to equality of health.

7) *equality of health*: this is the most difficult thing to achieve as it requires more than just provision of health care resources.

Having looked at the above alternative definitions, it is necessary that definitions which are most frequently used in health care systems around the world be examined. In most health care systems, policy-makers have looked at equity in the following four ways (Wagstaff and Van Doorslaer 1993).

- distribution according to need
- equality of access
- equality of expenditure per capita
- equality of health

In this study, however, equity will be evaluated in terms of distribution according to *need* (or the capacity to benefit) and equality of expenditure per capita. Equality of access and equality of health will be left out as they involve a lot of data and value judgment.

2.4.3 An overview of equity in practice

In practice, equity takes two forms, namely equity in financing and equity in the delivery of health services. According to Wagstaff and Van Doorslaer (1993), they have noted in their review of health policies in several European countries, that policy-makers are greatly committed to the notion that all citizens should have equal access to health care.

This study is an analysis of equity in the delivery of health services in Malawi. An attempt will, however, be made to examine equity in the financing of health services in Malawi. Equity in financing of health services is an issue because some Malawians have access to government facilities free of charge while others only have access to mission facilities where they are charged user fees. This occurs because government or any provider may not build a facility where a mission facility (or any other facility) already exists (MOHP 1995).

An examination of the forms of equity noted above is of paramount importance as they will provide us with a clear understanding of the issues surrounding equity in health/health care in practice.

2.4.3.1 An overview equity in financing of health care services

Evaluation of equity in the financing of health services mainly takes two forms, namely vertical and horizontal equity. According to Culyer (1991), he defines horizontal equity as the like treatment of like individuals and vertical equity as unlike treatment of the unlike individuals. According to Wagstaff and Van Doorslaer (1993) they hold that the financing of health care should be a function of the ability to pay i.e. vertical equity; and that persons or families of the same ability to pay should make the same contribution i.e. horizontal equity.

Equity in finance is mainly evaluated on the basis of progressivity or regressivity of the financing source. Due to the unavailability of much data, this study will, however, not evaluate equity in the financing of health services in detail.

2.4.3.2 An overview of equity in the delivery of health carè services

Like equity in the financing of health services, equity in the delivery of health care services is also evaluated in terms of vertical and horizontal equity. Evaluation of vertical equity in health services provision, requires that persons with unequal *need* be treated in an appropriately dissimilar way while horizontal equity requires that persons with equal *need* be treated equally (Wagstaff and Van Doorslaer, 1993).

In practice, however, equity in health service provision can be evaluated on a geographic and socio-economic basis. Equity on a geographic basis implies that people with equal capacity to benefit from health care should receive equal treatment, despite personal characteristics that are not related to capacity to benefit. Such characteristics include ability to pay, and place of residence (Wagstaff and Van Doorslaer, 1993).

Equity on socio-economic basis implies that citizens from different socio-economic status when ill, should receive the same treatment regardless of their influence in society, ability to pay, and geographic location (Wagstaff and Van Doorslaer 1993). This study, however, will focus on the former. The latter requires extensive data from household expenditure surveys and necessitates categorizing the population into income groups i.e. high, medium, low, or rich and poor. This type of information is currently unavailable in Malawi.

2.5 AN OVERVIEW OF EQUITY ON A GEOGRAPHIC BASIS

The measure of equity on geographic basis is *'need'* which is interpreted as *'capacity to benefit'*. However, there are issues of concern which need to be taken into account when distributing resources on the basis of *'need'*. Culyer (1991) argues that distribution of health care resources should not be on the basis on *need* alone, since being ill does not necessarily imply *need* for health care. He points out that what should dominate is the distribution of health and how health care resources can change distribution for the better.

Much as he agrees that *need* is not irrelevant in coming up with an equitable health care policy, it is not a sufficient basis for determining the equitable distribution of health care. He further argues that equity may mean that some needs go unmet, asserting that the need for health care exists only when there are grounds for believing that services will enhance health, prevent its deterioration or postpone death. Related to this, is that people who are not ill have a *need* for medical care and this is evident with preventive care which could improve the future health over what it would otherwise been (Culyer 1991, World Bank 1994).

Despite such strong arguments by Culyer (1991), internationally, it has been accepted that distribution of health care resources should be in terms of *need*-capacity to benefit, while financing of health care should be in terms of ability to pay (Wagstaff and Van Doorslaer 1993). The measures of need include: population size, socio-economic data and morbidity and mortality data.

This study will analyze equity on geographic basis using *need* as a measure of capacity to benefit from health care resources. The most notable resource allocation process on the basis of need is that by the Resource Allocation Working Party (RAWP) in the United Kingdom (DHSS 1976). A brief overview of RAWP could provide good rationale for evaluating equity in the delivery of health care services using *need*.

2.5.1 Geographic resource allocation using Needs-based formula

The National Health Service (NHS) in England, was until 1976, funded on the incremental basis based on existing levels of funding plus an annual increase. The Resource Allocation Working Party was mandated to consider ways of redistributing health care resources so as to achieve equal opportunity of access to health care for people at equal risk or equal access for equal need (DHSS 1976).

The main principles of need, which were taken into account in the needs-based formula were; size of the population, age/sex, morbidity and cross-boundary movements.

The main determinant of *need* for health services in the RAWP was the population size in each region. It was, however, noted that people do not have identical needs for health care. For example; women and children make up a large percentage of the population, hence they are heavy users of health services. Meeting the needs of this group was seen to be very important in improving health status of the people. Thus, in each region, population were weighted by the national utilization of patients health services by age and sex groups (DHSS 1976).

Related to this, it was also noted that even after taking account of age/sex structure differences, the population could still show different degrees of morbidity. However, morbidity was difficult to measure, hence it was decided that mortality be used as a proxy. In this situation therefore, standardized mortality ratios (SMR's) were used as a measure of mortality in excess of that which would be expected by applying national age and sex specific rates. A one to one relationship was thus assumed between such a proxy of morbidity and need.

Finally, it was noted that even though health authorities are responsible for providing health services to people residing within the boundaries, sometimes an overlap might occur whereby patients resident in a particular health authority are treated in another health authority. This being the case, arrangements have to be made whereby compensation is given to the health authority treating the patient. Faced with this situation, the population had to be adjusted to take into account of cross boundary flow.

After measuring the indicators of *need*, calculation of revenue targets were based on the distribution of revenue budget available for health services on a proportional basis based on the weighted population of each geographic region. What followed was then the re-distribution of resources from those regions which were well above the calculated revenue target, to those which were below the calculated revenue targets.

The needs-based formula has been successful in eliminating geographic disparities between regions in England (Holland 1986). This success, however, is not an automatic result of using the needs-based formula. Much depended on how it was constructed, the principles which were incorporated in building the formula, the variables which were included and their relative importance. Thus, if the needs-based formula is built on ill-conceived principles and employs week or poor statistical methods, it is more likely

to be unsuccessful.

2.5.2 Other issues to consider when allocating resources using a needs-based formula

The other most important issue to note in allocating resources using a needs-based formula, is the inequity brought about by health policies in a particular country. For example, it is the policy of the Ministry of health in Malawi not to construct a health care facility close to where another one exists. The mission sector in Malawi charge user fees for their health services. This means that all the people who are within the catchment areas of these facilities have to pay for their health services, or otherwise travel long distances to the MOHP facility for free health care services. This has created substantial inequities in the Malawian health sector as evidenced by poor health indicators within the catchment areas of some mission health facilities (MOHP and CHAM 1992).

The historical background of a health care system in a particular country should also be carefully considered in allocating resources using a needs-based formula. In Malawi, for instance, most of the policies pursued reflect the historical origins of the country's health care system. Malawi inherited a large number of health facilities from the British Colonial Government which were predominantly curative in nature and urban based while the missionaries settled in remote parts of the country and their health care provision had also curative emphasis (Malawi Government, 1996).

The resource distribution pattern reflects the interaction of supply and demand for health services and not indicators of *need*. Hence, in coming up with a needs-based formula, indicators of utilization should be not be taken into account as these will tend to be higher in areas where there is high supply of health services (Reagon et al 1997). Another reason for not using utilization rates is the fact that demand for health care is dependent on several factors including: income, education, perception by patients of quality and effectiveness of health services, distance (time), and cultural/traditional beliefs (Wagstaff 1986).

It might therefore happen that there are many health facilities in one region but the utilization rate is low, one might have an oversight and conclude, that there isn't a greater *need* for health services in that region. This might be wrong as there may be high morbidity in that region but due to a lack of education of the head of household coupled with belief in traditional medicine, people may not go to the modern health facility. This therefore clearly shows that when designing a needs-based formula, information on *'needs'* should be collected independently of utilization data (Reagon et al 1997).

As previously noted, Malawians living within the catchment area of a mission or other non-MOHP facility are expected to pay for health services, it is therefore important that a brief review of the implications of user fees be made. This will provide us with an insight into the inequity problem brought about by the MOHP's facility building policy.

2.6 EQUITY IMPLICATIONS OF USER FEES IN THE FINANCING AND DELIVERY OF HEALTH CARE

There are basically three main reasons for introducing user fees in health care system, namely source of revenue, reduction of 'frivolous' utilization, global economic recession coupled with rapid population growth (World Bank 1987, 1994).

User fees, however, have equity implications both in the financing and delivery of health services. It has been found that, as source of revenue, user fees have serious equity implications in the sense that they are highly regressive (Wagstaff and Culyer 1993).

Another important issue with regard to financing, is that despite difficulties, people have ended up paying for health care services and this has been taken as evidence of ability to pay (Russel 1996). This might not be the case. Such payments for health care might be made at the expense of other essential commodities such as food, education and future investment (Russel 1996), lack of an alternative nearby source of health care (Franco et al 1995), seeking better quality health care after being at free providers of health services (Franco et al 1995). In short, people might end up paying for health services out of desparation as they have no other choice (Russel 1996).

This is evidenced by high rates of borrowing and forced sale of property to pay for health care. For example, in Tanzania borrowing rates of up to 40% by individuals was recorded, while in Kenya, Uganda, Nigeria, Guinea and Burundi borrowing rates ranged from 25-49% (Abel-Smith and Rawal 1992). In addition, in Thailand 60% of the households were forced to sell land so as to pay for illness (McPake et al 1993) and this type of scenario creates the spiral of poverty (the level of poverty is aggravated).

When it comes to delivery of health services, user fees also face serious inequities. According to the World Bank (1987), they hold that demand for health care is income inelastic, hence has a great revenue generation potential. However, the emerging evidence is that user fees deter low income households (patients at greatest risk of illness and for whom the most cost-effective interventions are available) from

seeking care until the illness is severe (Ellis et al 1991, Creese 1991). Instead of curing an illness at a low cost (seen at lower level of care, short average length of stay), the severity of the illness would make it more expensive as it will now require higher levels of care with more average length of stay in the hospital.

This has serious cost implications for both the provider and the patient and the economy as a whole. To the provider it would require more resources to cure one illness than it would otherwise been and use the saved resources for other patients. To the patient, this would mean huge medical bill, loss of income by the patient and guardians (entire household); and to the economy, there will be loss of productivity, since economic growth is largely dependent on labour productivity.

In this study, efforts will be made to trace the equity implications of user fees in mission facilities in the delivery of health services in Malawi and hence to evaluate the policy of the MOHP with regard to the establishment of health facilities in Malawi.

2.7 FRAMEWORK FOR EVALUATING EQUITY OF HEALTH CARE SERVICES

"people in equal need end up receiving equal treatment, irrespective of personal characteristics that are irrelevant to need such as ability to pay, race, gender and place of residence".(Wagstaff and Van Doorslaer 1993 page 18)

As pointed out earlier on, equity in the delivery of health services can be evaluated on two basis, namely geographic and socio-economic. This study will concentrate on the former. The definition of equity which has been adopted in this study is that of equal resources for equal *need* irrespective of geographic areas. The proxy indicators of *need* will be the socio-economic and health related indicators in the three regions (North, Centre and South) and urban/rural areas of Malawi. It would have been practical to use morbidity (mortality data as a proxy of morbidity) data as an indicator of *need* in Malawi. However, such data are currently unavailable and to use out-patient data which is readily available would also be impractical as this is an indicator of forces of supply and demand of health services and hence reinforces the previous trend of health service provision.

International experience has shown that economic, social and health indicators are positively correlated (Wagstaff 1986). The higher the income per capita (in developed countries), the better the social and health indicators and this is also true for developing countries. Thus, the use of socio-economic and health related indicators in relation to the health care resources between the regions, and urban and rural areas

could provide a practical evaluation mechanism of health services from a planning and policy-making perspective especially in low income countries like Malawi. Planners and policy-makers in the MOHP, other government agents, donors, non-governmental organizations will be able to see the need for multi-sectoral approach in implementing different programmes aimed at improving the health status of Malawians.

2.8 SUMMARY

In order to summarize this section, it could be said that the Health Expenditure Reviews and National Health Accounts reviewed have shown the surprising high levels of private expenditure on health care and overwhelming importance of private sources of finance or foreign aid. Allocative efficiency has been highlighted by high expenditures on urban population at the expense of the rural population. In addition, the cited studies have highlighted the importance of comprehensive health sector financing and expenditure situation analysis for strategic planning of health services before embarking on health sector reforms.

All in all, HER and NHA could assist most governments to implement their reforms more successfully, hence provide more efficiently and equitably the quality health care needed by their citizens within the limited resources available in the health sector. They could also help in identifying linkages between the public and private health sectors (public/private mix) (Berman 1996).

With regard to economic objectives, the main premise is that due to scarcity of resources in the health sector, there is great need for pursuance of efficiency and equity objectives in the health care (Wagstaff and Van Doorslaer 1993). It is envisaged that appropriate mix of inputs and allocation of resources among the most cost-effective interventions accompanied by equitable allocation could benefit the majority of the populations in most countries. This could be true for Malawi.

A detailed analysis of resource allocation between levels of care, geographic areas in relation to the socio-economic and health indicators in Malawi would greatly help planners and policy-makers to review their plans and adopt new strategies for implementing health care programmes. This would also assist them to make conclusions as to whether to adopt alternative financing mechanisms of health care services right now or reduce the inequities and inefficiencies (if this investigation will establish that inefficiency and inequity are rampart in the Malawian health sector) first, before embarking on the reforms.

SECTION 3: GENERAL ECONOMIC AND SOCIAL STRUCTURES OF THE MALAWIAN SOCIETY

3.1 INTRODUCTION

It is important to evaluate the current status of a country's health sector within the context of the overall policy, political and socio-economic environment. In this section therefore, an overview of the administrative, political and social system, macro-economic and socio-economic indicators in Malawi is provided. This section will highlight stability of the country both within and in neighbouring countries, and the economic growth prospects of the country which in turn would impact on the health sector. The organization of the health sector in Malawi will also be reviewed.

3.2 MALAWI'S SOCIAL, POLITICAL AND ECONOMIC ENVIRONMENT

In this subsection the geographic, administrative and social system, macro-economic and socio-economic indicators will be provided.

3.2.1 Malawi's geographic position and administrative system

Malawi is a small, landlocked, country in the central/southern Africa. It is bordered by Zambia to the west, Mozambique to the east and south and Tanzania to the north. It has an area of 118,484 km^2 of which 20% is water. Only 55% of the land is arable (Malawi Government, 1996). Malawi got her independence from Britain in 1964 and became a republic in 1966 under the leadership of Dr. Hastings Kamuzu Banda.

Malawi is divided into three administrative Regions: North, Centre and South (See Map 1). These regions are subdivided into 25 districts. The districts are further divided into Traditional Authorities. The village is the smallest administrative unit in the country, and falls under the Traditional Authority area. The districts are also divided into constituencies, in some cases combining two Traditional Authority areas. These constituencies are represented by members of parliament.

There are two systems of government administration in Malawi namely; Central and Local Government. The Central Government is organized through a central coordinating office, the Office of the President and Cabinet (OPC), while Local Government is a single tiered system of 25 rural (Districts) and 11 urban

councils subdivided into wards. The Office of the President is responsible for public service delivery (including District Administration and Civil Service Personnel management). The Local Government is weak in terms of both financial and human resources. Most of the functions of the Local Government have been taken back to the parent ministries (are centrally administered) (Malawi Government 1992). Local authority councilors are elected by the people. However, since the new government came into power in May 1994, there have been no Local Government elections.

3.2.2 Malawi's political system

Prior to May 1994 (i.e. for nearly 30 years), Malawi had been a one party state, with Dr. H Kamuzu Banda as president for -life. Following a national referendum in 1993, peaceful multi-party elections were held on May 17,1994, and the United Democratic Front (UDF), led by Bakili Muluzi, won the majority of the seats in parliament and formed a new government.

The Malawi Government believes in a policy of contact and dialogue with her neighbours. Currently there is political stability both within the country and with neighbouring countries.

3.2.3 Demographic structure of the Population

In 1995, the population was estimated to be 10.5 million and to be growing at the rate of 3.2% per annum (World Bank, 1995). This high growth is predominantly due to the high total fertility rate of 6.7. This in turn, is a result of early marriage, early age at first pregnancy, relatively closely spaced births, and low contraceptive prevalence rates of around 7% (MDHS 1992, Malawi Government 1996). Almost half of the population is under 15 years of age, and the dependence ratio has risen from 0.92 in 1966 to 1.05 in 1995 (Malawi Government, 1996).

Malawi is one of the most densely populated countries in Africa, with around 90 persons per km^2 and over 180 persons per km^2 of arable land (Malawi Government, 1996). Currently, 87% of the population live in rural areas, the vast majority of which are within the smallholder sub-sector (Malawi Government 1996). Netherthelcss, annual urban growth is now recorded at an average rate of 10% and is unlikely to slow down due to the decline in agriculture production and reliance on supportive networks i.e. extended families (World Bank 1992, 1996). Table 3.1 below summarizes some of the demographic indicators for Malawi as compared to other neighbouring Sub-Saharan African countries.

Table 3.1 Malawi's demographic indicators as compared to other Sub-Saharan African countries, 1995

	Malawi	Tanzania	Zambia	Zimbabwe
Area km^2 (thousands)	118	945	153	391
Population (1995) (millions)	10.5	28.3	9.4	11.1
Population density/ km^2, 1995	90	27.5	61.4	26.6
Annual pop. growth rate %	3.2	3	3.1	2.6
Pop.\dependency ratio, 1995	1.05	0.99	1.03	0.9
Urbanization, % of total	13	21	42	29

Source: World Development Report 1993 and World Bank's Better Health in Africa 1994

There are different tribal, linguistic and cultural groups (the major tribes are Tumbuka, Chewa and Yao and are found in the North, Centre and South respectively) in Malawi. The customs, beliefs and traditions have strong influence on the daily living of the people (including beliefs in spirits and traditional healers as opposed to modern medicine). These customs, beliefs and traditions have determined for instance, the acceptability of modern practices or ways of life such as agriculture, education, family planning seeking modern health care (Malawi Government 1996).

3.2.4 An overview of Malawi's macro-economy

Malawi is one of the poorest countries in the world. She is ranked as the ninth poorest country in the world in terms of GNP per capita in 1995 (US $170).There are serious inequities in the distribution of income in Malawi (has a gini coefficient of 0.62, World Bank 1997). Poverty levels are high . Over sixty percent of the population is poor. Malawi is undergoing a period of economic crisis: has a huge fiscal deficit, a large current account imbalance, rapid inflation, and a fluctuating GDP with little prospects for substantial growth (World Bank 1997).

Agriculture is, and will remain the mainstay of economic growth in Malawi. However, this sector is highly vulnerable to adverse weather conditions (it was adversely affected by two major droughts of 1991/92 and 1993/94). Agriculture accounts for about 35% of GDP, 93% of export earnings (primarily tobacco), and provides more than 80% of employment. Manufacturing accounts for only 13-14% of GDP, industry for 20% and services the remainder (Malawi Government 1997).

Malawi has a small formal sector. For instance, in 1992, only about 13% of the labour force was employed in formal sector, and only 16.3% of these were women (Malawi Government 1993). The Civil service has increased greatly from 1.4% per annum in the 1980s to 10.4 in the 1990s. The private sector, however, has not grown (Malawi Government 1994).Over 80% of the labour force is engaged in the non-formal sector, which includes self-employment in small scale agriculture, labour estates and larger farmers, and which are the major source of income for the rural poor.

In Malawi, the sources of revenue from which public services are funded are mainly taxes on personal income and company profits, trade taxes and grants from donors. In the event of insufficient revenue to cover the budgeted expenditure, the financing of the resultant deficit is met either from the domestic bank and non-bank sources, or from foreign financing in a form donor and overseas banks loans. In this scenario therefore, it is evident that the financing of public services in Malawi is inextricably linked to the aggregate of each of these revenue sources. For instance, in the 1995/96 financial year, the major public sector sources of finance contributed in the following proportions: domestic taxes had a share of 44.3% and trade taxes had a share of 42.3%, while non-tax revenue was 13.4% (Marshall 1996). These revenues represented a total revenue of 19.5% of GDP. The functional distribution expenditure of these revenues are in Table 3.2 below.

Table 3.2 Functional distribution of public sector recurrent expenditure (MK millions), 1995/96

Function	1993/94	1994/95	1995/96
Defence	124.6 (5.6)	159.4 (4.1)	255.9 (4.1)
Justice	118.8 (5.3)	180.2 (4.7)	252.7 (4.1)
Education	248.5 (11.1)	351.8 (9.2)	844.0 (13.7)
Health	150.1 (6.7)	228.5 (5.9)	382.6 (6.2)
Community & Social Development	47.1 (2.1)	31.5 (0.8)	49.9 (0.8)
Economic Services	583.3 (26.1)	818.2 (21.3)	905.0 (14.6)
Public Debt Service	537.3 (24.1)	1,074 (28.0)	2,500 (40.5)
Other	425.1 (19.0)	997.4 (26.0)	988.1 (16.0)
Total	2,234.7 (100)	3,841.0 (100)	6,178.2 (100)

Source: Malawi Government, 1997

From Table 3.2 above, Defence and Health had almost the same share of recurrent government expenditure in 1993/94 and little change occurred in the following two years. The share for the Education sector has been higher than that of Health and Defence in the three years reviewed above.

Government expenditure on other social and community development has been relatively very low. This type of expenditure pattern reflects the priority the government attaches to social services delivery. While there has been continued increase in the share of the government expenditure on Education (and exacerbated by the introduction of free primary education 1994), there has been low priority attached to the health sector.

Malawi has the worst social and health indicators and yet government expenditure is low and similar to that on Defence. It should be mentioned, however, that Malawi faces a serious debt crisis. As seen from Table 3.2 above, debt servicing increased from 24.1- 40.5% of the total government expenditure between 1993 and 1996 and it is estimated that Malawi has a total debt of over MK 30 billion or US $ 2 billion (Malawi Government 1994). This implies that further increases in government expenditure on health services is unlikely to increase by substantial amounts as most of the government expenditures will be on debt servicing.

3.2.5 Malawi's health related indicators

Malawi's health indicators are among the worst in the world. Life expectancy at birth stands at 48 years (Malawi Government, 1996). The infant mortality rate of 135 per 1,000 live births has marginally changed in the last 10 years (MOHP, 1995, Malawi Government, 1996). Under five mortality rate is 234 per 1,000 live births. It is expected to rise as a result of AIDS (Malawi Government and UNICEF 1992, MOHP 1997). Under five mortality is mostly due to malnutrition, anemia, pneumonia and diarrhoeal diseases.

In Malawi, maternal mortality rate is estimated at 620 per 100,000 live births (MOHP 1995, Malawi Government, 1996). The major determinants of this high mortality ratio are: the high fertility rate; the large percentage of pregnancies which are high risk; poor access to, and late utilization of, essential obstetric services; and the poor quality of these services (MOHP 1995). The commonest causes of death are those which are treatable with existing simple/inexpensive technology including: puerperal sepsis, obstructed labour and the complications of incomplete abortion.

In Malawi, AIDS is now the leading cause of death in the most productive age group (24-48 years) and AIDS-related illness accounts for over 40% of all in-patient admissions and is likely to increase (MOHP 1995, 1997). The prevalence rate of both HIV and STD infections is extremely high in Malawi. The HIV

positive rate in antenatal women in 1995 was estimated at over 30% in urban areas, and 12-14% elsewhere, a considerable increase from the 2% prevalence in 1985 (MOHP 1997).

There is also a huge increase in the number of patients with tuberculosis , which is again posing a massive public health problem, and exerting considerable pressure on the health system. There is an increase in the private expenditure on health care at the expense of the welfare of other family members, as patients 'shop around' various hospitals and traditional healers for treatment of AIDS related illness (MOHP 1997).

In Malawi, the commonest reported cause of morbidity in both adults and children is malaria (see table 3.4 below) and both the incidence and case fatality rates appear to be rising. However, it been proven that resistance to commonly used antimalarials is increasing (Chitsulu et al 1992). Much of the anaemia, especially in children, is thought to be related to malaria (MDHS 1992). The economic impact of malaria is substantial in terms of health care consumed, time and other costs of seeking treatment and productive work days lost requires further investigation. Table 3.4 below, shows the five major causes of out-patient attendances in Malawi.

Table 3.3 Five major causes of out-patient attendances, 1995

Diagnosis category	Number (millions)	percentage share (%)
Malaria	6.1	33.0
Upper respiratory infection	2.3	12.4
Other diarrhoeal diseases	1.3	7.0
Abdominal diseases	0.9	4.9
Diseases of the eye	0.8	4.3
All others	7.1	38.4

Source: MOHP, Health Information System Data Base

As can be seen from the table above, the leading causes of out-patient attendance among all patients is malaria (33% of total), upper respiratory infection (12.4% of the total), diarrhoeal diseases (7% of the total), abdominal complaints (5% of the total) and diseases of the eye (4.3% of the total).

Malnutrition is endemic in Malawi with 50% of the children under-five being chronically malnourished. The causes include household food insufficiency and poverty, poor weaning and feeding practices, and frequent infections. Micronutrient deficiencies are also extremely common. About 56% of pregnant

women attending antenatal clinics are anaemic (Malawi Government 1996).

Such poor socio-economic indicators are translated into high morbidity and mortality levels at the health facility level. Statistics indicate that 70% of mortality among in-patients is due to communicable and other preventable diseases (nutritional deficiencies, pneumonia, anemia, malaria, enteritis, measles and TB) (MOHP 1995).

3.2.6 Poverty and literacy levels in Malawi

The major characteristics of all developing countries is poverty. Malawi, because of its lack of mineral resources, the density of its population in relation to arable land, its landlocked situation with the associated prohibitive costs of external trade, is one of the poorest countries in Africa. Of Malawi's population of 10.5 million in 1995, 30% are classified as core poor and a further 34% as poor. Of these, 48% are small holders and the main measure of their poverty is insufficient land to produce enough to feed their household, coupled with absence of opportunities for wage or other earnings (Malawi Government and UNICEF 1992, Malawi Government 1996).

The core poor are defined as those cultivating less than 0.5 hectare of land and the poor are those having between 0.5 and 1.5 hectares of land. The table below shows the percentage of those working in different sectors who are classified as core poor or poor (Malawi Government and UNICEF1992, Malawi Government 1995).

Table 3.3 Categories of the poor in Malawi

Sector	Core Poor %	Other poor %	Total %
Small holders	30	38	68
Estates:			
Labours	34	34	68
Tenants	41	23	64
Urban	0	9	9

Source: Malawi Government and UNICEF (1992), Malawi Government (1995)

Literacy rates in Malawi are very low. Forty eight percent of women and 30% of men have never attended school at all. Up to 80% of rural women can neither read nor write. Secondary enrollment is only around 4% overall, comprising of 2% women and 6% of men (Malawi Government and UNICEF 1992, 1996). The quality of education is poor, primarily as a result of high teacher to pupil ratios (1:70 in 1994), and

lack of basic teaching materials exacerbated by the introduction of free primary education in 1994 in the face of limited resources (Malawi Government 1996).

3.2.7 Malawi's Infrastructure

Infrastructure in Malawi is poor. Only 35% of the roads are in good condition (Malawi Government 1997). The communication, transport infrastructure and public telephones are poorly developed and much worse in rural areas. Most of the roads are impassable especially in the rainy season. Electricity and water are available to small percentage of the urban population and electricity is frequently interrupted by blackouts. Motorized transport, are unavailable, especially in the rural areas and the commonest mode of transport is walking (Franco et al 1995).

3.3 OVERVIEW OF THE MALAWIAN HEALTH SECTOR

This sub-section is an attempt to introduce Malawi's health sector and provides an overview of providers, different service levels, and regional division of the sector.

3.3.1 The Health Sector in Malawi

There are two broad categories of health service provider in Malawi namely; the traditional and modern sectors. A large number of people use the two systems simultaneously or consecutively, and they compliment each other (Franco et al 1995).

There are two main categories of traditional providers: traditional healers dealing with diseases/spirits, and traditional birth attendants (TBAs). TBAs have more established links with the modern health sector, having been trained to support primary health care since 1992. Only 0.5% of women receive antenatal care from a TBA but around 18% are delivered by one (MOHP 1996). TBAs are in most cases also traditional healers. The traditional healers are scattered all over the country. Their exact number is not yet known. However, in 1995, it was estimated that they were 18,000 traditional healers effectively used by the people.

Within the modern health sector, there are three main categories of health service providers namely; the public sector, non-profit private sector and the private-for-profit sector. The MOHP is the largest provider of public health services which are currently provided free of charge apart from maternity care at central

hospitals. The Ministry of Local Government, through District and Urban Councils, provides different types of health services, both static (mainly rural) and mobile (urban). Quality is generally low and services often under-utilized (MOHP 1995). User fee are levied for curative, antenatal and intranatal care. Government agencies such as ministries of Agriculture, Education also provide health services and there are services for specific target groups such as the armed forces and police.

The non-profit private sector comprises of the mission sector and other volunteer agencies, grouped under the Christian Health Association of Malawi (CHAM),which provide a large proportion of services at variable charges. Firms (estates, large companies, and parastatals) also provide health services to their employees and people in their catchment areas in particular estates. There are also international and national NGOs which support scattered small scale community- based vertical health projects, but rarely provide facility-based services. Most integrate their activities with, or implement them through, the existing health system.

The private-for-profit sector is currently small, but slowly growing with the number of doctors and paramedics retiring or leaving the public health sector. Provision of this health care is mostly urban based and it is provided through private clinics, pharmacies and groceries/shops.

3.3.2 The Organization of the Health Sector in Malawi

As can be seen from the above, there are many providers of health services in Malawi. The Ministry of Health recognizes that many agencies have a role to play in the financing and delivery of health care services. However, differences in philosophy and interest should not be allowed to detract from national government policy objectives. The MOHP therefore, is primarily responsible for health policy, strategy and programme formulation. As such, it is mandated to insist that all providers follow national policies, and standards of quality.

The MOHP is mandated to regulate the small, but growing private sector, through the Medical Practitioners and Dentists Act of 1987 and the professional councils. Conditions for registration and licensing of practice premises are regulated by the Medical Council of Malawi, which is statutory body and receives subventions from government. The Nurses and midwives Council similarly regulates private midwifery. Permission has to be obtained from the MOHP before construction of a health facility. Sale of drugs is regulated by the Pharmacy Medicines and Poisonous Board. However, beyond this , the MOHP does not have any direct control over the facilities and services of other organizations.

The Ministry of Health has three regional offices and 24 (the twenty fifth district has just been created) District Health Offices. The Regional and District Health Offices are responsible for the dissemination of national policies, overall coordination of health services and programmes, and provision of public services at district level. The current health service delivery system is district-based and is in line with local government administrative boundaries.

The District Health Office is based at the MOHP District Hospital, and directly administers and supervises both hospital and peripheral government facilities. Although the District Health Management Team (DHMT) has the mandate to supervise all health facilities and services within the District, the full extent of authority is unclear, and at the moment it has direct control over MOHP units only. Currently, mission hospitals supervise only their peripheral clinics. The District Health Management Team also has the responsibility for supervising preventive and promotive activities throughout the District, and for ensuring that all providers adhere to national policies.

The provision of health services in Malawi is at three main levels including: the primary care level (community, health centre and dispensary, and rural hospitals); the secondary care level (District and some Mission hospitals) and the tertiary care and one specialized care level (3 central and 1 mental hospital). The services provided and staff cadres intended to be present at each level of care are summarized in Appendix 1 and 2.

3.3.3 Access to Health Facilities

Malawi has a good network of health facilities belonging to different ministries and agencies. About 85% of the population live within 10 km of health facility (Malawi Government and UNICEF 1992, Malawi Government 1996). The facilities range from small dispensaries on estates to large hospitals in cities. Between these agencies, there were 867 health facilities in the country in 1995, over 50% of them being health centres (dispensary/maternity) (see Table 3.5 below).

Table 3.5 Distribution of Health facilities in Malawi , by Ownership, 1995

	MOHP	Local Govt.	Other Govt.	Mission	Firms	Private*	Total
Central hospitals	3	0	0	0	0	0	3
General hospitals	0	0	0	21	0	0	21
District hospitals	21	0	0	0	0	0	21
Mental hospitals	1	0	0	0	0	0	1
Rural hospitals	24	1		23	7	0	55
Other hospitals	0	0	0	0	0	3	3
Dispensary /maternity	251	63	55	116	119	97	701
Health posts	46	2	9	5	0	0	62
Total	346	66	64	165	126	100	867
percentage share (%)	39.9	7.6	7.4	19.1	14.5	11.5	100

Note: * means private-for-profit
Source: Adapted from MOHP Health Information System Data Base and Manpower Development Unit Survey (1996, 1997)

As can be seen from the table above, the MOHP has the largest number of facilities (39.9% of the total health facilities in Malawi), followed by the mission sector (19.1% of the total). Firms are the third largest providers with 14.5% of the total health facilities while the private-for-profit is the forth largest provider of health services with 11.5% of the total health facilities. Last but one is the Ministry of Local Government with 7.6% of the health facilities in Malawi and finally, other government agencies.

3.4 SUMMARY

From this section, it could be said that the challenge facing the Malawi Government is substantial. It has been seen that Malawi faces major problems, which ever indicator is used, be it economic, demographic or epidemiological. Given this scenario it is questionable whether the improvements in the health sector alone could improve the health status of the majority of Malawians. Health care is just one of the determinants of health. Health is influenced by several factors, such as income levels and its distribution, adequate sanitation, nutrition, accessibility to safe drinking water, housing conditions, education (in particular that of women) and life style (Wagstaff 1986). However, as has been shown, all the factors mentioned here are all in short supply and underdeveloped in Malawi.

This section has also shown that there is good organizational structure of health service delivery, even though the lower levels have no decision-making powers. In addition to this, there is a good supply of health services even though as we shall later see, there is inequity in terms of geographical resources and affordable access.

SECTION 4: THE STUDY AND METHODOLOGY

4.1 INTRODUCTION

This section documents the methodology used in this study. Subsection 4.2 presents data collection methods, types of data collected, and analysis performed on the data while sub-section 4.3 documents the limitations of this study and 4.4 summarizes this section.

As pointed out earlier on, there is currently an incomplete picture of the resources available in the Malawian health sector, their sources and how much is provided by each source and on what it is spent. This study is an attempt to use a NHA methodology in the hope that it will give a comprehensive picture of the health care resources available in Malawi, their sources and patterns of its distribution in the 1995/96 financial year.

4.2 METHODS OF DATA COLLECTION

4.3.1 A case study

A case study of three districts (Thyolo, Mulanje and Chiradzulu district hospitals which could be classified as follows; Chiradzulu: 'very busy', Thyolo 'busy' and Mulanje: 'less busy'), two central hospitals (Lilongwe -'busy' and Queen Elizabeth 'very busy'), and one MOHP and one mission sector health centre was undertaken. The classification of the hospitals was based on the size of the hospital relative to number of staff and utilization patterns for 1995.

The main aim of the case study on three district hospitals was to provide information on hospital service indicators in Malawi such as average length of stay (ALOS), bed occupancy rates, bed turnover rates, inpatient days and unit costs of inputs into the district hospitals and central hospitals and expenditure between curative and preventive health services.

In order to come up with unit costs (total cost of providing a service divided by the total output), costs of various inputs had to be first calculated (as the number of inpatient and out patients which are used as a measure of output in this study were readily available). The following cost centres were identified: transport, laundry, kitchen, domestic supplies, pharmacy, laboratory, x-ray, theatre, male wards, female

wards, paediatric wards, TB wards; out-patient department, maternal and child health department, environmental health department, maintenance and administration and general.
The methodology for allocating costs to cost centres was that of allocating direct costs to their cost centres directly. The allocations were as follows: fuel and lubricants to the transport cost centre, food to kitchen cost centre, domestic supplies to the domestic supplies cost centre, maintenance of buildings to the maintenance cost centre, drugs and medical supplies to the pharmacy cost centre and postage, printing, telephone and fax, maintenance of office equipment to the administration cost centre.

Costs which did not fall directly under the identified cost centres were apportioned as follows: personnel emoluments were apportioned according to the distribution of staff time by cost centre. Water expenses were distributed as follows: 60% (following from discussions with Hospital Management Teams) to kitchen and laundry cost centres and the remaining 40% was shared among all departments and wards. The kitchen cost centre had a 50% (based on discussions with Hospital Management Team) share of heating and lighting and the remaining 50% was distributed in proportion to the likely energy use of the cost centre. The distribution of the subsistence allowance was 35% (based on discussions with Hospital and peripheral units management teams) to administration and 65% to peripheral units.

The capital cost, of the hospital were allocated to cost centres in proportion to the floor area occupied by each cost centre. The same procedure was also applied when calculating the cost of a peripheral health unit. Finally, vehicles were allocated to the transport cost centre.

4.2.2 National financing and expenditure survey

4.2.2.1 Type of Information collected

The information collected will be presented according to the public and private health sector. In the public health sector, information on financing and expenditure patterns, personnel, number of facilities, outpatient visits, functional delivery areas, details of referral was collected primarily for the financial year 1995/96. Trend in financing and expenditure data was also collected. In the private sector, similar information was collected apart from details of referral, functional delivery areas and trends in financing and expenditure.

4.2.2.2 Sources of information

The major sources of information for this study include: a review of financial records, questionnaire surveys, interviews with key informants and analysis/estimation procedures. Other sources where international publications such as the World Development Report (1993), Word Bank's Better Health in Africa (1994). The data sources will be presented according to each sector.

Public sector estimates

1. Ministry of Health and Population

i) Data on number of health facilities and their distribution was obtained from the Ministry of Health Information System Data Base (HIS) developed by the Community Health Sciences Unit (CHSU), and data on personnel was derived from the Manpower Development Unit Survey (1996, 1997).

ii) Data on expenditure trends by the Ministry of Health and Population was obtained from Headquarters (the Ministry of Health and Population has developed a Financial and Management Information System which produces print-outs on the previous month's actual expenditure). This data included all cost centres (MOHP headquarters, 3 Regional Offices, 3 central hospitals, 21 district hospitals and 3 district health services (Blantyre, Zomba and Lilongwe where there are central hospitals, but no district hospitals and this is for all peripheral facilities), 24 rural hospitals, 1 mental hospital, and 2 training institutions).These data were already presented by input category for each cost centre (what was required was additions).

The division of recurrent expenditure between district and peripheral facilities was 70% district hospital and 30% peripheral facilities. This division was based on two previous studies (Mills et al 1991, Mwambaghi et al 1995). The divisions between curative and preventive was based on this study which found that 10.1% of the total recurrent expenditure at the district hospital is spent on preventive health care services. It also found that at an MOHP health centre, about 6.1% of recurrent expenditure is devoted to the preventive health care. Actual total finances disbursed to MOHP were obtained from the Accountant General's Department.

iii) Data were also obtained directly from the district hospital, and 1 sampled peripheral MOHP and 1 mission health centre in the three sampled districts (Thyolo, Mulanje and Chiradzulu) and the two central hospitals (Lilongwe and Queen Elizabeth).

iv) Another crucial source of data was a case study done by Mwambaghi et al (1995), using data for the financial years 1992/93 and 1993/94, which investigated the recurrent cost of district health services i.e. division between hospital and peripheral health units of MOHP and mission health facilities in Lilongwe district.

2. Local Government

Expenditure information by Local Government was obtained from the Ministry of Local Government Headquarters actual expenditure print-outs and the District Council Offices ledgers. The Ministry of Local Government headquarters actual expenditure print-outs provided data on salaries of their health workers while the district council ledgers provided data on consumables and other related expenditures such as allowances.

3. Other Government agencies

Expenditure by Other Government agencies was estimated from the actual expenditure print-outs for the Ministries of Agriculture and Education. However, for those of the armed forces and police, data on expenditures on all inputs into their health facilities had to be obtained from their ledgers. They make weekly orders of consumable supplies and drugs. A price list of drugs and medical supplies was obtained from Government Central Medical Stores where most of these drugs are bought.

The quantities were then multiplied by the prices, hence an estimated expenditure was arrived at. In order to calculate expenditure on personnel emoluments, a list of all in-post health workers in 1995/96 was obtained from the Police and Army headquarters together with their salaries.

4. Donor funding estimates

In theory, the health sector in Malawi obtains huge amounts of resources from donors per annum, however, these finances are in practical terms held up in their offices. A review of MOHP actual expenditure print-outs in this study, showed that a small proportion of the donor funds were actually spent on health services in 1995/96 financial year, despite the huge amounts appearing in budget books.

In order to arrive at the estimated figure, the following steps were taken at the MOHP headquarters: Actual expenditure print-outs were analyzed for the financial year 1995/96 and it was found that only MK77.6 million was spent on development projects of the ministry. Out of this expenditure almost 75% was under the expenditure category of the World Bank which is not a donor but a lender.

For all other major donors such as World Health Organization, World Food Programme, UNICEF, European Union which do not appear in the budget books of the MOHP, a questionnaire was sent explaining the purpose of the study. This was followed by personal visits. There were serious problems in retrieving data as most of the donors had only budget figures for the project/programme life say: 1991-1998 or 1992- 1996 and it was almost impossible to separate these expenditures on an annual basis.

It was therefore decided that they should list all their activities and organizations implementing them. For the MOHP this included; malaria control, schistosomiasis control, tuberculosis control, ARI, trypanosomiasis control, mental health and safe motherhood programmes. The programmes were divided by the researcher into two categories: major and minor programmes.

The division was based on areas of coverage and number of funding agents. For example, malaria and tuberculosis control are major programmes in terms of areas of coverage and funding agents, while trypanosomiasis control and safe motherhood are small programmes with regard to the above criteria of division. An average expenditure for the available data was calculated for each category. This figure was then multiplied by the number of programmes in each category to arrive at the sub-totals. The final estimate was found by adding the sub-totals (i.e. major and minor programmes estimated totals).

It should be mentioned that this is likely to be an under-estimate as the retrieved data were of poor quality and the assumptions used in the categorization process left some important information like the number of field trips per month made by Programme Managers (they were reluctant to provide this information). The data for nation-wide AIDS expenditures, however, was obtained from an AIDS study commissioned by the MOHP in 1997.

Private Sector Estimates

1. Mission sector

i)Expenditure by the mission sector were obtained from the Christian Health Association of Malawi (CHAM) secretariat's Financial and Management Information System through personal visits by the researcher. In addition, estimates were obtained from a survey of mission facilities in 1997 using data for the financial years 1994/95 and 1995/96. A questionnaire was sent to all mission health facilities by the secretariat to provide information of their financing sources and expenditure patterns. It should be mentioned that this survey was not specifically conducted for this study. These data could be said to comprehensive, since there was a 94% response rate.

The remaining health facilities were divided according to their size and were assumed to have expenditure and financing sources similar to the ones where information was available. A median expenditure was picked which was then multiplied by the number of facilities in each category of the remaining facilities. The sub-totals were then added accordingly to the already calculated totals were data was available.

ii) Additional data on the cost of peripheral mission health centres were obtained from a study conducted by Mwambaghi et al (1995) using data for 1994/95 and adjusted for inflation to arrive at 1995/96 estimates.

iii) Estimates of donor funding to the mission facilities was also obtained from the mission facility survey of (1997) using data of the financial years 1994/95 and 1995/96. Since the questionnaire mentioned above had columns for sources of revenue, it was possible to retrieve donor contributions .

2. Private practitioners

Data for this sub-sector were obtained through personal visits to the Medical Council of Malawi. This is the body which is responsible for registering private practitioners. The number of private practitioners was obtained from the general office. The private practitioners were purposely selected due to the limited amount of time and resources available for this study. Thereafter, interviews were held as follows: two private doctors and one clinical officer in the city of Lilongwe; one doctor and one medical assistant in the city of Blantyre and a clinical officer and a medical assistant in Thyolo district. The aim of the interviews was to gain an impression of how they operate in order deduce their incomes and

expenditures incurred in the delivery of health services (otherwise direct questions on incomes were not correctly answered).

Following from the interviews, charges for consultation for the financial year 1995/96, a list of monthly drugs and other consumables prescribed to various patients for various categories of diagnosis, and the number of patients seen per day (obtained from the patient register) were provided. Mention should be made that this was possible because of a request for co-operation by the MOHP management).

The number of consultations per private practitioner were then multiplied by the amount of fees per consultation. This was then extrapolated for other private practitioners according to cadre. With the drugs and medical supplies, an average price charged by private pharmacies was calculated (they buy their drugs and pharmaceuticals from private pharmacies not Government Central Medical Stores). This was then multiplied by the quantities of drugs and pharmaceuticals dispersed in that year for each private practitioner interviewed. This was then extrapolated for the remaining private practitioners, according to their cadres. This figure was finally added to the figure obtained for the consultation fees.

This information had to be validated by a nation-wide study done by Franco et al (1995), which used a four week recall period to estimate the expenditures on various providers of health care. The results were, however, a bit different in the sense that those in this study were higher than those in the study by Franco et al, (1995). However, a 't-test' at 5% significance level found that the difference in estimates was not significant.

3. Insurance and industry (firms)

Information on this sub-sector was obtained from the Medical Aid Society of Malawi (MASM) head office through personal visits by the researcher. This is where companies subscribe on behalf of their employees. At MASM head office in Blantyre, the following information was collected: the size of membership in 1995/96, the amount of contributions, amount of money claimed by various providers, administration costs including salaries for staff, number of claims, number of staff and investment income.

Much of this information was obtained from the General Manager's seminar paper which was presented on 31/07/97 at Mount Soche Hotel in the city of Blantyre. This seminar was aimed at advertising MASM

to the general public and employers who have not yet prioritized health care benefits for their employees. A trend from 1993/94 to 1996/97 of MASM operations is given in Appendix 3.

The information on expenditure by firms (estates, parastatals and private companies) on the health services of their employees was obtained from a sample of three health facilities following personal visits by the researcher and two research assistants. The sampled health facilities were as follows: one estate health facility in Thyolo, one parastatal health facility in Blantyre and one private company health facility in Lilongwe. It should be noted that these facilities were purposely selected due to a lack of time and resources for this study.

Data on expenditure on consumables including the quantities of drugs and medical supplies were obtained from their ledgers. The data on drugs and medical supplies were, however, multiplied by the average price charged by private pharmacies in the 1995/96 financial year. Data on personnel emoluments were also obtained from the salary sheets in the accounts sections. The expenditure total was calculated for each health facility and were later extrapolated for the remaining health facilities by category (estate, parastatal and private company).

4. Non-Governmental Organizations

Following from a meeting with the World Bank and UNDP (UNDP is the head of the donor community) and Council for Non-Governmental Organizations (CONGOMA), a list of both national and international NGOs which were involved in the health sector in 1995/96 was compiled (21 of them). Personal visits by the researcher and one research assistant to three international and three national NGOs operating in Thyolo, Lilongwe and Chiradzulu (these NGOs are involved in implementing vertical primary health care programmes) and their headquarters were made. Due to limited time and funds, the NGOs were purposely selected. However, they were divided into two categories, namely international and national NGOs.

It was found that the selected NGOs did not keep records for the whole year (either destroyed or totally unavailable), hence the available information for five months were used to extrapolate for the remaining seven months of the 1995/96 financial year. The average expenditure was then calculated for the selected NGOs according to each category. The obtained figures were then multiplied by the number of NGOs in each category to arrive at the sub-totals.

The estimated total was found by adding the sub-totals in each category (i.e. national and international NGOs). It should be noted also, that this is a weak assumption. These NGOs are different in size, coverage, funding levels and information on actual personnel emoluments was not collected (they were reluctant to provide even an insight into their internal administrative system). Thus, the estimated figure, is likely to be an underestimate.

5. Direct household expenditures

Information on direct-out-of pocket expenditures were obtained from the results of a nation-wide study conducted by Franco et al in (1995). The main aim of this study was to evaluate the feasibility of community financing schemes and estimate the levels of expenditure on various health services vis-à-vis the disposable incomes of the users of health care.

In order to achieve this objective, this study used several data collection methods: household surveys, exit interviews with patients at various providers, focus group discussions in communities and document review. In a household survey a nation- wide cross-sectional sample survey was conducted so as to provide the following information: current household health care expenditures, including those paid on their behalf by MASM, and utilization of various types of health care services.

Questionnaires were addressed to the head of household or responsible adult member present. A cluster sampling methodology was used to draw 30 urban and 30 rural clusters of 20 households each and a four week recall period was used to solicit the above information from the respondents.

In the case of exit-interviews, a nation-wide survey of out-patients at various providers was also conducted to determine the average monetary and non-monetary expenditures at health facilities offering free care, compared to paying facilities. Patient's perception of quality of care was also evaluated.

Data from the household survey and exit interviews were then entered into the computer in EPI INFO, and analysis was conducted using EPI INFO and SPSS/PC (the basic idea behind the this analysis was extrapolation for the remaining 48 weeks in the financial year 1995/96).

Another crucial source of information for direct payment was the National Sample Survey of Agriculture (NSSA) (1997) using two sets of data: 1994/95 and 1995/96. This study aimed at documenting all household expenditures in Malawi including expenditures on health. The only information which was

obtained from this study was that on traditional healers. It was noted that the study by Franco et al (1995) had underestimated the expenditures on traditional healers. This was due to the fact that this study had a lower estimate of the total number of traditional healers in Malawi while the NSSA of 1997 had almost the exact number of traditional healers by district. It had also estimated expenditure on traditional healers by district.

In order to avoid double counting, expenditures figures obtained from the study by Franco et al (1995) which were estimated to have been paid by MASM on behalf of households were removed from the total. The figures obtained from MASM in this study (paid by MASM on behalf of households) were then added to the estimated household expenditure figures by Franco et al (1995). Expenditure on private practitioners was taken from the this study.

The results of the study by Franco et al (1995) were used as a measure of validity and reliability and were not used (since they were not significantly different from this study). The expenditure on traditional healers in the study by Franco et al (1995) was removed from the total estimated household expenditure in that study. The estimated figures using the NSSA of 1997 were then added to the estimated household expenditure in the study by Franco et al (1995).

Other Data

Recent population estimates were obtained from the National Statistical Office (NSO) Data Base and this information assisted in the analysis of the distribution of health care resources relative to the population served in each region, and urban and rural areas. Data on the Consumer Price Index (CPI) was obtained from the Ministry of Finance together with that of Gross Domestic Product (GDP). Socio-demographic and epidemiological data were obtained from the MDHS (1992), Malawi Government (1996) and the HIS.

In the sampled three district hospitals and one MOHP and one mission sector health centre and the two central hospitals, informal exit-interviews with 10 randomly chosen patients were held. The aim was to assess the perceptions of patients regarding the quality of care. Documents published by the Malawi Essential Drug Programme (MEDP) were also reviewed so as to compare them with patients' tickets and interviewees' responses. These documents were the Malawi Standard Drug List, Standard Treatment Guidelines and the Malawi Prescriber's Companion.

4.2.2.2 Data Analysis

After collecting these data, the following analyses were performed.

Financial data

These data were grouped according to the financing source and sector. Five original sources of finance were identified and included: Ministry of Finance, Ministry of Local Government (obtains its own funds from utility sales, ticket sales and ground rents which do not go to the Ministry of Finance), donors, employers and households. NHA methodology was then used to build matrices of "sources and uses". In order to avoid double counting only expenditures by the original sources were recorded . The progression of the matrices were as follows:

- a matrix of the flow of funds from original sources to financing agents was first constructed. The financing agents were MOHP, Ministry of Local Government, other government agencies, Medical Aid Society of Malawi (MASM), firms (estates, private companies and parastatals), and households.

- a matrix of flow of funds from financing agents to providers was later constructed. Financing agents were as presented above, while the providers include: MOHP (central and district hospitals, health centres, dispensaries and maternity units, mental hospital), Ministry of Local Government, other government agencies, the mission sector, NGOs, firms, private practitioners, shops/pharmacies and traditional healers.

Expenditure data

These data were split as follows;

i) specific uses by the provider i.e. input category

ii) geographic area -region for public health sector

iii) per capita expenditure for total health care expenditure and public health sector expenditure

Health personnel and health facilities data

These data were separated according to

i) type of provider (MOHP, Local Government, other government agencies, mission and private-for-profit)

ii) geographic area (region, urban/rural)

Other Data

Data on population was divided into regions and between urban and rural (the divisions were already done by the National Statistical Office). The data on social indicators was also divided between regions and urban and rural areas.

4.3 Limitations of the data

Health Expenditure Reviews involve substantial amounts of resources (manpower, financial and time). The first major problem in this study was limited time and inadequate funds. The data collection period was only six weeks and only US 5,000 was made available for the whole study. This affected the quality and quantity of data collected. Given more time and funds, more accurate figures could be obtained, especially on the financing patterns. Efficiency issues raised in this study could also be evaluated in more detail.

The problems which then followed were as follows:

i) Limited data for constructing complete matrices of sources and uses.

The only data which were almost complete were that of the MOHP, MASM, mission and households. However, these data also had to be cross-checked for their reliability and validity with their original sources and this consumed more resources (both time and money). For example, MOHP data had to be cross-checked with the Accountant General's records for its reliability. The Ministry of Finance funds all public services in Malawi on a monthly basis (cash budget system based on previous month's revenue collection, Malawi Government (1994)) hence, if MOHP's total expenditure were more than the revenue from Ministry of Finance, this would be questioned and further investigation could have followed.

ii) Problems in estimating expenditures.

Most of the organizations had incomplete data. In some cases data for only five months was available (the rest either destroyed or in poor state). Any further enquiries were met with anger and in most cases resulted in research staff coming back empty handed and having to book another appointment with a different person. For example, Programme Managers in MOHP, Local Government district offices and NGOs were very reluctant to release information.

The most difficult funding estimates to obtain were those for NGOs. The Council for Non-Governmental Organizations does not know the exact number of NGOs currently operating in the country. Exacerbating

the situation, is the MOHP's lack of knowledge of the operations of these NGOs despite being charged with responsibility of coordinating services and the formulation of policy in the Malawian health sector. The data presented in this study (NGOs, Local Government, donor funding) are more likely to be an underestimate and further investigation following much of the procedures outlined in this study could lead to more accurate and higher totals than the ones presented here.

iii) Problem of evaluating equity in the financing and the delivery of health service on socio-economic basis.

These issues are very important to Malawi. As previously noted, Malawi is considering the introduction of user fees, social health insurance and community financing schemes, and at the same time, Malawi has a gini coefficient of 0.62. Thus, the financing and the delivery of health services in Malawi could be adversely affected if these issues are not carefully evaluated. It is unfortunate that this study could not evaluate the equity implications of alternative financing mechanisms due to limited data, time and financial resources. This requires immediate further investigation.

iv) Problem of developing a practical framework for evaluating efficiency.

It has been difficult to develop a practical framework for evaluating efficiency in this study due to limited data as well as limited time and resources. The issues raised in this study just provide insights into the extent of inefficiency that could be found in Malawian public health sector. This requires further investigation. Given time and resources, production and cost functions could be specified and estimated. These could identify potential areas of efficiency improvements in the Malawian health sector. The interaction of various hospital service indicators vis-à-vis unit costs could also be possible.

4.4 SUMMARY

It should be mentioned that much of the data for this study were collected from primary sources rather than secondary sources (i.e. routinely published reports and budget books). This could be said to be one of the major differences with the earlier studies mentioned above which were either solely dependent on published reports or did not collect comprehensive health sector data.

SECTION 5: HEALTH CARE EXPENDITURE IN MALAWI

5.1 INTRODUCTION

This section examines the health care expenditure in Malawi for the financial year 1995/96. Comparisons of health care expenditure with several countries with similar levels of economic growth, in particular Sub-Saharan African countries will be made. Malawi is classified as a low income country characterized by poverty, hence to compare it with high income countries would be naïve, since the disparities are just too ernomous (different socio-economic set up, different morbidity and mortality patterns, different political systems, and many more). Reference will, however, be made to medium income countries, since this will be the next stage of Malawi's economic development.

5.2 TOTAL HEALTH CARE EXPENDITURE IN MALAWI

In the 1995/96 financial year, Malawi's total health care expenditure was approximately MK885.8 million or US $59.1 million. With an estimated population of 10.5 million , the per capita expenditure was therefore MK84.4 or US $ 5.6. Faced with this situation, Malawi then becomes one of those countries with the lowest levels of health care expenditure in developing countries and Sub-Sahara Africa in particular. Table 5.1 below, shows health expenditure as a percentage of GNP between Malawi and other Sub-Saharan African countries. Malawi's total health care expenditure in 1995/96 is less than what other countries spent 5 years ago.

Table 5.1 Data on Health Expenditure as a percentage of GNP in Malawi compared to other Sub- Saharan African countries.

Country	GNP/capita US $*	Health expenditure as a percentage of GNP** (%)
Malawi	170	3.3
Mozambique	80	7.5
Tanzania	120	4.8
Zambia	400	3.5
Zimbabwe	540	7.8

Note: *Data on GNP per capita refer to 1995

**Data on health expenditure as percentage of GNP refers to 1995/96 (as calculated by Mwase in this study) for Malawi and 1990 for other countries

Sources: World Development Report 1997, World Bank's Better Health in Africa, 1994

Despite such low levels of total health care expenditure as a percentage of GNP, Malawi's public health care expenditures as a percentage of total government expenditure is higher than that of other Sub-Saharan African countries. However, it is surprising to find that her social indicators are very poor when compared to its counter-parts (see Table 5.2 for comparisons).

Table 5.2 Data on Public Health care Expenditure and Health Indicators in Malawi as compared to some selected Sub-Saharan African countries.

Sub-Saharan Countries	Government health care expenditure as a percentage of total government expenditure, 1990 (%)	Crude Death Rate	Infant mortality rate (per 1,000)	Under-five mortality (per 1,000)	Life Expectancy at birth 1989 (years)
Malawi	6.4	21	147.70	238.00	47.4
Mozambique	4.9	19	137.50	197.10	48.8
Uganda	3.0	19	99.30	153.10	48.6
Zambia	6.2	16	106	190	47.0
Botswana	5.0	7	36	48	68.0

Source: UNDP and World Bank 1992 and World Bank's Better Health in Africa, 1994

From the table above, it is clear that total public health expenditure in Malawi was higher than its counterparts. The social indicators, however, are the worst. Mozambique and Uganda have been deliberately chosen so as to show the extent of Malawi's poor health indicators; despite the fact that both Mozambique and Uganda had been through protracted periods of civil war during much of the period under comparison.

Reasons could, however, be put forward to explain this pathetic situation. This could either be a result of mismatch between the government's stated priority to primary health care and outreach services to the village level which could benefit a greater percentage of the population and the government's plans and expenditure priorities which as we shall see later in this paper remain central and district hospital oriented. Another reason, as we shall see in the following sections, could be the weak link between annually budgeted activities and policy. Evaluation of health care delivery remains that of linking inputs with outputs like construction of hospitals, health centres and trained manpower rather than improved health indicators (World Bank 1996). In addition, this could be a result of poor indicators in other sectors of the economy. As previously noted, all indicators in Malawi are poor and the health of an individual is a function of several variables (education, water and sanitation, income, housing conditions) and health is just one of them (Wagstaff 1986).

5.3 TOTAL HEALTH CARE EXPENDITURE BY SOURCE AND FINANCING AGENT

Total health care financing by source for the financial year 1995/96 is presented below. It should, however, be noted this table presents only the original sources of finance in the Malawian health sector and the flow of these funds to the financing agents.

Table 5.3 Financing flows, Malawi 1995/96: Sources to Financing agents (MK millions)

	Sources					
Financing agent	MOF*	MOLG**	Donors	Employe[illegible]	**Household**	[illegible]
MOF*	36.0 (4.1)					36.0 (4.1)
MOHP	356.6 (40.3)		103.1 (11.6)#			459.7 (51.9)
MOLG	3.8 (0.4)	2.0 (0.2)				5.8 (0.6)
Other Ministries	19.4 (2.2)					19.4 (2.2)
Donor			87.7 (9.9)			87.7 (9.9)
MASM				27.9 (3.2)	3.1 (0.3)	31.0 (3.5)
Firms* **				69.1(7.8)		69.1 (7.8.)
Household					177.1 (20.0)	177.1 (20.0)
[illegible]	[illegible]	2.0 [illegible]	190.8 (21.5)	97.0 [illegible]	[illegible] (20.3)	[illegible] (100)

Note: parentheses indicate percentages of the total
* Ministry of Finance general tax revenue
** Ministry of Local Government utility taxes
*** includes private companies, estates and parastatals
# includes expenditure on development projects and special programs, however, 75% is contributed by the World Bank, under the Population, Health and Nutrition Project in a form of loan.
Source: Ministries of Health and Population, Agriculture and Education actual expenditure print-outs, ledgers of armed forces and police, Mwambaghi et al (1995), Franco et al (1995), Mission Expenditure Survey (1997) and Malawi Government (1997).

From Table 5.3 above, it can be clearly seen that 47% of the total health care finances in the 1995/96 financial year were from the Ministry of Finance i.e. general tax revenue, followed by donors (21.5% of the total). Households were the third largest source of finance (20.3 % of the total) followed by employers (11% of the total), and lastly Ministry of Local Government which contributed 0.2% of the total from its local taxes (this money does not go to the Ministry of Finance). This shows that the health services in Malawi are heavily dependent on public resources, hence any changes to this source will greatly affect the health sector in Malawi.

In order to appreciate/clearly understand the sequence of flow of funds in the Malawian health sector, it is deemed necessary that we now construct a national health accounting matrix of flow of funds from financing agents to providers for the 1995/96 financial year (see Table 5.4 below).

Table 5.4 National Health Accounting Matrix Malawi, Financing agent to Providers (MK millions), 1995/96

	Financing agent								
Provider	MOF	MOHP	MOLG	Other Govt	Donor	MASM	Firm	House hold	Total
MOHP		150.8*							150.8
Central hospitals		67.9							67.9
District hospitals		164.2							164.2
Mental hospital		6.5							6.5
Health centres		70.3							70.3
MOLG			5.8**						5.8
Other Govt.				19.4					19.4
Mission	36.0				40.9	9.3		47.7	133.9
NGOs					46.8				46.8
Firms* **							69.1		69.1
Private practitioners						21.7		53.7	75.4
Shops/pharmacies								61.3	61.3
Traditional healers								14.4	14.4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Note: * expenditure on other cost centres such as Regional Health Offices, Training Institutions, Community Health Sciences Unit, MOHP headquarters administration and donor funding for various vertical programmes.
** includes a government grant of MK3.8 million from the Ministry of Finance for payment of salaries.
*** expenditure incurred in provision of health services to their employees and population within their catchment areas (estates) in their health facilities.
Source: Calculated from ministries of Health and Population, Agriculture, Education, Local Government actual expenditure print-outs and ledgers of armed forces and police, Franco et al, (1995) Mwambaghi et al (1995), and Malawi Government (1997).

The above table could be summarized as below, so as to see clearly the public/private mix of expenditure and finance.

Table 5.5 National Health Accounting Matrix, Malawi, Summary of flow of funds from financing agents to providers, 1995/96 (MK millions).

	Financing agent			
Provider	**Public***	**Private*****	**Donor**	**Total**
Public**	381.8 (43.1)	0#	103.1 (11.6)	484.9 (54.7)
Private****	36.0 (4.1)	277.2 (31.3)	87.7 (9.9)	400.9 (45.3)
Total	417.8 (47.2)	277.2 (31.3)	190.8 (21.5)	885.8 (100)

Note parentheses are percentages of the total
* Ministry of Finance and Ministry of Local Government
** includes Ministries of Health and Population, Local Government, Education, Agriculture, armed forces and police.
*** includes households, MASM and employers.
**** includes mission, firms, private- for- profit, Non- Governmental Organizations, traditional healers; and shops and pharmacies.
# all user fees from central hospitals were sent to the Ministry of Finance and were included in the general tax revenue. Thus difficult to estimate how much MOHP's finances were due to user fees.
Source: Mwase 1997
Basic Source: Ministries of Health and Population, Local Government, Education, Agriculture actual expenditure print-outs, armed forces and police ledgers, Franco et al (1995) Mwambaghi et al (1995), Mission sector survey, NSSA (1997).

From the table above, it can be seen that the public sector were the biggest financier of health services in Malawi in the 1995/96 financial year (47.2% of the total health care expenditure) followed by private sources (33.3% of the total) and donors coming last (21.5% of the total).

5.4 THE PUBLIC HEALTH SECTOR

5.4.1 Introduction

In this sub-section the public health sector is examined. An analysis of the sources of finance for the public sector will be presented; and the trends in actual expenditure by public health services. An examination of the distribution of public health resources by type of service, input category, level of care, type of service and geographic distribution of resources in Malawi will also be undertaken.

5.4.2 Sources of finance for Public Health Services

In Malawi, the original sources from which public health services are funded have been clearly identified in section 3 and have mainly consisted of taxes on personal income and company profits, trade taxes and grants from donors. As noted from Table 5.3, the public health sector is largely funded from general tax

revenue. Donors contributed 21.3 % of the total public heath care expenditure. It is important to note however, that the largest contribution of donor funding in health sector is in a form of loan to the Malawi Government by the World Bank hence, interest and repayment of these loans will take substantial recurrent government revenue in the near future.

5.4.3 Distribution of Public Health Sector Resources

In the following sub-sections, information on the distribution of public health sector facilities, personnel and expenditure by level of care and by geographical area is presented.

5.4.3.1 Distribution of recurrent public health care expenditure by level of care

As noted in section 3, the organization of health care is mainly along three levels, namely primary, secondary and tertiary care. The current structures for primary level care include rural hospitals, health centres, dispensaries, maternity clinics, health posts and mobile outreach clinic services. Secondary and tertiary care services are provided by 21 public district (and 20 mission) hospitals and 3 central hospitals respectively. A detailed overview of the organization of health services in Malawi is given in Appendix 1.

Table 5.6 Distribution of public health care recurrent resources (excluding donor funding) by level of care, 1995/96

Levels of care*	Expenditure** (MK Millions)	Percentage share (%)
Tertiary	67.9	17.8 (14.0)
Secondary***	164.8	43.2 (34.1)
Primary****	94.9	24.9 (19.6)
Other*****	54.2	14.1 (32.5)
Total#	381.8	100

Note: parentheses are percentage shares of the total public resources including donor funding whose total is MK484.9 million
* Tertiary = central hospitals, Secondary = district hospitals, Primary = services in community, health posts, health centres, dispensaries, maternity and rural hospitals
** Calculations of expenditure on levels of care were based on two previous studies by Mills (1991) and Mwambaghi et al (1995) that found that 70% of total district expenditure in Malawi went to district hospitals.
*** an estimated expenditure of MK 0.6 million for 1 Local Government hospital was added to the MOHP expenditure on district hospitals in Table 5.4.
**** includes expenditure of MK19.4 million by other government agencies, MK5.2 million by Ministry of Local Government, and MK70.3 million by MOHP as presented in Table 5.4.
*****includes administration MOHP headquarters, Community Health Sciences Unit, Regional Health Offices, Zomba Mental Hospital, Training Institutions.
includes MK 356.6 million by MOHP, MK 5.8 million by Ministry of Local Government and MK 19.4 million of other government agencies.
Source: Mwase 1997.
Basic Source: Ministries of Health and Population, Local Government, Agriculture, and Education actual expenditure print-outs and ledgers of armed forces and police.

From the table above, it has been shown that the three central hospitals in Malawi consumed 17.8% of the total actual public health care expenditure excluding donor funding, while the 21 district hospitals had the largest share of 43.2% of the total (excluding donor funding). Primary health care which caters for the majority of the population consumed only 24.9% of the total actual public health care expenditure excluding donor funding. Eighty seven percent of Malawi's estimated population in 1995 was rural and primary health care facilities are the first level of contact with modern health care. Even though this is higher than that recommended by UNICEF of 20% of public health expenditure for primary care. As we shall later see, Malawi's disease diagnostic category is almost similar between levels of care i.e. malaria, ARI, diseases of the eye etc. and the health states of individuals reach a critical stage requiring secondary and tertiary care due to a lack of drugs and basic supplies at primary care level (Franco 1997). Thus, primary health care deserves much more resources than the situation presented above.

It could be argued that the actual expenditure on primary health care is higher than that presented above due to the existence of the district hospitals which also provide primary health care. However, this is not the case. District hospitals in Malawi are located at the district headquarters and provide primary health care to the urban population and at the same time act as a referral centre for the whole district. Only 30% of the district health care expenditure is devoted to MOHP peripheral health facilities other than that of the urban population which is served by the district hospital. The district hospital consumes 70% of the district expenditure (Mills 1991, Mwambaghi et al 1995).

Having looked at the distribution of public expenditure by levels of care, it is important to look at the distribution of these expenditures by type of service. There after the number of facilities and beds on which such financial resources were spent will be considered. Table 5.6 below shows the distribution of public health care expenditure by type of service (curative/preventive health care) and Table 5.7 summarizes facilities and beds in the public health sector for the year 1995/96.

Table 5.7 Distribution of public health care expenditure (excluding donor funding) by type of service*, 1995/96

	Curative (MK millions)	Preventive** (MK millions)
All Hospitals	216.2	16.5
Other health units	89.2	5.7
Total***	305.4	22.2
Percentage of total public health care expenditure (%)	80.0	5.8

Note:* Calculations of curative and preventive health services were as follows; 10.1% of secondary care level was allocated to preventive health services (based on Mwase, 1997 which found that on average about 10.1% of the hospital expenditure goes to preventive health care at secondary care level) and the expenditure on tertiary care was added to the remaining secondary care after the allocation of 10% to preventive care was taken away. The other health units: out of the total expenditure on primary care in Table 5.7, 6.1% was allocated to preventive health care (based on Mwase, 1997 that about 6.1% of the expenditure at a health centre goes to preventive health care).
** Donor contribution of MK25.5 million on vertical programmes not included.
** *The total is not equal to MK381.8 million because expenditures on other cost centres (MK 54.2 million) have not been included and these are; administration MOHP headquarters, Training Institutions, Community Health Sciences Unit and Regional Health Offices.
Source: Mwase 1997
Basic source: Ministries of Health & Population, Local Government, Agriculture and Education actual expenditure print-outs, armed forces and police ledgers, Malawi Government (1997), Mwambaghi et al (1995).

The public health sector in Malawi spent only 5.8% of its total health care expenditure (excluding donor funding) on preventive health services in 1995/96. About 80% of its expenditure was on curative health services and this could be one of the explanations behind the poor health indicators in Malawi.
It is now important to look at the distribution of public health facilities in Malawi by level of care. Table 5.8 gives a detailed distribution of health facilities in Malawi in 1995/96.

Table 5.8 Distribution of public health facilities by level of care, 1995/96

Level of care*	Number of facilities	Number of beds	Percentage share of beds (%)
Tertiary	3	2,095	24.1
Secondary	21	3,625	41.7
Primary	451	2,976	34.2
Total	475	8,696	100

Note. Tertiary = Central hospitals, Secondary = District hospital and Primary = services at the community, health post, health centre, dispensary, maternity and Rural hospital
Source: MOHP Health Information System Data base

Having looked at the distribution of health facilities in public health facilities, it is necessary that we look at how the personnel were distributed in 1995/96 by level of care. Table 5.9 below, shows the distribution of health care personnel between levels of care in Malawi.

Table 5.9 Distribution of public health care personnel by level of care, 1995/96

Level of care	Doctors*	Clinical Officer	Med. Asst.	Nurses **	Pharmacist***
Tertiary	94 (79.7)	117 (44.0)	161 (27.3)	1,118 (43.8)	53 (60.2)
Secondary	24 (20.3)	130 (48.9)	138 (23.4)	684 (26.8)	29 (33.0)
Primary	0 (0)	19 (7.1)	291 (49.3)	750 (29.4)	6 (6.8)
National	118 (100)	266 (100)	590 (100)	2,552 (100)	88 (100)

Note: parentheses are percentage shares of each cadre
Med. Asst.= Medical Assistant
* includes both general and specialist
** includes all cadres of nurses
*** includes pharmacy assistant, pharmacy technician and pharmacist
Source: Adapted from Manpower Development Unit survey (1996, 1997)

5.4.3.2 Distribution of public health sector recurrent expenditure by input category

Table 5.10 below, considers the distribution of expenditure between input categories. A trend in expenditure will be given.

Table 5.10 Distribution of public financial resources (excluding donor funding) by input category (MK millions), 1991/92- 1995/96

Uses	1991/92	1992/93	1993/94	1994/95	1995/96***
Personnel emoluments	19.7 (24.5)	38.1 (40.1)	39.1(38.3)	91.1(40.5)	148.6 (38.9)
Drugs and medical supplies	19.9 (24.8)	17.0 (17.9)	23.0 (22.5)	53.4 (23.7)	112.7 (29.5)
Transport	1.5 (1.9)	1.7 (1.8)	1.6 (1.5)	14.6 (6.5)	26.2 (6.9)
Food provision	5.3 (6.6)	6.1 (6.4)	6.2 (6.1)	10.6 (4.7)	8.9 (2.3)
Maintenance*	0.7 (0.9)	0.9 (0.9)	2.2 (2.3)	3.1 (1.4)	3.6 (0.9)
Training	2.6 (3.2)	3.0 (3.2)	7.9 (7.7)	11.3 (5.0)	12.2 (3.2)
Administration HQ	11.5 (14.3)	11.6 (12.2)	15.9 (15.6)	36.0 (16.0)	30.6 (8.0)
Other**	19.0 (48.3)	16.7 (17.5)	6.1 (6)	5.1 (2.2)	39.0 (10.2)
Total	80.2 (100)	95.1 (100)	102.0 (100)	225.2 (100)	381. 8 (100)

Note: parentheses are percentages of total actual expenditure in each year
* general maintenance i.e. plant and equipment, buildings and vehicles
** includes expenditures on consumables, subsistence allowance, etc.
*** includes MK 356.6 million expenditure by MOHP, MK5.8 million by Ministry of Local Government and MK19.4 million by other government agencies.
Source: Actual expenditure print-outs from ministries of Health & Population, Local Government, Agriculture and Education and Ledgers of armed forces and police.

The table above, reveals that apart from financial year 1991/92, the public sector in Malawi spends most of its finances on personnel emoluments and drugs and medical supplies, with largest share being taken up by personnel emoluments. The drug share is huge averaging 25% and yet hospitals in Malawi experience serious drug shortages (Forshall 1996). On average, only 2% the total public health care

expenditure is spent on general maintenance and yet most equipment have ceased functioning and vehicles have broken-down (MOHP 1995).

It must be mentioned, however, that much as there have been huge increases in personal emoluments between 1992/93 and 1995/95, civil servants salaries (including health workers) in Malawi are below the true market levels (Mills, 1991). This has resulted in a number of doctors and clinical officers joining the private-for- profit sector (EU 1995).

5.4.3.3 Distribution of public health resources by geographic area

The regional distribution of public health personnel in 1995/96 financial year is presented in Table 5.11 below.

Table 5.11 Distribution of public health personnel between regions, 1995/96

Level of care	Doctors	Clinical Officer	Med. Asst.	Nurses	Pharmacists
North	4 (3.4)	39 (14.7)	146 (24.7)	368 (14.4)	12 (13.6)
Centre	45 (38.1)	92 (34.6)	216 (36.7)	794 (31.1)	32 (36.4)
South	69 (58.5)	135 (50.7)	228 (38.6)	1,390 (54.5)	44 (50.0)
National	118 (100)	266 (100)	590 (100)	2,552 (100)	88 (100)

Note: parentheses are percentages of the total of each cadre
Med Asst.= Medical Assistant
Source: Adapted from Manpower Development Unit Survey (1996, 1997)

The distribution of public health sector expenditure by geographic area reveals fundamental differences in per capita terms. Table 5.12 below, shows the distribution of public health care expenditure between regions

Table 5.12 Distribution of public health care recurrent expenditure (excluding donor funding) between regions, 1995/96

[illegible]	[illegible] (MK million)	[illegible]
North	95.5 (25.1)	79.6
Centre	135.7 (35.5)	33.0
South	150.6 (39.4)	29.1

Note: parentheses are percentages of the total
Source: Calculated from ministries of Health & Population, Local Government, Agriculture and Education actual expenditure print-outs and police and armed forces ledgers.

The Northern region had the highest per capita public expenditure of MK79.6 or US $5.3, while the Central and Southern regions had the lowest expenditure of MK33.0 or US$2.2 and MK29.1or US$ 1.9 respectively. This means that the Northern region's per capita public expenditure was more than 2.4 times that of the Central region and 2.7 times that of the Southern region. The detailed analysis of the equity implications of this financial distribution pattern are presented in section 6.

5.5: THE PRIVATE HEALTH SECTOR

5.5.1 Introduction

In this sub-section an overview of the private sources of finance will be undertaken. It will begin by looking into the private providers of health services namely the mission sector, NGOs, private for-profit sector, and then briefly describe expenditures by the private sector. It will also examine government financial support to the private sector.

5. 5.2 Private sources of finance

In 1995/96 as seen from Table 5.3 private sources spent MK277.2 million which represented 31.3% of the total health care expenditure in Malawi. The three main private health care financing agents namely; firms, MASM and households are found in Table 5.4 and summarized in Table 5.5. It should pointed out at the outset that the health insurance industry in Malawi is presently very small. There is no compulsory health insurance even for those in the formal sector. Some parastatals have small schemes of their own which contract MASM to administer their schemes on their behalf and for other individuals they pay monthly contributions to one of the three schemes (basic, general and extended) and MASM reimburses the costs of consultations, prescriptions and treatment at a rate dependent on the type of coverage chosen (MASM 1997).

However, no reimbursement is made on AIDS related drugs such as AZT, chronic illness like diabetes. A monthly capitation fee is paid to registered doctors. In 1995/96, MASM had a membership of 18,000 (MASM 1997). It should also be noted that the growth of an insurance industry in Malawi appears to be limited by the relatively small proportion of the population in formal sector employment which is only 13%, (Malawi Government 1997) and a relatively small number and limited distribution of private providers, as we shall later see in this section. This has resulted into limited growth of the private sector

which is also affected by low purchasing power, especially in the rural areas where poverty is well over 60%.

Table 5.13 Distribution of private sector financial resources by input category (MK millions), 1995/96

	Financing agent					
Uses	**Mission**	**MASM**	**firms**	**NGOs**	**Household**	**Total**
Salaries	28.4	0.9	7.7			37.0
Drugs & supplies	33.5		27.6		70.8	131.9
Transport	8.8				12.4	21.2
Food provision						
Maintenance	13.4					13.4
Training	8.0					8.0
Claims*		25.8				25.8
Investment income		9.6				9.6
Other******	41.8	4.3	33.8	46.8	36.9	163.6
Total	**133.9**	**40.6****	**69.1**	**46.8**	**120.1*****	**410.5******

Note:* is the expenditure by MASM to various providers

** the actual expenditure on claims by various providers, salaries and expenditure is MK31.0 million and includes the investment income of MK 9.6 million.

*** the figure does not add up to MK177.1 million because MK57.0 million has already been included under expenditure on mission facilities by direct payment (MK47.7 million) and MASM (MK9.3 million, see Table 5.4) which both came from the household.

**** includes the investment income figure of MK 9.6 million, the actual expenditure figure in this category is MK400.9 million

***** the uses of funds under the category of 'other' entails those expenditures on the activities which could not easily be attributed to a specific function due to lack of information, but was spent on health service delivery.

Source: MASM Head Office and Mwambaghi et al, (1995), Franco et al (1995) and Malawi Government, (1995)

The table above, shows that about 45.2% of the total health care expenditure in Malawi was by the private sector. It could also be seen that MASM operates on surplus. It was learnt that the surplus funds were invested in shares so as to increase the package of benefits to members and in the event of a deficit in a particular year, these invested funds could be used to pay medical bills for the members.

5.5.3 Private providers of health services

5.5.3.1 The Mission Sector

The mission sector called the Christian Health Association of Malawi (CHAM), is the second largest provider of health services in Malawi (about 19.1%). CHAM represented the interests of 8 churches and 165 health units in 1995. CHAM has a secretariat based in Lilongwe, the capital city of Malawi, whose role is only coordination, facilitation and providing advice. However, it does not have executive powers

over its members.

All mission facilities are independent, owned and run by their respective churches. Recruitment of staff, their conditions of service and user fee policies are the responsibility of the facility. There are, however, consultations with respective churches through the Hospital Advisory Boards or Boards of Governors. Formulation of operational polices in the interests of the representative church is done by the CHAM council and executive committee. There is however weak coordination between CHAM and its own member facilities.

5.5.3.1.1 Distribution of Mission Sector Health facilities

Table 5.14 below, shows the distribution of mission sector health facilities in Malawi in the year 1995/96.

Table 5.14 Distribution of mission sector health facilities by level of care, 1995/96

Level of care*	Number of facilities	Number of beds	Percentage of beds (%)
Tertiary	0	0	0
Secondary	21	2,873	51.8
Primary	144	2,672	48.2
Total	165	5,545	100

Note: * Tertiary = Central hospital, Secondary = District hospital, Primary = services at community, health post, health centre, dispensary , maternity and Rural hospital
Source: Derived from MOHP Health Information System Data Base, Manpower Development Unit survey (1996,1997)

It can be seen from the table above, that the mission sector in Malawi does not provide tertiary care and only provides secondary and primary level care. The mission sector had 165 facilities and 5,545 beds in total. This represents 19.1% of the total health facilities in Malawi and 38% of the total number of beds in Malawi. This scenario places the mission sector in the second position from the public health sector with regard to health services provision in Malawi.

5.5.3.1.2 Sources of finance for the mission sector

This investigation has revealed that mission sector facilities have much more wider sources of finance than the public health facilities. The major sources of finance for this sector in 1995/96 (see Table 5.4) have included:

- government grant (which accounted for 26.9% of the total mission sector sources of finance);

- donations (which accounted for another 30.5% of the total sources of finance for the mission sector); and
- user fees paid by MASM and households (consisting of charges for consultations and treatment and sale of drugs) accounted for 42.6% of the total sources of finance.

The mission sector is, however, currently undergoing a period of recurrent expenditure crisis. There are proposals for the MOHP to take over some of the facilities (MOHP 1996). this situation places the MOHP in an awkward position. MOHP facilities are currently facing recurrent crisis and to add some more facilities would be totally unfeasible.

5.5.3.1.3 Geographic distribution of health personnel in mission facilities.

Table 5.15 below, shows the geographic distribution of main cadres of health personnel in Mission sector in Malawi for the year 1995/96.

Table 5.15 Geographic distribution of main cadres of health personnel in mission facilities, 1995/96

Cadre	North	Centre	South	Total
Doctors	4	3	7	14
Clinical Officers	8	15	13	36
Nurses	164	227	344	735
Medical Assistants	39	57	71	167
Health Assistants	1	9	0	10
Pharmacist	1	0	0	1

Source: Manpower Development Unit Survey (1996, 1997)

5.5.3.2 Non-Governmental Organizations

Non-Governmental Organizations in the Malawian health sector have included international and national bodies scattered all over the country implementing vertical health programmes. There is currently a proliferation of NGOs in Malawi due to the fact that most donors are redirecting their resources to this sector rather than the MOHP. Donors believe that this sector produces more immediate results and the value of money is obtained (Marshall 1996). The Malawi Government has a flexible policy over NGOs, however, the NGOs have very little actual input into the overall decision-making in the health sector. It has been noted that the government (MOHP) makes policies and decisions on health issues with little or no involvement of other health workers and the health service goals are being made the sole responsibility

and prerogative of small select groups (USAID 1997). Despite the government's monopoly on decision-making, NGOs are extensively involved in community-based vertical primary health care programmes. It should be noted here that the flexible policy adopted by the government has led to a lot of duplication of health services in certain districts (e.g. Mangochi district has more than 8 NGOs while Nkhotakota district has none). Related to this, is the lack of knowledge of the operations of these NGOs by the MOHP (MOHP does not exactly know where most of the NGOs are operating, how much resources are allocated for health services and many more issues) (MOHP 1995).

5.5.3.3 Private practitioners

As previously mentioned, Malawi has a very small private-for-profit sector. A small number of clinicians and allied health workers provide private health services. This private-for-profit modern care are mostly urban based (but slowly expanding both in numbers and geographic distribution see tables 5.16 and 5.17). In a study in 1995 by Franco et al, it was found that 5% (composed of 3.9% urban rich and only 1.1 rural rich) of the Malawian population used private practitioners. One of the reasons behind this small private for profit sector is the government's policy, which until 1987 did not allow health personnel to undertake private practice. Since then, doctors and allied health workers are now allowed to undertake private practice. Most doctors dispense medicines themselves, purchased from commercial companies, but may issue prescriptions to be filled by the growing number of modern pharmacies which are limited to urban areas. Table 5.16 below, indicates the distribution of private for-profit health facilities and beds in Malawi 1995/96.

Table 5.16 Distribution of private-for-profit health care facilities and beds in Malawi, 1995/96

Level of Care	Number of facilities	Number of beds
Secondary	3	101
Primary	97	78
Total	100	179

Source: Adapted from MOHP Health Information System Data Base, Manpower Development Unit survey (1996, 1997) and Medical Council of Malawi.

From the table above, it is clearly seen that the private-for-profit sector is very small hence most of the services are provided by the public health sector. However, it should be pointed out that there is likely to be a dramatic increase in the number of private-for-profit health care facilities in Malawi in the next few years. Chief among the reasons are continued low salaries in the public sector and the public sector's persistent poor quality of health services in the face of a dramatic increase in AIDS related illnesses

which the public health sector facilities can not cope with (Franco 1997). Public health facilities lack drugs, the morale of health workers is low (poor health worker attitude), long queues leading to long waiting time, equipment have ceased functioning and lack consumable inputs (MOHP 1995, Franco et al 1995, Franco 1997). Having looked at the distribution of health facilities in the private-for profit sector, we now turn to the distribution of health personnel in this sector. Table 5.17 below, shows the geographic distribution of health personnel in the private-for-profit sector.

Table 5.17 Geographic distribution of health personnel in private-for-profit sector in Malawi 1995/96

Cadre	North	Centre	South	Total
Doctors	2	11	29	42
Clinical Officers	4	12	14	30
Medical Assistants	11	24	23	58
Dentist	0	4	4	8
Total	17	51	70	138
Percentage share(%)	12.3	37.0	50.7	100
Personnel/100,000 population	1.4	1.2	1.4	1.3

Source: Medical Council of Malawi and Manpower Development Unit survey (1996, 97)

5.6 GOVERNMENT SUPPORT TO THE PRIVATE SECTOR

The government support to the private sector has mainly been to mission health facilities which receive a grant yearly. This government grant is meant to cover transport costs for outreach work, 2/3 of the costs of training health workers, 100% of salaries, wages and staff allowances according to the establishment of each facility. The MOHP subsidizes the provision of commodities for preventive health services which have included paraffin or gas for the vaccine cold chain, vaccines, family planning methods, ORS and subsidized food supplements through the World Food Programme. In addition, the MOHP pays for the cost of drugs for TB patients in mission facilities. However, there is no support to international and national NGOs is not there as there is no coordination of activities with this sector.

5.7 Summary

This section has documented the total health care expenditure in Malawi by source (Ministry of Finance, Ministry of Local Government, employers, households and donors) and its distribution between geographic areas (region, rural/urban), types of services (curative/preventive), levels of care and input categories (personnel emoluments, drugs and medical supplies, training, transport, food provision, maintenance, MOHP headquarters administration and other). It is now important that we analyze the efficiency and equity issues arising from this distribution of resources in the Malawian health sector and consider the policy implications arising from this evaluation.

SECTION 6: EVALUATION OF CURRENT PATTERNS OF HEALTH CARE EXPENDITURE IN MALAWI WITH REGARD TO EQUITY AND EFFICIENCY

6.1 INTRODUCTION

In this section an in-depth analysis of the current health expenditure in Malawi with regard to equity and efficiency is undertaken. This section will mainly deal with evaluating the impact of health care expenditure on existing forms of service provision with reference to the framework presented in section 2. It will further discuss the policy and planning implications arising from the evaluation and the potential mechanisms for addressing efficiency and equity challenges identified in the analyses. However, before diagnosing the Malawian health in detail, it is important to undertake more international comparative analyses so as to see whether Malawi is relatively well off or poorly resourced. Thus, sub-section 6.2 examines the resources available in Malawi as compared to other sub-Saharan African countries.

6.2 INTERNATIONAL COMPARISON OF RESOURCES IN THE HEALTH SECTOR

It is indeed important that comparisons be made across countries so as to assess how one country fares vis-à-vis others in the amount of resources available in the economy and how much of these resources are devoted to health care. However, the data which is available across countries is not routine and was derived using different methodologies. Such recent data sources have included the World Development Report (1993), UNDP and World Bank Social Indicators (1992) and the World Bank (1994). Table 6.1 below compares health care resources available in Malawi with other sub-Saharan African countries and a few middle income countries for 1990.

Table 6.1 Comparison of resources in the Malawian health sector with other Low and Middle income countries, 1990

Country	Population /doctor (1990)	Population /nurse (1990)	Population /bed (1990)	Health Expenditure as % of GDP (US, 1990)	GNP/capita (US $, 1991)
Sub-Saharan African countries					
Malawi	45,000	14,000	600	5.0	230
Tanzania	24,000	4,000	900	5.0	100
Zambia	11,290	2,000	-	3.2	420
Ghana	15,000	2,000	700	3.5	400
Zimbabwe	7,180	1,000	500	6.2	650
Kenya	6,000	2,500	650	4.3	340
Uganda	18,000	2,500	1,250	3.4	170
Middle income countries					
Ecuador	980	620			
Jordan	770	500			
Morocco	4,840	1,050			

Source: World Development Report (1993) and World Bank (1994)

The table above shows that Malawi is not well resourced relative to other Sub-Saharan African countries and those in the middle income category. It has the highest population to doctor ratio and the highest population to nurse ratio. However, Malawi spent a large percentage of its GDP on health compared to Zambia, Ghana and Kenya whose level of development is higher than that of Malawi (see the GNP per capita in Table 6.1 above). It should be noted that the comparisons of social indicators and public health care expenditure as a proportion of total government expenditure has been already made in sub-section 5.2.

6.3 GEOGRAPHIC EQUITY IMPLICATIONS OF HEALTH CARE EXPENDITURE PATTERNS IN MALAWI

As previously noted, this study will evaluate geographic equity in service delivery in terms of equal resources for equal *need*. The socio-economic and health related indicators in the three regions and between rural and urban areas will be used as proxies of *need*.

Since this study is an evaluation of equity on geographic basis in health service delivery in Malawi, reference to the British Resource Allocation Working Party (RAWP) will be frequently made. It should be cautioned, however, that the difference between this study and the RAWP is only on the stated equity goal. While the major objective of the RAWP was that of achieving greater equity in access to health care on the basis of *need,* it ended up focusing more on greater equity in health service inputs as compared to *need* (Mooney 1986). This study, however, has clearly stated that it will evaluate geographic equity in terms of equal resources for equal *need* and it will use socio-economic and health related indicators in the regions as indicators of *need.*

It should be cautioned, however, that reducing inequities in the health care system should not result into inefficiency. According to Wagstaff and Van Doorslaer (1993), they have indicated that greater equity is usually achieved at lower levels of efficiency. This could be so, because resources are shifted from those areas which are above the target but with management capacity to areas where management capacity has not been developed. Thus, health planners and managers in the Malawian health sector should bear this in mind when re-allocating the existing resources, if this investigation will establish that there is inequity in the Malawian health care system.

Table 6.2 Basic indicators between regions, 1996

Basic indicator	North	Centre	South
Population distribution (%)	11.4	39.0	49.6
Population density	150	245	345
Population growth rate	2.9	3.4	3.7
Fertility rate	6.7	7.4	7.6
Illiteracy rate	29.4	46.5	52.8
Malnutrition rate	18.4	54.6	56.4
Diarrhoeal prevalence rate	13.0	16.9	18.4
Infant mortality rate	120.6	130.4	144.5
Under five mortality rate	201.9	261.6	230.0
Utilization rate/capita	1.8	1.7	1.8
Income per capita smallholder farmers (MK)	1,001	405.00	250.5
GDP per capita (US$)	1,487.5	435.4	343.3

Note : Med. Asst.= Medical Assistant
Clinical Off.= Clinical Officer
Source: MDHS (1992) Malawi Government (1996)

Another important issue in evaluating the geographic equity of health care service provision is the regional differences in the number of tertiary hospitals in a particular country. In Malawi, for instance the Northern region has no central hospital, while the centre has one and the South has two. This implies that it should not come as a surprise when it is found that the Northern region is poorly resourced in terms of doctors and pharmacists or dentists.

However, construction of 300-bed tertiary hospital is currently under way in the Northern region and this has serious equity implications. If the Northern region in this evaluation, happens to have more resources apart from health workers such as doctors, dentists and pharmacists than the other two regions, this implies that the completion of the 300-bed hospital will bring greater inequity in the number of inputs per capita and this has to be justified by capacity to benefit. Otherwise it is another "white elephant" project.

It is necessary to identify the categories of staff which provide the bulk of health services in Malawi. Unlike other countries which rely heavily on doctors to a provide the bulk of health care services, Malawi has Clinical Officers who act as surrogate doctors (they undergo a four year training and perform most of the surgery work), Medical Assistants and Nurse Assistants (Enrolled nurses) who staff all health centres, dispensaries and maternity units in the rural and peri-urban areas. This must be borne in mind in order to draw appropriate conclusions about the Malawian health sector.

6.3.1 Geographic distribution of health care resources

Table 6.3 below, shows the distribution of health care facilities, beds and personnel by all providers (MOHP, Ministry of Local Government, other government agencies, mission sector, firms and private-for-profit) by region in Malawi.

Table 6.3 Distribution of health care facilities, beds and personnel (public and private) by region, 1995/96.

Region	Beds/1,000 pop.	Doctors /100,000 pop.	Clinical off /100,000 pop.	Medical Asst. /100,000 pop.	Nurses /100,000 pop.	Pharmacist /100,000 pop.
North	2.4	0.4	4.4	12.3	39.8	0.4
Centre	1.2	1.4	3.0	6.4	28.6	0.9
South	1.3	1.9	3.0	7.3	36.3	0.9
National	1.4	1.5	3.2	7.5	29.1	0.9

Source: Calculated from MOHP Health Information System Data Base, Manpower Development Unit Survey (1996,1997), Medical Council of Malawi and Mission Secretariat

As can be seen from the table above, there are significant disparities in the distribution of health resources between the three regions in Malawi. Beds per 1,000 population vary from 2.4 in the North (which is more than one and half times that of the national average of 1.4) to 1.2 in the Centre. Related to this is the substantial differences in the number of health personnel relative to the population within each region.

The Southern region has nearly five times more doctors per 100,000 population than the North, while it has 1.4 times more doctors per 100,000 population than the Centre (the Southern region has this advantage over the other two regions because it contains the commercial city of Blantyre which has the highest number of private doctors, and has two Central hospitals (as previously stated which have the highest number of doctors, while the Centre has one Central Hospital and North has none). For the rest of the cadres apart from Pharmacists (whose situation is similar to that of doctors), the North has the highest number of health personnel per 100,000 population.

The North has one and half times more Clinical Officers and slightly more nurses than the South (putting it another way, the North has 1.4 times more Clinical Officers and nurses and 1.6 times more Medical Assistants than the national average). In addition, it has nearly twice the number of Medical Assistants than the other two regions per 100,000 population.

Table 6.4 Distribution of health personnel (public and private) by level of care and between regions in Malawi, 1995/96

Region	Level of care	Doctor /100,000 pop.	Clinical Off /100,000 pop.	Med. Asst. /100,000 pop.	Nurses /100,000 pop.	Pharmacist /100,000 pop.
	Primary	0.1	1.2	9.4	27.5	0.1
North	Secondary	0.3	3.3	2.8	12.3	0.3
	Tertiary	0	0	0	0	0
	Primary	0	0.8	4.3	16.0	0.1
Centre	Secondary	0.5	1.1	1.7	6.3	0.4
	Tertiary	0.8	1.1	0.5	6.3	0.4
	Primary	0.1	0.7	3.9	14.4	0.0
South	Secondary	0.8	0.8	0.7	5.4	0.2
	Tertiary	1.2	1.4	2.7	16.5	0.3
	Primary	0.1	0.9	5.9	19.3	0.1
National	Secondary	0.5	1.7	1.7	8.0	0.3
	Tertiary	0.7	0.8	1.1	7.6	0.2

Source: Derived from MOHP Manpower Development Unit survey (1996, 1997), and Medical Council of Malawi Report 1996 and National Statistical Office Data Base

From the table above, it is clear that there is a maldistribution of health care personnel in Malawi. The Northern region has more of each cadre of health personnel apart from doctors than its two counterparts followed by the Central region. When one looks at the distribution of health personnel between the three levels of care nationally, tertiary and secondary care levels have more doctors and clinical officers (for doctors it is in line with health care service provision standards internationally and for clinical officers it is also in line with the MOHP Authorized establishment in that clinical officers are not supposed to be at primary level care apart from Rural hospitals).

There are also more health care personnel nationally at primary than at the other two levels of care. This is both an indicator of allocative efficiency and equity in resource allocation. However, there are wide variations in the distribution of health personnel between the levels of care. For example the tertiary level in the South has more nurses per 100,000 population than the Centre.

As pointed out earlier on, data is more refined and available for the public sector and much of this evaluation will dwell on this sector. Much as it could be construed that there are some private practitioners in the three major cities of Blantyre , Lilongwe and Zomba and the small city in Mzuzu, it could be difficult to identify the users of these services in the face of the limited number of Medical Aid beneficiaries.

A nation-wide study carried out in 1995 by Franco et al, revealed that 43% of the patients used public health services, 24% used shops/pharmacies, 16% used Mission sector services while private clinics and traditional healers had a share of 5% each. This therefore shows that public health services are used by the largest sector of the population, hence it is prudent that a careful evaluation of this sector could lead to improvements in resource allocation which could in turn improve the health status of the majority of Malawians.

It could be argued that the mission sector is another important source of health care services in Malawi, hence also needs careful analysis. Much as this is the case, public health services are currently free and people end up using mission facilities because of the following two major reasons:

- lack of an alternative nearby source of health care (mission facilities charge user fees and most patients expressed difficulties in paying for health care services and there is a strong demand for construction of MOHP health facilities within the catchment area of mission facilities) (Franco et al 1995).
- seeking better quality care after being at the public facility first (MOHP facility) (Franco et al 1995).

This shows that the most reliable source of health care is the public sector. In addition, the public health sector (MOHP in particular) has a component of preventive health care delivery unlike most mission facilities.

6.3.2 Geographic distribution of public health sector resources

As pointed out above, equity implications of expenditure patterns in Malawi will be on a geographic basis and much of the analyses will be performed on public health sector services. However, in some special cases an attempt will be made to combine both the public and mission health sectors.

Table 6.5 below, shows that the number of beds in public sector facilities per 1,000 population vary from 1.2 (more than 1.5 times that of the national average) in the North to 0.7 (slightly lower than the national average) in the South and Centre. The Northern region has the lowest population per health centre which makes it the only region to meet the criteria for establishing a health centre in Malawi. In Malawi one health centre is expected to serve a population of 10,000 people without geographic barriers such as mountains and rivers.

Table 6.5 Distribution of public health sector facilities between regions, 1995/96

Region	Beds/1,000	Population/hospital	Population/health centre*
North	1.2	0.2	10,256
Centre	0.7	0.5	33,333
South	0.7	0.7	32,298
National	0.8	0.5	26,185

Note: includes health centres, dispensaries, maternity and rural hospitals
Source: Derived from MOHP Health Information System Data Base and Manpower Development Unit survey (1996, 1997)

Let's now see how the distribution of facilities relative to population changes when we combine public and mission health sectors. Table 6.6 below is the distribution of public and mission health sector facilities in Malawi in 1995/96. As it can be seen, the Northern region still has the lowest number of population per health facility and the highest number of beds per 1,000 population. The Southern region is better-off than the Centre.

Table 6.6 Distribution of public and mission health sector facilities between regions, 1995/96

Region	Beds/1,000 population	Population/ hospital	Pop./health centre
North	2.4	1.5	6, 867
Centre	1.2	0.3	19,617
South	1.3	0.4	19,965
National	0.8	0.4	16,327

Source: Derived from MOHP Health Information System Data Base, Manpower Development Unit survey (1996, 1997)

It should also be mentioned that the disparities in the number of health facilities has also manifested in the substantial differences in the number of health personnel and later on in expenditure in these regions.

Table 6.7 Distribution of public health sector personnel between regions, 1995/96

Region	Doctors/ 100,000 population	Clinical Off /100,000 population	Medical Asst. /100,000 population	Nurses* /100,000 population	Pharmacist /100,000 population
North	0.3	3.4	12.2	30.7	1.0
Centre	1.1	2.2	5.3	19.4	0.8
South	1.3	2.6	4.4	26.7	0.8
National	1.1	2.5	5.6	24.3	0.8

Source: Calculated from Manpower Development Unit Survey (1996, 1997) and National Statistical Office Data Base

From Table 6.7 above, it can be seen that the Northern region has the highest number of public health sector personnel per 100,000 population than the other two regions with the exception of doctors. The Southern region comes second for other categories of personnel except for Medical Assistants where the Central region comes second. There is a maldistribution of public health sector personnel between rural and urban public health care facilities as seen from Table 6.8 below.

Table 6.8 Distribution of public health care personnel between urban and rural public health care facilities, 1995/96

Area	Region	Doctor /100,000 pop.	Clinical Off /100,000 pop.	Medical Asst. /100,000 pop.	Nurses /100,000 pop.	Pharmacist /100,000 pop.
	North	2	18.5	17	73.5	2
Urban	Centre	2.5	8.2	6.5	52.7	1.5
	South	2.1	7.1	9.6	41.5	2
	National	2.3	9.0	9.3	49.7	1.8
	North	0	0.2	5.5	11.6	0
Rural	Centre	0	0.3	2.9	8.4	0.0
	South	0	0.1	2.6	2.6	0.0
	National	0	0.2	3.0	8.3	0.0

Source: Derived from the MOHP Manpower Development unit Survey (1996,1997), MOHP Health Information System Data Base and National Statistical Office Data Base.

The Northern region continues to have highest number of public health personnel per 100,000 population in both cases i.e. rural and urban areas except, for doctors. It is clear from Table 6.8 above, that there is maldistribution of public health care personnel in Malawi. The urban areas have almost 45 times more Clinical Officers per 100,000 population than the rural areas. In addition to this, urban areas have almost

six times the number of nurses per 100,000 population and have three times the number of Medical Assistants per 100,000 population. Pharmacists are almost non-existent in the rural areas.

As mentioned earlier on, the majority of the Malawi population is in rural areas and only 13% is in urban areas. Although the rural areas are the most under resourced in terms of health facilities and personnel, it has the highest prevalence of diseases (see Table 6.19). It is understandable that there are a few Clinical Officers in the rural areas since the public health sector personnel authorized establishment does not allow Clinical Officers to be stationed in the rural facilities (health centres, dispensaries, maternity clinics apart from rural hospitals). But in the case of nurses and medical assistants, this is a very serious maldistribution, since the majority of public health facilities in rural areas are health centres and these are the cadres which are supposed to provide health services to the majority of the people.

Here, it is questionable whether the adopted primary health care approach will ever be accomplished. However, it could be argued that the rural areas are well served by the mission sector which has most of its facilities in rural areas. Hence, Table 6.8 shows the distribution of public and mission health facilities between rural and urban areas in 1995/96.

Table 6.9 Distribution of public and mission health facilities between urban and rural, 1995/96

Region	Urban	Rural	Total
North	13 (2.0)	162 (25.3)	175 (27.3)
Centre	21 (3.4)	188 (29.3)	209 (32.6)
South	27 (4.2)	230 (35.9)	257 (40.1)
Total	61 (9.5)	580 (90.5)	641 (100)

Note: parentheses are percentages of the total
Source: Derived from MOHP Health Information System Data Base, Manpower Development Unit Survey (1996,1997) and Mission facilities Survey (1997)

From Table 6.9 above, the public and mission sector have 90.5% of their facilities in rural areas and most of their facilities are in the Southern region (40.1%). Even though most facilities are in the rural areas, it should be noted that missions charge user fees for their services. The rural areas in Malawi have the highest levels of poverty of about 64% (Malawi Government and UNICEF 1992, Malawi Government 1996) and poverty is most rampart in the rural areas of the Southern region (Malawi Government and UNCEF 1992, World Bank 1996 and Table 6.2). The complete picture of health services provision in Malawi between rural and urban areas could be shown by the number of health personnel in public and

mission facilities. Table 6.10 below, shows the distribution of health personnel between rural and urban areas in both public and mission health facilities in 1995/96.

Table 6.10 Distribution of public and mission health personnel between rural and urban areas, 1995/96

Area	Region	Doctor /100,000 pop.	Clinical Off. /100,000 pop.	Med. Asst. /100,000 pop.	Nurses /100,000 pop.	Pharmacists /100,000 pop.
	North	3.5	21.0	22.0	94.0	2.5
Urban	Centre	3.1	8.6	8.5	62.0	1.5
	South	2.9	8.5	11.7	52.3	2.0
	National	3.2	12.7	14.1	69.4	2.0
	North	0.1	0.5	8.4	23.9	0.02
Rural	Centre	0.1	2.1	4.2	13.3	0.02
	South	0.2	0.8	3.5	8.5	0.02
	National	0.1	[illegible].1	5.4	15.[illegible]	0.02

Source: MOHP Health Information System Data Base, Manpower Development Unit Survey (1996, 1997), Mission Health Facilities Survey (1997) and National Statistical Office Data Base

Table 6.10 above, shows that even if we combine the public and mission health sectors together, the urban areas still have more health personnel per 100,000 population in Malawi despite the large number of public and mission health facilities in rural areas. The Northern region has the highest number of health personnel per 100,000 population in urban areas, followed by the Central region for doctors, clinical officers and nurses and by the Southern region for Medical Assistants.

Even though the Southern region has the highest urbanization rate (about 50% of the total urban population), it has the lowest number of health personnel per 100,000 population for doctors, clinical officers and nurses in urban areas. The rural areas where 87% of the total population live have the lowest number of health workers per 100,000 population. The Northern region has the highest number of cadres (per 100,000 population) which are most critical to health service provision in the rural areas i.e. Medical Assistants and Nurses.

6. 3.3 Distribution of financial health care resources per capita

As can be seen from the above analysis, the Northern region is the richest region in terms of health facilities and personnel per 100,000 population. The Centre and South alternate for being the second most well resourced region (in some cadres the Centre has more while in some the South has more). However, on average the Centre is better-off than the South. With this situation, it does not come as a surprise that the Northern region has both the highest total health care expenditure and as well as public health care expenditure per capita. (see Table 6.11 below).

Total health care expenditure per capita was MK205.6 or US$13.7 in the Northern region while the Central and Southern region had MK71.8 or US$ 4.8 and MK66.6 or US$ 4.4 per capita respectively. Public health care expenditure (excluding donor funding) was MK79.6 or US$5.3 per capita in the North, and the Central and the Southern region had MK33.1 or US$ 2.2 and MK29.1 or US$1.94 per capita respectively.

Table 6.11 Distribution of expenditure between regions, 1995/96

Region	Total health care expenditure (MK millions)	Total public health care expenditure (excluding donor funding) (MK millions)	Total expenditure per capita (MK)	Public health expenditure (excluding donor funding) per capita (MK)
North	246.7	95.5	205.6	79.6
Centre	294.5	135.7	71.8	33.1
South	344.6	150.6	66.3	29.1

Source: Mwase 1997
Basic Source: Ministries of Health and Population, Local Government, Agriculture and Education actual expenditure print-outs and ledgers of armed forces and police.

6.3.4 Distribution of public health care recurrent resources (excluding donor funding) by level of care

As noted in Table 5.6, public health care expenditure was largely devoted to district hospitals, which consumed 43.2% of the total public health care expenditure in 1995/96. This was followed by primary health care provision which consumed another 24.9% of total public health care expenditure. Contrary to the usual historical pattern of recognized operations of health care systems in developing countries, central hospitals in Malawi consumed only 17.8% of the total public health care expenditure and only

7.7% of the total health care expenditure. Such expenditures where incurred on the facilities and personnel so Table 6.12, shows the distribution of public health personnel, by level of care in Malawi in 1995/96 financial year.

Table 6.12 Distribution of public health care personnel by level of care, 1995/96

Level of care	Doctor /100,000 pop.	Clinical Off [illegible],000 [illegible]	Med. Asst. [illegible]	Nurses /1000,000 pop.	Pharmacist /100,000 [illegible]
Tertiary	0.9	1.1	1.5	10.6	0.5
Secondary	0.2	1.2	1.3	6.6	0.3
Primary	0.0	0.2	2.8	7.1	0.0
[illegible]	1.1	2.5	5.6	24.3	[illegible]

Source: Derived from Manpower Development Unit Survey (1996, 1997) and National Statistical Office Data Base

The most important cadres in evaluating the distribution of health personnel in Malawi are Medical Assistants and Nurses, since according to public authorized establishment, doctors and clinical officers are supposed to be at hospitals. From the table above, primary level care has more medical assistants (it has almost twice more medical assistants per 100,000 population than secondary level of care and 1.9 times more than that of tertiary care) as compared to the other two levels and this is a good indicator of equitable distribution of health care personnel. In the case of the public health care nurses, there is inequitable distribution. Tertiary health care level has almost 1.5 times more nurses than at the primary level health care and 1.6 times that at secondary health care level in public health facilities. This could be attributed to marriages of nurses to other professionals working in the urban areas where the tertiary hospitals are located.

6.3.5 Summary

This evaluation reveals that there exist great geographic inequity in health care resources in the Malawian health sector. The Southern region has the lowest per capita expenditure and lowest number of health care facilities and personnel per 100,000 (especially medical assistants and nurses which are critical cadres in health care delivery in Malawi) and yet it has the worst socio-economic and health indicators in the country (see Table 6.2 above).

The Northern region which has the best indicators compared with the other two regions has the highest health care expenditure per capita, facilities and personnel per 100,000 population. Even when we look at the rural areas of the North, they have more health facilities and personnel than the other two regions. The construction of the new 300-bed hospital in the North will therefore exacerbate geographic inequities in the Malawian health sector as this will constitute more recurrent costs, hence additional health care expenditure per capita, in the Northern region.

6.3.6 Planning and policy implications of equity of health care expenditure patterns in Malawi

The above detailed analysis has revealed that there are substantial geographic variations in the amount of health care resources currently available in the Malawian health sector. The resource distribution is in favour of the North and partly the Centre, which have better socio-economic and health indicators and greater access to health services than the South.

This has serious implications for policy and planning. Practical steps need to be taken to redistribute these resources. In order to achieve equity, resources have to be shifted from the North and partly the Centre to the South, from urban to rural areas of both regions, and from the secondary and tertiary levels to that of primary health care.

It should be noted, however, that this shift mainly involves redeployment of health workers and this poses a big challenge to management in practice. In the case of married nurses (less than 1% of nurses are male and nurses once married follow their husbands, MOHP 1995, MOHP 1997), how are they going to be redeployed and at the same time minimize social disruption of families?. In the case of clinical officers, what are the incentives for going into the rural areas and this applies to registered nurses too? This calls for an incentive package which could include better housing in the rural areas, special allowances for staying in the rural areas, promotion and guaranteed opportunities for further training.

The bottom line, however, is that resources have to be shifted. This shifting of resources should be gradually done in order to avoid disrupting health services and families both at regional level, i.e. the North and Centre, and at the levels of care i.e. secondary and tertiary care. In addition, time must be allowed for the development of infrastructure and skills to manage the additional resources which will go to the South, while the North and Centre need some time to plan for the reduction in health services. The need for adequate time and planning for resource redistribution is demonstrated by the recent experience of tertiary hospitals. There has been a swift and substantial reduction in the recurrent budget allocation to

the tertiary level in recent years but this has resulted into very poor quality of health services at tertiary level and no substantial improvements in district health care as it was not well planned (MOHP 1997).

It should be mentioned that this geographic inequity of health care has been perpetuated by the lack of an appropriate formula for resource allocation in the Malawian health sector. Budgets have been incremental in nature, based on previous expenditure rather than on *need* for health services. There is little attention paid to the budget actually prepared by the cost centre. In addition to this, there is a tendency that cost centres which overspend receive more the following year, whereas those which contained spending may have their next year's budget cut.

This has resulted in a lack of incentives to stay within the allocated budget. This scenario therefore calls upon the government to immediately consider the possibility of using a needs-based formula for funding for health care services in Malawi (see Table 6.13 below for expenditure allocation based on some indicator of need). Failure to do so, the health status of the majority of Malawians would not improve in the foreseeable future.

Another explanation for this geographic inequity of health care resources in Malawi could be a lack of a clear deployment policy for health care personnel. Staff deployment is purely on an unscientific basis (factors such as the number and workload of peripheral units, the size and workload of the hospital, are not taken into account when deploying staff). As has been seen in the above presentation, the tertiary level has more health care staff (apart from doctors who have a right to be there) in relation to the population they serve and chief among the reasons for such an anomaly is the unclear deployment policy. Many nurses who are at tertiary level follow their husbands (MOHP 1995, MOHP 1997) and other health workers complain about the lack of incentives (MOHP 1995), while the rural areas have a great shortage of personnel.

6.3.6.1 Expenditure allocation using Needs based formula

If public health care expenditure in Malawi for the financial year 1995/96 was allocated based on *need*, it would have been prudent that the following indicators which could be proxies for *need* be used: the population size of the country, private sector users in the country, age distribution, gender distribution, health status indicators, and socio-economic indicators such as income, employment levels and housing conditions (including crowding levels) DHSS 1976, Reagon et al 1997).

Having determined the indicators, the needs-based formula could then be developed. However, it should be noted that the principal component in the needs-based formula is the population size and the other indicators are used to weight the population size (DHSS 1976, Reagon et al 1997). It should also be noted that the weighting of indicators is in most cases a value judgment (Reagon et al 1997). Thus, the assignment of weights to various indicators mentioned above should be done in a transparent manner and there is a need for extensive consultation of both stakeholders and policy documents (Reagon et al 1997). This should not only be confined to in the health sector but the country as a whole, since such a formula will end up reflecting the priorities of the country when it comes to resource allocation patterns.

Table 6.13 below, shows the equitable allocation of public expenditure in the Malawian health sector if the equity target was based on equal expenditure per capita. It would have been prudent if most of the indicators mentioned above where used. However, due to a lack of data and limited time available for this study this has not been possible.

Table 6.13 Allocation of public health care recurrent expenditure (excluding donor funding) on per capita basis (as a proxy for need), 1995/96

Region	Population 1995 (%)	Actual expenditure	Equity target expenditure	Difference
North	11.4	95.5	43.5	-52.0
Centre	39.0	135.7	148.9	+13.2
South	49.6	150.6	189.4	+38.8
Total	100.0	381.8	381.8	

Note: - should be taken away
+ should be added
Source: Mwase 1997

Table 6.13 shows that by using equal expenditure per capita, the North should lose MK52.0 million (about 54.5% of its current actual expenditure) to other regions and the Central and Southern regions should gain 9.7% and 25.8% of their current actual recurrent expenditure respectively.

In the event of inadequate recurrent revenue resources (as it is now), redistribution could be also be effected from capital/development budget revenue in order to minimize adverse effects on the existing services. This could be feasible since, Malawi has already got a good network of physical infrastructure and about 85% of the population live within 10 km of a health facility (Malawi Government 1992, 1996). However, these facilities lack drugs and medical supplies and are dilapidated, have equipment which have

ceased functioning, lack health personnel (MOHP 1995, MOHP 1997). This therefore means that the immediate challenge in the Malawian public health sector is to make the existing facilities functional and not the construction of new facilities. If the construction continues, where will the recurrent revenue come from, if the government is already finding it difficult to manage the existing facilities?

The other way is to ensure that there are no real budgetary increase for the North. This could be possible by putting 'ceilings' and 'floors' (DHSS 1976). For example a ceiling of 5% growth over the previously year's allocation could be set for the South, while the maximum annual cut in the North of 2.5% could be effected (as it was done in the NHS in United Kingdom). However, this should not be done without consideration of the capacity in the South and the local plans and budgets made (Reagon et al 1997). Otherwise inequity will be replaced by inefficiency.

6.3.6.2 Other equity issues in the Malawian health sector

It should also be noted that Malawi is fortunate in having a substantial network of health facilities, in both rural and urban areas. As previously noted, communication and transport in rural areas are extremely poor. There are few public telephones, and solar-powered radio-telephones are not widely used (Malawi Government 1996). Roads are frequently impassable especially in the rainy season, and public transport is very infrequent and limited to a few of the better roads. Motorized transport including taxis are rare with most people rely on walking, bicycles and oxcarts (Franco et al 1995). In addition to this, access to affordable services is also inequitable in Malawi.

As stated earlier on, this inequity arises from the MOHP policy of not constructing a health facility if another already exists. Hence, those villagers living within the catchment area of mission facilities but far from MOHP health facility have difficulty in accessing affordable health services, since mission facilities charge user fees. MOHP health facilities cannot refer patients to a mission health facility even if it is close by, unless the patient/guardian is willing and able to pay. As seen above, there is already a maldistribution of public resources in favour of the urban population. The existence of the mission facilities does not effectively improve geographic equity of resource distribution in Malawi due to the financial barriers to mission facilities. It is of particular concern that the mission facilities are located in rural areas where there is great poverty and a high illiteracy rate.

This implies that mission services are accessible to a minority of the rural population. In a 1992 cost-sharing study, it was found that 25% of out-patients and about 40% of inpatients were unable to pay the total fees charged at the mission hospitals. In addition, increases in fees also led to a substantial reduction in utilization in rural areas (cost deterred 35% of women from attending antenatal care at one mission hospital, and 32% were deterred from delivering at this facility) (MOHP and CHAM 1992). In the same catchment area of the hospital it was also found that immunization rates were below the national average despite, being free. This suggests that since this is a paying facility immunizations are not a priority, hence it could be the case that some children were deterred from attending for minor ailments. Alternatively it could suggest that the hospital felt it was wasting time providing preventive services since there was no revenue generated.

Another crucial issue is that mission facilities operate under the assumption that all patients who come to their facilities are able to pay for health care services until proven otherwise. In this regard exemptions are not published, hence each case is assessed individually by different mechanisms depending on the hospital. Since people are expected to pay at mission facilities they only attend when they are willing and able to pay (MOHP and CHAM 1992).

Unless this situation is reversed, inequity will continue to exist in the Malawian health care system. One way of addressing this problem is the introduction of user fees at public health facilities, however, its revenue generation potential and equity implications have so far not been examined. As noted above, user fees have brought inequities in the delivery of health services in Malawi. Hence its nation-wide introduction should be carefully evaluated.

Another way of addressing this issue is for the government to increase the grant to mission facilities. The increased grant would reduce mission facilities reliance on user fees (fees accounted for 42.6% of their total revenue 1995/96) and they could charge patients less. By doing this, mission facilities could provide health services to a larger percentage of the population and hence, reduce inequities currently prevailing in the Malawian health sector. The feasibility of this move requires further investigation. The government is currently undergoing a period of economic crisis and the public health sector is already facing a recurrent expenditure crisis.

6.4 EFFICIENCY IMPLICATIONS OF HEALTH CARE EXPENDITURE PATTERNS IN MALAWI

6.4.1 Introduction

Efficiency in the Malawian health sector will be analyzed with regard to both technical/operational and allocative efficiency in the public health sector facilities. It would have been prudent to compare efficiency in the public sector with that of mission sector facilities, however, not much data is available on the mission sector facilities which could be compared with that of public health facilities. Wherever the information is available, comparisons will be made.

6.4.1.1 Efficiency in public health care facilities

As indicated earlier on, there has been little effort to allocate health care resources on any rational basis of such as *need* including population and epidemiological, cost-effectiveness, current workload or level of care in Malawi. Much as it can be difficult to gauge the extent of inefficiency in the Malawian health sector, some 'proxy' indicators could be used to provide an insight into the efficiency issues, such as: the public health budget allocation between levels of care (especially the allocation to central hospitals), types of service, geographic area (rural/urban) the organization of public health services, the unit costs of inputs into the public health care system and hospital service indicators (such as average length of stay, occupancy and bed turnover rates).

6.4.1.2 Technical and allocative efficiency

1. Organization of the public health sector

Organizational structure can provide some insights into efficiency issues in a particular health care system. There is a body of literature on the demerits of the centralized system in favour of decentralization of authority (Gilson et al, 1994). It is unfortunate, however, that efficiency implications of decentralization systems, have not yet been evaluated. Decentralized management with control over financial systems can facilitate achieving allocative efficiency (Reagon et al, 1997). For instance, as district health managers are best placed to assess the health needs of their population thus, decentralization can promote better allocation of resources between types of health services (Reagon et al 1997).

This study, however, has noted that the Malawian public health sector is centrally organized and there is lack of authority at the lower levels (MOHP 1995, EU 1995). The three levels (the MOHP headquarters, 3 Regional Health Offices, and the 24 District Health Offices) responsible for the administration of public health services are unco-ordinated. The two lower levels have no decision-making powers in terms of health care resource allocations (EU 1995).

There could be efficiency gains in the public health sector services with the proposed decentralization. This system would render managers more accountable for the way in which they use their resources and this would in turn give managers the ability and incentive to improve performance and efficiency (Reagon et al 1997). However, decentralization should be accompanied by capacity building at the lower levels, otherwise it would perpetuate inefficiencies (Gilson et al 1994, Reagon et al 1997).

The proposed decentralization has entailed streamlining of health workers' roles and responsibilities. In this way it would reduce the duplication of efforts and delays in responding to issues which require immediate attention by health facility managers. Related to this, is the weak link between the Planning, Administration and the Accounts departments in the MOHP. The responsibility for tasks such as monitoring of unit costs (which are not routinely done due to several factors such as lack of appropriate budgeting and accounting systems and unreliable statistics), evaluation of programmes and services and the calculation of recurrent and development costs of all new projects lies with the Planning Unit.

However, the Accounts department calculates recurrent costs with little involvement of the Planning unit. This has resulted in recurrent cost implications not being taken into account when considering the development budget, in decisions regarding changes in skill mix or in determining the salary implications of new health workers (EU 1995). This was evident when one district hospital (Machinga) was completed in 1996 and had no resources to operate. This situation might slowly change with the introduction of Programme Budgeting which could improve operational efficiency in different departments.

2. Management of inputs into the public health care system

The Malawian public health sector could achieve great efficiency gains in the inputs into its health care system. To begin with, Malawi's expenditure on drugs and medical supplies (29.5 % of the total public health sector expenditure in 1995/96) is high by international standards. It even exceeds middle income countries like South Africa which spent only 12.5% on drugs and other pharmaceuticals in 1992/93 (McIntyre 1997). Despite such high levels of public expenditure on drugs and medical supplies, there is

great shortage of drugs and medical supplies in Malawian public health facilities (Forshall, 1996). These findings raises questions with regard to the efficiency of drug procurement, storage, distribution and use.

It could be found that least cost prescribing options are not used and there are either under, over or incorrect prescribing practices. It could also be found that there is inadequate information for planning and procurement of drugs and medical supplies, lack of transparency in the drug procurement prooess and irrational use of drugs by patients (MOHP 1995, Franco 1997). There is need for further investigation in this area. Further increases in the budget for such a malfunctioning system would perpetuate these problems. Health care spending should aim at obtaining better value for money.

There could be huge efficiency gains if drug budgets could be allocated on an efficient basis. This would require that quantification of drug needs be refined and that drug allocation is based on case mix. This would produce an equitable budget allocation as it would be taking account of attendance figures and morbidity profiles. Historically, quantification of drug requirements has been based on previous consumption of drugs and medical supplies and not on any rational basis of *need*. In addition, with the implementation of the Malawi Essential Drug Programme (MEDP) (the progarmme has formulated a National Drug Policy, Malawi Standard Treatment Guidelines and the Malawi Prescriber's Companion), there could also be huge efficiency gains if it could be fully implemented.

Currently, there are indications that these documents are not properly used. Informal interviews with 10 randomly selected patients in each of the sampled district hospitals and checking their prescription tickets vis-à-vis the guidelines in the books revealed fundamental differences. In addition, a study by Franco, (1997) on quality assurance revealed that these documents were not properly used. There is a need for further investigation into the use of these books and how best they could reduce the problems raised above.

Personnel emoluments in Malawi deserve special mention. By international standards, personnel emoluments in Malawi are low (averaging 40% of the total public expenditure) compared to over 60% recorded in other developing countries (Griffiths and Mills 1983, Barnum and Kutzin, 1993). For instance, in 1995/96, a doctor was paid MK20,000 per annum or $1,333.3 per annum, clinical officer and registered nurses were paid MK11,568 per annum or US$771.2 per annum and other cadres MK7,320 per annum or US$488 per annum.

It is also interesting to note that the purchasing power of these very low personnel emoluments has been significantly eroded by currency devaluations and inflation of over 60%. This could be one of the contributing factors to the fall of health workers' morale and poor health worker attitude. This situation should be carefully examined, otherwise a similar situation could arise to that of Tanzania and Uganda where about 30% and Guinea, where about 70% of the drugs were lost due pilferage and corruption (World Bank, 1994).

3. Unit costs

This section presents the results of a case study which was undertaken in the three Malawian district and two central hospitals.

To begin with, there are very high kitchen unit costs in the Malawian public health sector hospitals (see Table 6.14 below). There were substantial variations in the cost of food as a percentage of the total cost of provision (between 47 to 84%). The cost per inpatient day of the kitchen ranged from MK30.6 to MK55.5 for district hospitals and for central hospitals it ranged from MK60.2 to MK81.1. While this is the case, families continue to bring their own food for their relatives who are hospitalized. This therefore means that if free food provision is to be maintained, then other ways of providing food need to be considered, such as the possibility of contracting-out. However, the potential efficiency gains from contracting-out catering services must be fully evaluated.

As it stands now, most of the patients throw the food away yet a lot of resources have been spent on it (based on observation by the researcher and discussion with Management Teams and Kitchen staff). At present, the tendering procedures for food items at hospitals are not transparent. This could be one of the reasons why this input had higher unit costs (there is no competitive biding, and selection of the successful tenderer is not open, making it vulnerable to bribery and corruption). There could be efficiency gains in this input if tendering procedures could be open to the public and this is likely to reduce overall unit costs.

Table 6.14 Laundry and Kitchen unit costs for district hospitals, 1995/96

Very busy	30.6	5.6
Busy	41.4	9.1
Less busy	55.5	12.4

Source: Mwase 1997

The potential for efficiency gains in catering and laundry services requires further investigation. There are strong indications of economies of scale in the table above.

Overall unit costs in the three sampled secondary hospitals and two tertiary hospitals varied considerably. This could be due to differences in ALOS and bed occupancy rates. In cases where ALOS are long, average patient day costs might be low, but costs per admission or patient might be high and shorter ALOS might imply high average cost per patient day (Barnum and Kutzin 1993, Joint Policy and Planning Committee 1993). This could be the case in Malawian hospitals. Another contributing factor could be differences in input mix, case mix, and quality of care at different hospitals (Banurm and Kutzin 1993). Detailed analysis of unit costs vis-à-vis hospital service indicators is urgently required. This would assist in identifying hospitals which are inefficient and to identify areas of possible efficiency improvements.

4. Distribution of resources between levels of care

This section also presents a few results of the case study undertaken in the three Malawian district and two central hospitals and one MOHP and one mission sector health centre.

Tertiary hospitals in Malawi provide the bulk of primary health care for the urban population (out-patient services like minor injuries, see Table 6.15 below, for more details). This means that health care services (treatment of minor ailments) are provided at a cost that is higher than technically necessary, according to informed medical opinion as the unit costs are inherently higher (more skilled professional labour, more costly plant and equipment) than could have been provided at a lower level of health care facility (the disease diagnostic categories are the same across levels of care, see Table 6.15).

The proposed introduction of user fees at central hospitals and later at district hospitals, could produce efficiency gains as this could reduce the number of self-referred (by-passing) patients to tertiary hospitals and district hospitals and encourage patients to seek care at the appropriate level (health centres).

However, this reform proposal should be accompanied by improvements in public health services at the lowest level. The major reason cited by patients for by-passing is poor quality of care at the lowest level health care. Patients are hoping to obtain better quality health care at secondary and tertiary hospitals since these facilities have doctors and x-rays, laboratories for assisting diagnosis (Franco et al, 1995).

Table 6.15 Distribution of out-patient visits by level of care and major diagnosis category 1995

Tertiary	3.7	malaria, upper respiratory infection, other diarhoeal diseases, malnutrition
Secondary	5.6	malaria, upper respiratory infection, other diahoeal diseases, diseases of the eye
Primary	9.2	malaria, upper respiratory infection, pneumonia, other diahoeal diseases

Source: Derived from MOHP Health Information Data Base and patient registers

An analysis of the three sampled district and two tertiary hospitals reveals that there is considerable scope for improving efficiency in patient management. There is an indication that these hospitals are currently characterized by inappropriate diagnostic tests for patients (such as in the case of malaria), irrational prescribing and distribution of drugs (MOHP 1995) and a lack of consistent admission and discharge policies (Mwase, 1997). These issues could be one of the reasons for differences in average lengths of stay in the hospitals. However, as argued by Bronwell and Roos (1992), differences in ALOS rarely result from differences in case mix but rather relate to discharge policies. The situation in Malawi appears consistent with this observation by Bronwell and Roos (1992) (see Table 6.18 for differences in ALOS).

Table 6.16 below shows the average recurrent cost per inpatient day by hospital type and Table 6.17 shows the cost of out-patient services between public and mission health sector health centres (this comparison is deliberately made so as to show the appropriate cost of outpatient services in Malawi as most of the major diagnostic categories recorded at all levels of care are the same). Table 6.18 shows the average length of stay, bed occupancy rates and turnover rates in 1995/96. It should be mentioned, however, that there is serious over-crowding in Malawian public hospitals (1 bed accommodating 2 people and in childrens' ward 3-4 children on 1 bed and some patients sleeping on the floor, Mwase 1997).

Table 6.16 Average recurrent costs (MK) by facility type, 1995/96

Tertiary hospital	131.37	39.90
Secondary hospital	121.12	24.22
Health centre		3.55

Source: Mwase, 1997

Table 6.16 shows that the cost per out-patient visit is 11.2 and 6.8 times cheaper at a health centre than at central and district hospitals respectively. This is a good indicator of both allocative and operational inefficiency, since the major diagnostic categories reported at all levels of care are almost the same (see Table 6.15). Even though it could be argued that the severity of the cases differ, this is usually not the case in Malawi. Central hospitals' out-patient departments are being used as health centres by the urban population and the same is true for district hospitals.

This was one of the reason that the World Bank recommended that user fees be introduced in Malawi, starting with central hospitals and then for district hospitals. This was meant to generate revenue and at the same time encourage appropriate utilization (World Bank, 1991). Out-patients could be seen at lower levels of care and the saved resources could be used to improve the quality of care for inpatients or re-directed to cost-effective strategies than remedial care (World Bank 1994). Preventive health care such as vector control, construction of sanitation facilities and environmental protection is the most cost-effective way of delivering health services (World Bank, 1994).

This inappropriate distribution of resources therefore need redress as the provision of tertiary hospital-based curative care is benefiting few citizens. In 1995/96, MK134.5 million (the number of out-patient at tertiary hospitals in Table6.15 multiplied by difference between the cost of out-patient at a health centre and tertiary hospitals in Table 6.16) and MK115.8 million (the number of out-patients at the secondary hospitals in Table 6.15 multiplied by difference between the cost of out-patient at a health centre and the secondary hospitals in Table 6.16) could have been saved if health centres were being used instead of tertiary and secondary hospitals respectively (even though not all funds could be saved due to the existence of referred patients, but this would be a smaller number of outpatients as compared to the existing situation). Thus, a total of MK 250.3 million could be saved if tertiary and secondary hospitals were being used for the purposes they were intended for i.e. severe cases, but referred. These saved funds

could be used for preventive health services or improving the quality of inpatient care which is currently poor (Franco et al 1995, Franco 1997).

Let's now see the cost of providing out-patient services between MOHP and mission health facilities.

Table 6.17 Cost of out-patient services between public and mission health centres, 1995/96

Curative	1.3-5.8	2.4-15.5
Maternity	46.8-105.8	51.0-385.1

Note:* apart from Malamulo private hospital in Blantyre which is too expensive for ordinary Malawians
Source: Mwambaghi et al (1995) and Mwase 1997

Table 6.17 shows that the mission health centres are more expensive than MOHP ones and this could be attributed to differences in input mix and quality of health care. The high cost of providing health services by the mission sector could be one of reasons for the serious recurrent expenditure crisis in mission health facilities (Gondwe, 1996). The attempt to raise user fee revenue in the face of poverty (most of the facilities are located in the rural areas where poverty is over 64%, Malawi Government, 1992) has resulted a in reduction in utilization levels and people having to walk long distances to obtain free care at MOHP facilities (MOHP and CHAM 1992, Franco et al 1995).

This investigation has also revealed that actual public expenditure on preventive services is extremely low, despite the clearly stated government objective of increased provision of preventive services, such as malaria control, birhazia control, EPI, AIDS control etc. In 1995/96, the government spent only 5.8% of the total public expenditure (excluding donor funding) on preventive services and 5.4 % of the total health care expenditure if donors are included (see Table 6.21). This is a serious misallocation of resources. As pointed out earlier, the majority of the Malawi population is rural (about 87%) and preventive services could be argued to be the most cost-effective way of delivering health services rather than curative care (World Bank 1994).

It could be argued, however, that many of the preventive programmes in Malawi are financed by donors hence require little public expenditure. This is not true. The actual expenditure on some special programmes reveals that the task of eliminating common diseases in Malawi, as stated in the Health Policy Framework paper of 1995, is far from being over as allocative inefficiency continues to dominate in the health care system. Table 6.18 below shows the actual expenditure on special programmes.

Table 6.18 Expenditure on some special programmes, 1995/96

Tuberculosis	1.2	0.2
ARI	0.9	0.2
Malaria	0.5	0.1
Schistosomiasis	0.009	0.002
Trypanosomiasis	0.04	0.01
Safe motherhood	0.7	0.1
AIDS*	10.5	2.3

Note * government contribution was only 5%.
Mwase, 1997
Basic source: MOHP actual expenditure print-outs and donors estimate

The table above clearly shows that there is a mismatch between the government commitment to eradicate most of the commonest causes of ill health in Malawi. As presented in section 3, malaria is the commonest cause of morbidity in all the three regions of Malawi, yet only 0.1% of the total public health care expenditure (including donor funding) was actually spent on its control. This also applies to ARI. There has been a dramatic increase in the number of TB patients (almost 342% in eight years, MOHP, 1997) and yet only 0.3% of total public recurrent health care expenditure (including donor funding) was spent on TB control.

AIDS is now the leading cause of death in adults aged 20-40 years in Malawi and yet the public health sector only spent 0.1% of its resources on HIV programmes while the remainder of the programme was funded by donors (MOHP, 1997). This is an indicator of serious allocative inefficiency. Public finances should be allocated where they will benefit the majority of the population. By reducing the risk of contracting these diseases, substantial resources could be saved which are currently being spent on curative care (the major cause of hospital admission are the same diseases) (MOHP, 1995).

As noted in Tables 6.4, 6.8, 6.9 and 6.10 above, there are more health care facilities and personnel in the urban areas than in the rural areas. However, the rural areas have higher prevalence of diseases and worse basic indicators than urban areas. Table 6.19 shows the prevalence of diseases and summarizes basic indicators for rural and urban areas in Malawi in 1995.

Table 6.19 Prevalence of diseases/basic indicators between Urban and Rural areas in Malawi, 1995

population (%)	13	87
Children with diarrhoea (%)	19.3	26.3
prevalence of fever	37.0	41.0
prevalence of ARI	14.9	21.6
Malnutrition rates (%)	33.5	49.7
Infant mortality rate	118.1	138.0
Under five mortality rate	205.4	243.9
access to adequate sanitation	22.4	3.7

Source: MDHS (1992) and Malawi Government (1996)

This is a clear indicator of allocative inefficiency. The majority of the population are in rural areas and they have the greatest burden of ill-health and yet most of the health care resources are concentrated in urban areas. This is one good explanation behind the poor social and health indicators in Malawi, despite the relatively high government expenditure on health as a percentage of government revenue.

Another technical/allocative inefficiency issue in the Malawian public health sector which requires immediate further investigation is the distribution of health personnel between levels of care against their authorized establishments. In its Health Policy Framework Paper (1995), the MOHP has identified the shortage of health personnel as a critical factor impeding the efficient and effective delivery of health care services in Malawi.

However, comparing the number of MOHP health personnel in-post in 1995/96 against their authorized establishment, this investigation has found that there were more health workers than the authorized establishment at both tertiary and secondary level of care and a personnel shortage only existed at the primary level. Table 6.20 below, shows the distribution of staff against their establishment in 1995/96. It could be argued that current establishment is now out-dated as it was published in 1988 when AIDS related illnesses were not a big health problem.

Much as this could be true, it should be noted that shows has a major implication for human resource planning. Extensive studies were conducted prior to the publication of the MOHP the personnel establishment in 1988. These studies looked into several factors and chief among them was health personnel needs in the 1990s. Thus, if it is rendered obsolete within the period it was supposed to be effective, shows implies a major drawback on human resource planning. It is therefore be borne in mind

that the next MOHP personnel establishment/manpower development plan be made with full view of the weaknesses of the earlier attempt to rationalize health personnel distribution in the MOHP (i.e. the current personnel establishment).

Table 6.20 Distribution of MOHP health personnel against their authorized establishment, 1995/96

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Doctor	94	94	0	30	24	-6	14	0	-14
Clinical off	85	117	+32	124	130	+6	22	19	-3
Med. Asst.	150	161	+11	71	138	+67	277	244	-33
Nurses	776	1,118	+342	600	684	+84	775	683	-92
Pharmacist	27	53	+26	11	29	+18	0	+6	+6

Note Auth.= Authorized, diff= difference, Med. Asst. = Medical Assistant
+ means excess
-shortage
Source: Mwase 1997
Basic source: MOHP Manpower Development Unit survey (1996, 1997)

5. Hospital service indicators: average length of stay, bed occupancy rate and bed turnover rates

This is another section which presents the results of a case study undertaken in the three districts and two central hospitals.

As previously mentioned, there were substantial disparities in the lengths of stay and bed occupancy rates between wards and public hospitals sampled in the 1995/96 financial year. Bed occupancy rates for district hospitals ranged from 99.7% to 141.5% and for central hospitals, it ranged from 99.4% to 143.2%. The length of stay for district hospitals varied from 7.0 to 10.2 days, while for central hospitals, it varied from 9.7 to 11.2 (apart from TB cases). There were variations within the hospital level (i.e. between district hospitals), but there were no substantial differences between the levels of care (district and central hospitals).

International experience has shown that there is great scope for efficiency gains if hospitals could reduce ALOS. Barnum and Kutzin (1993) found that ALOS at secondary hospitals were 6.2 days while at tertiary level hospitals were 9.5 days. In the Malawian sampled hospitals therefore ALOS are high and could be reduced by the introduction of the following: surgical and medical protocols, technology for diagnosis, more effective treatment and standardized treatment and discharge policies (Joint Policy Planning Committee 1993).

The variations in ALOS and bed occupancy rates within the hospital level (i.e. between district hospitals) could be attributed to differences in case severity, differences in age groups in different locations and differences in discharge policies. While no substantial differences between the levels of care (i.e. between district and central hospitals, see Table 6.21 below) could chiefly be a reflection of admission at the inappropriate level of care (Machman et al 1991). This means that a large number of cases that could have been hospitalized at the district hospitals are hospitalized at the central hospitals (in Malawi, inpatient diagnostic categories are similar between levels of care, MOHP 1995) and this is a good indicator of allocative inefficiency (cases could be treated at a lower cost than is the case now).

Table 6.21 Average length of stay, bed occupancy and turn over rates for public hospitals, 1995/96

Tertiary		
Bed occupancy	143.2%	99.4%
ALOS	11.2	9.7
Bed turnover	46.6%	37.4%
Secondary		
Bed occupancy	141.5%	99.7%
ALOS	10.2	6.7
Bed turnover	50.6%	54.3%

Source: Mwase, 1997

However, the bed turnover rates were lower at central hospitals than at district hospitals. This could be attributed to differences in case severity seen at these two levels of care, but this is not a serious case in Malawi (MOHP 1995). The most likely cause of this difference could be discharge policies. There is need for investigation of the discharge and admission policies in Malawian public hospitals.

It was also observed that maternity patients' and children's wards had shorter lengths of stay than patients in the female and male wards which were consistently higher than the rest of the departments (see Tables 6.22 and 6.23 below). As pointed out earlier on, these variations in the length of stay between hospitals suggest some scope for reducing length of stay, mainly in district hospitals categorized as "busy".

Table 6.22 Hospital service indicators by ward in Malawian district hospitals categorized as 'very busy', 1995/96

Male	11.5	110	36.9
Female	10.0	106	65.3
Paediatric	9.0	108	48.3
Maternity	6.1	205	82.7
TB	48	210	16.0

Source: Mwase 1997

The hospital service indicators for those hospitals categorized as 'busy' were a bit different. (see Table 6.23 below).

Table 6.23 Hospital service indicators of hospitals categorized as 'busy', 1995/96

Male	10.4	116	40.0
Female	9.7	91	58.4
Paediatric	8.4	99	42.7
Maternity	6.5	180	65.6
TB	41.0	230	20.5

Source: Mwase 1997

6.4 Planning and policy implications of efficiency issues in the Malawian public health sector

There are several issues which have been raised in the above analysis which have a direct and indirect impact on efficiency of the public health care system. It should be noted, however, that further investigation is required so as to avoid perpetuating inefficiencies in the public health care system. For instance, the possibility of contracting-out of laundry and catering services requires additional information and careful costing so as to determine potential efficiency.

There is an indication that re-organizing the public health sector in Malawi could improve efficiency in resource allocation. Decisions regarding resource allocation are made at the headquarters without much input from the hospital and peripheral units and as noted above, resource allocation in the Malawian health sector is not based on any rational criteria. The starting point should be to address this situation.

One way of achieving this, is to implement decentralization accompanied with authority (Gilson et al 1994). This would give hospital and peripheral managers greater decision-making powers. Having done that, a mechanism for resource allocation based on *need* should be developed. With decentralization and the needs-based formula in place, it could be possible to integrate resource allocation with planning and budgeting (Green, 1992).

There is a need to further investigate admission and discharge policies in Malawian hospitals. Further investigation on discharge policies might reveal that some hospitals have more efficient discharge policies, but that some categories of patients are kept longer than necessary and vice-versa. There could be efficiency gains if both treatment and discharge policies are standardized according to case mix groups. Such improved efficiency could entail things like savings per case, greater patient number with the same number of staff and shorter waiting lists for patients to be admitted (Barnum and Kutzin 1993, Joint Policy and Planning Committee 1993).

Using the Barnum and Kutzin (1993) study, Malawian sampled public sector hospitals have high bed occupancy rates compared to other developing countries which have rates of between 85-90% and are thus very crowded. These high occupancy rates reflect public hospitals which are busy, have high bed turnover rates and long ALOS (as noted above). This might mean that Malawian hospitals are on relative terms incurring higher unit costs for staffing, administration and maintenance (Barnum and Kutzin 1993, Joint Policy and Planning Committee 1993). These issues require further investigation.

The issue of relatively high public expenditures on drugs, while there is great shortage of drugs in the health facilities requires further investigation by management and planners. Increasing the drug budget to a malfunctioning system would lead to perpetuating this problem. The serious issue of low personnel emoluments in the face of high inflation rates and increased user charges for other public utilities (water, electricity) needs further attention. This issue should be appropriately addressed, otherwise the proposed reforms will not address the real issues behind poor quality of care in public health facilities.

6.4.3 Summary

This section has evaluated the equity in the delivery of health services in the Malawian health sector in detail. It has been seen that resources are inequitably distributed in terms of geographic areas. The North having more resources than the South and Centre. The urban areas have more resources than the rural

areas, despite the large population and high prevalence of diseases/worst basic indicators in the rural areas.

It has also attempted to provide insights into the efficiency issues in the Malawian public health sector. It should be mentioned, however, that health care reforms should aim at maximizing efficiency and this requires a combination of factors. One needs to determine whether the given budget is maximizing the health status of the population. Ideally, this would involve cost-effectiveness or cost-utility analyses measured in terms of health outcomes. In this context, there is a need to assess whether resources are allocated efficiently in the health care system (public hospitals in particular). At the same time, one must consider whether the appropriate amount of resources have been allocated to the health sector (the hospital in particular). Lastly, it must be determined whether hospitals are treating the maximum number of patients possible based on the inputs and whether they are achieving this at the least possible cost. Such studies need to be done in the Malawian health sector (especially in the public sector). It would be possible to identify potential areas of efficiency improvement rather than concentrating all efforts on looking for additional resources.

SECTION 7: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

7.1 INTRODUCTION

This section summaries the main findings of this study with regard to the key economic objectives of health care, namely equity and efficiency, and identifies the major challenges facing the Malawi government in its efforts to improve the health status of the majority of the Malawian population. Sub-section 7.2 provides the summary of equity issues in the Malawian health sector while sub-section 7.3 is the summary of insights into efficiency issues in the delivery of health services in Malawian public health sector. Sub-section 7.4 suggests a way forward.

7.2 SUMMARY OF KEY ISSUES IN EQUITY OF THE DELIVERY OF HEALTH CARE SERVICES IN MALAWI

This investigation has revealed that inequities exist in the delivery of health services in Malawi if evaluated in terms of equal resources for equal *need* and affordable access. The resource distribution pattern favours the North and partly the Centre, which have better socio-economic and health indicators than the South. The North has more health personnel per 100,000 population apart from doctors between levels of care and between rural and urban areas. It also has the highest expenditure per capita. The South, with its greatest capacity to benefit (i.e. worst socio-economic and health indicators) has the lowest health personnel per 100,000 population apart from doctors and has also the lowest expenditure per capita.

This situation calls for immediate attention by both planners and policy-makers to re-allocate the resources so as to achieve equity at all levels of care and between rural and urban areas. In particular, it is evident that there are few health care resources devoted to the preventive health care level, despite the Government's stated priority to this level of care (stated in the Health Policy Framework Paper of 1995). Resources also have to be shifted from urban to rural areas in the Northern and Central regions, and from secondary and tertiary levels to the primary health care level. It should be noted, however, that this poses a big challenge to the Malawi Government.

Much as a re-deployment policy can be developed and effected, there are still thorny issues remaining. In the case of married nurses (less than 1% of nurses are male, and the female nurses once married follow their husbands, MOHP 1995, MOHP 1997), how are they going to be redployed and at the same time minimize social disruption of families? In the case of redployment of health workers from urban to rural areas, what incentive package will be available to those going into the rural areas (and not forgetting that this incentive package will also involve financial resources which are already in short supply and misalloacated). Housing is one of the problems besetting staff deployment to the rural areas (MOHP 1995). It could be recommended therefore, that more and better houses be built in rural areas, but this will entail substantial amount of resources which are currently unavailable and misallocated.

The problem cited by health workers for decline in staff morale has been lack of promotion (MOHP 1995). It is therefore recommended that promotion to higher grades be made once one has served in the rural areas for say four years. Much as this could entail some costs, it could be manageable within the resource envelope (the salaries are already too low) as compared to building new houses for staff. Related to this, is the lack of training opportunities (cited by health workers as affecting their morale, MOHP 1995). Thus, it could be recommended that training opportunities be made available, once one has served in the rural areas for say four years. These recommendations, however, face some immediate challenges. It could lead to a huge influx of health workers wanting to go into the rural areas, despite lack of accommodation, opting to rent own their own. Thus defeating the whole rational process of resource allocation.

Alternative ways of shifting resources need to be worked out and this should be done gradually to avoid disrupting health services at regional level i.e. North and Centre, and at the levels of care i.e. secondary and tertiary care. This gradual shift of resources would give more time for the development of infrastructure and skills to manage the additional resources in the South. The North and the Centre should also be given time to plan for the reduction in their activities. Failing to do so, it is more likely that inequity will be replaced by inefficiency in the Malawian health sector, since the Southern region might not have capacity to manage the additional resources and the North and Centre might have too many activities with few health workers to manage them.

As pointed out earlier on, construction of a 300-bed hospital is underway in the North, but this investigation has established that the North is currently better resourced than the other two regions. This means that this new hospital in the North would greatly exacerbate the inequities in the Malawian health sector. This new facility once completed, would require more health workers, financial resources which

are currently unavailable and already allocated in favour of the North itself. One can therefore imagine how big the gap will be between the North and the other two regions when this hospital is completed.

To postpone construction at this stage would be naïve as most financial resources have already been incurred, the project is contractually bound and would likely make the government unpopular. It would have been prudent to upgrade Rumphi district hospital which is currently being used for some minor tertiary care into a full tertiary level care centre for the North. By doing this, the amount of resources being used for the construction of the new hospital could have been used on other development projects by the donor (being built by Taiwanese government) and the MOHP could have evaded the future huge recurrent costs for the hospital.

One important thing which should be explained is that over 75% of the Malawian development budget is funded by donors (donors just fund the construction of the facilities and leave it to the MOHP for recurrent costs). This investigation has found that the Malawian health sector has already got a good network of health facilities. About 85% of the population live within 10 km of a health facility (Malawi Government and UNICEF 1992, Malawi Government 1996). However, there is both absolute and relative inadequacy of financial resources for running these facilities. It is therefore proposed here, that the Malawi Government should convince donors to postpone funding of construction of buildings and instead assist in funding the recurrent cost of the already existing facilities or rehabilitating the dilapidated buildings and equipment. Such moves could improve the existing situation and consumers could regain their confidence in public health care facilities.

The continuous construction of health facilities while not maintaining the old ones will require much more resources in the future. The old buildings and equipment will reach a stage were they are beyond rehabilitation and new ones would be required. This situation must be reversed. Donors as partners in health service delivery must be made to understand that the Malawi Government has limited resources and ineffective new buildings (i.e. without recurrent revenue to run them) will not improve health service delivery in Malawi and already there is a good coverage. It should be emphasized that what is required in Malawi now, is to improve the current situation of health service delivery (stock facilities with drugs, better equipment, consumables and improvement in staff morale) not new facilities without recurrent revenue.

The other important issue to note, is the role of politics in health care planning (Green 1992). It has been recommended here that resources have to be shifted from the North to the South and Centre, but this could not be acceptable to politicians. The evidence emerging shows that the North already feels that it is underdeveloped therefore, it needs more resources (apparently a few detailed analyses similar to this investigation have been done in Malawi to establish that any other region has more resources than the other) and the new government is busy trying to provide more economic and social services in the North (Malawi Government 1994, 1996; Malawi Nation September 22, 1997; Daily Times September 22, 1997; Malawi Nation September 27- October 3, 1997).

Thus, implementation of the above recommendations relies heavily on political decisions and Planners, MOHP management, health administrators in all the three regions should seek ways of convincing, donors, the Malawi population (especially politicians in the North and the Cabinet) that there are currently inadequate resources in the health sector (to be cited as the reason behind poor quality of care) and that the most feasible alternative available is to effect redistribution of the existing resources in the health sector.

This, however, should be based on the local plans submitted by the South, otherwise inequity will automatically be replaced by inefficiency.

According to Reagon et al (1997) they have suggested that resource redistribution, could also be effected by a slow rate of growth in the region which is underresourced and a slow rate of relative contraction in the region which is over resourced and no real budgetary increase or small decreases. This could be a better and feasible option for the Malawian health sector which could not draw a lot of controversy like the physical shifting of resources. A slow rate of growth could be effected in the South, while simultaneously effecting a slow contraction in the North and Centre.

They have further suggested that extra funding, obtained through a real budgetary growth in the global health budget, through a gradual redistribution or through efficiency savings within the public health sector, should be channeled to the underresourced region. This again seems appropriate and it could be feasible in the Malawian scenario presented here. Gradually the North and the Centre will be losing resources while the South is gaining till inequity has been reduced.

It should be cautioned, however, that there is need for a defining the time period under which this process of redistributing resources will be completed. Should the time period be very short, it is more likely that

health services will be disrupted. Should the time period be very long, it is more likely to meet changes in population movements or population growth rendering it obsolete. Thus, a realistic goal of achieving this redistribution process needs to be worked out by planners, policy-makers and politicians.

As noted again in this investigation, access to affordable services is also inequitable in Malawi. This inequity arises from the MOHP policy of not constructing a health facility if another one exists. As seen above, there is already a maldistribution of public resources in Malawi, and this is worsened by the fact that most of the mission facilities are located in rural areas (about 92% in 1995) where there is great poverty and high illiteracy rates. This implies that mission services are only available to a small percentage of the population, thus exacerbating inequities.

Unless this situation is redressed, inequity will persist in the Malawian health care system despite the large number of mission facilities in the rural areas. It could be recommended that one way of correcting this situation is to introduce user fees at public health facilities, however, its equity and revenue generation potential should be first investigated as it might worsen the current inequities and inefficiencies.

Another way is that of increasing government subsidies to mission and private-for-profit sector facilities so that they provide health services to the public at a lower cost in areas where government services are unavailable rather than relying on user fees to cover their operating costs. This recommendation however, poses a big challenge to the government. As noted in this investigation, the Malawian health sector relies heavily on public sector revenues (about 47.2% in 1995/96 of the total expenditure) and in the face of limited economic growth, it is unlikely that this would be feasible. In addition, there are competing sectors such as education and agriculture which also need government resources.

7.2 SUMMARY OF INSIGHTS INTO EFFICIENCY ISSUES IN THE DELIVERY OF PUBLIC HEALTH CARE SERVICES IN MALAWI

The issues raised in this study provide insights into the efficiency of the Malawian public health sector. These issues are inter-linked and they mainly point to the absence of a rational way of allocating resources. However, there is a great need for further investigation.

There exists inefficiency in resource allocation in the Malawian health sector. The rural areas in Malawi have the worst socio-economic and health related indicators as compared to the urban areas and yet they

are poorly resourced. Most of the resources are concentrated in urban areas, the home of 13% of the Malawian population with better socio-economic and health related indicators. This situation must be immediately redressed. Resources have to be shifted from urban to rural areas. However, this recommendation faces the same challenge as that of improving equity noted above i.e. lack of accommodation in rural areas (MOHP 1995).

It has been noted that most of the resources are concentrated at secondary and tertiary care levels and the primary health care continue to suffer from underfunding. This is a good sign of both inequity and allocative inefficiency. Provision of primary health care could be argued to be the most cost-effective care especially in situations where the disease diagnostic category is the same between levels of care (World Bank 1994). Tertiary and secondary level require highly qualified personnel, sophisticated equipment etc. such that the unit cost for provision of health care is higher than that at primary level care (see Table 6.16 above).

This situation should be reversed. It is a clear sign of mismatch between the government's stated objective of attaching a high priority to primary health care and the expenditure patterns. There could be huge efficiency gains if primary health care could be well resourced. This could reduce utilization rates at both secondary and tertiary level care. The savings could be used to extend services to the currently underserved areas or purchasing other inputs, thus improving the quality of care.

Preventive care could be argued to be the most cost-effective way of delivery health services (World Bank 1994). However, this investigation has found that preventive care consumed only 5.8% of the total public health care expenditure (excluding donor funding) in 1995/96. This is a serious allocative inefficiency issue. The majority of diseases in Malawi could be prevented through inexpensive technologies such as provision of safe water, malaria interventions (cutting grass short around houses and spraying insecticides in malaria endemic areas), good sanitation, and information, education and communication (World bank 1994).

The cost of these preventive measures could be lower than that of treating 18.5 million out-patients in 1995 with diseases which could be prevented by implementing the above measures. If the Malawian health sector could seriously resource preventive health care programmes, it is more likely that utilization rates at the health facilities would decline. This therefore would result in efficiency savings in both the medium and long term. The saved resources could be used to rehabilitate the deteriorating buildings, equipment and purchase of consumables.

The most important thing the Malawian health sector should immediately do is prioritize its expenditure on the top leading reported causes of morbidity. For example, this investigation has shown that malaria is the leading cause of morbidity at all levels of care. Thus, it consumes most of the health care resources. The control of malaria could therefore, save the Government a lot of resources even though this will entail substantial costs in the short term. However, in the medium to long term, the Malawian health sector and the economy (through an increase in productivity) could have enough resources to spend on other activities such as health care for AIDS patients.

Our concern here is that, given that the problem is known (i.e. Malaria), why not invest resources in its control now in order to achieve future gains? One could argue that there is no effective preventive measure for Malaria. This is not the case. Impregnated mosquito nets have proved to be efficacious in studies in The Gambia, Kenya, and Ghana (Snow et al 1987, Greenwood and Pickering 1993, Alonso et al 1993a, Alonso 1993b, Nevill et al 1994, Binka et al 1996). It has been demonstrated that impregnated mosquito nets reduced 60% of mortality in children aged 1-4 years and it also reduced episodes of fever by 45% among children who slept under nets in The Gambia (Alonso et al 1993a). Impregnated mosquito nets have even proved to be efficacious under different epidemiological and cultural conditions (Nevill et al 1994, Binka et al 1996).

Thus, it is recommended to the Malawi government, donors, non-governmental organizations to investigate ways of financing the National Impregnated Mosquito Net Programme. Sources of financing this programme need careful evaluation, however, because malaria has been a problem in Malawi for decades and to hear that an effective measure has been found, there will be more likely a great enthusiasm (Mills et al 1994). For example, to ask individuals to pay, would more likely lead to foregoing other essential commodities at the household level such as food, education and future investment (Russel 1996) to pay for mosquito nets and the insecticides for impregnation.

Another area of great importance is that of management and planning in the health sector. It has been a tradition that management and policy-making in public the health sector is dominated by medical doctors and Malawi is no exception. This scenario could be one of the reasons behind the heavy bias towards curative care at the expense of preventive care (WHO, 1994, World Bank 1994). Compounding the situation is the fact that few of these medical doctors have management and planning skills.

Much as it could be important to note that doctors and nurses play an important role at the hospital level/central administration, top management and planning should be left or include those with management and planning skills (WHO, 1994). The situation whereby top management posts in the health care system are held by medical doctors, must be reversed if efficiency matters to the public health sector. This could be achieved through expanding the traditional role of doctors by including training in management and planning (WHO 1994).

Some of the noted management problems which could give an insight into efficiency issues are high expenditures on drugs and medical supplies of 29.5% of total public health care expenditure in 1995/96 and yet in this financial year, the public health sector experienced the worst drug crisis (Forshall 1996). This situation demands immediate further investigation. Internationally drugs and pharmaceuticals consume below 20% of total public health care expenditure (World Bank 1994). It could be found that there are inadequate buying practices, irrational prescribing practices, pilferage and poor storage of drugs (World Bank 1994).

However, one could argue that this high percentage of expenditure on drugs and at the same time shortage of drugs in the facilities resulted from increase in drug prices without substantial increase in quantities of drugs (i.e. inflation) (drugs in public sector are imported and the value of Malawi Kwacha fell drastically in the financial year 1994/95 following the floatation of the Malawi Kwacha against other currencies). This could not be true. Table 5.10 shows that even before the financial year 1994/95, Malawi's public expenditure on drugs and medical supplies was already above international standards.

In addition, there are currently proposals to privatize Government Central Medical Stores (MOHP 1995). This could be one way of improving efficiency. However, this will unlikely change the way health personnel prescribe, distribute, and store drugs and medical supplies at health facilities. The very same health workers at health facilities will be responsible for prescription, distribution and storage of drugs. Thus, it is recommended that immediate investigation be carried out to stamp out all factors impeding efficiency in the prescription, distribution and storage of drugs and medical supplies at public health facilities before privatizing the Government Central Medical Stores.

It was also noted that there were major variations in unit costs amongst the sampled hospitals. These variations could also be true for the other remaining public hospitals. Differences in unit costs are dependent on several factors such as: the size of the hospital, age of the hospital and equipment, average length of stay, bed occupancy rates and some external factors such as the source of energy and water.

Further investigation should be carried out to identify ways of reducing these unit costs to the mean cost per patient day (McIntyre 1997).

Using the Barnum and Kutzin (1993) study, Malawian sampled hospitals have high bed occupancy rates and are crowded compared to other developing countries, which have bed occupancy rates of between 85-90% .These high bed occupancy rates could reflect public hospitals which are busy, have high bed turnover rates and long ALOS (as noted in this investigation). This might therefore mean that Malawian hospitals are in relative terms incurring higher unit costs for staffing, administration and maintenance (Barnum and Kutzin 1993, Joint Policy and Planning Committee 1993). These issues require further investigation.

This investigation has also noted that there is poor link between the Planning, Accounting and Administration departments in the MOHP. According to Green (1992), budgeting is part of the planning process. However, in the Malawian public health sector different departments and different people are responsible for planning and budgeting. Recurrent costs are documented by the Accounts department without much effort to translate the objectives of the health sector into recurrent budgets, while development budgets are prepared by the Planning Unit without taking account of the recurrent expenditure implications. Complicating the situation further, is the fact that the Accounts department reports directly to Administration without much consultation with Planning Unit (EU 1995).

This scenario could be one of the reasons behind the prolonged historical budgeting process (including the Medium Term Expenditure framework) in the public health sector which does not reflect the changes in the volume of activities, case mix or input costs.

In the absence of the needs-based formula there is need to integrate the functions of Planning Unit and the Accounts sections. According to Green (1992) and Reagon et al (1997), they have indicated that if planning, budgeting and resource allocation could be integrated, there could be equitable distribution of resources between regions and districts on the basis of population size and the need for health care. In addition, there could be improved allocative efficiency between regions, urban and rural areas and districts. Finally, there could be efficient utilization of resources within the regions, urban and rural areas within districts.

Thus, integrated planning, budgeting and resource allocation could achieve the same results as that of the needs-based formula. Since, Malawi does not have data on morbidity/mortality which could be used as an indicator of *need*, the starting point therefore is to integrate the Planning and Accounts sections. This again could be one way of avoiding political pressure which could be faced if the needs based formula is developed and used in resource allocation in the Malawian health sector.

In this investigation, personnel emoluments takes the largest share (averaged 40%) of total recurrent public health sector expenditure. However, by international standards this is very low (over 60% of public recurrent expenditure is spent on personnel related costs in most developing countries, Griffiths and Mills 1983). Staff numbers and mix and the way in which their skills are used within the health facilities can greatly impact on efficiency (Joint Policy and Planning Committee 1993). It has been noted, however, that there is an inefficient allocation of health personnel in the MOHP. Areas/levels exist where there are more staff than required while others have too few staff.

Further investigation should be carried out to assess the optimum staffing levels in the public health sector by using various predictive models. Such an investigation should be accompanied by detailed information on job descriptions and data on case mix and case severity. Efficiency could also be achieved by expanding the traditional roles and job descriptions of health workers such as Medical Assistants and Enrolled Nurses to include non-traditional responsibilities. This could be achieved by improved appropriateness of training, multi-skilling and cross-training (Joint Policy and Planning Committee 1993). The introduction of the new training programme for nurse technicians is a move in the right direction (MOHP1997).

Another important issue related to this, is the low salaries in Malawian public health sector (it should be noted again that all health workers are under the civil service). This situation requires further investigation as it could be one of the reasons behind low staff morale, poor health worker attitude towards patients and poor quality of care i.e. no thorough diagnosis, irrational prescribing practices (Franco, 1997). Compounding the situation, is the factor that the already low salaries have been heavily eroded by inflation of over 60% (World Bank 1996) and the increase in user fees for education, water and electricity following government's austerity measures to increase public revenue and make parastatal organizations self -financing (Malawi Government, 1997).

The impact of these policies on the health workers, need to be explored and immediately addressed, otherwise additional resources to the health sector without a substantial improvement in personnel welfare will have little impact on the efficient delivery of health services health workers (and civil servants). As noted previously, such low levels of personnel income could lead to high pilferage of drugs and medical supplies, corruption and health workers may start moonlighting.

This scenario should not be allowed to happen. It will jeopardize all the efforts made to improve health service delivery in the Malawian public health sector. It is therefore incumbent upon the Government of Malawi to undertake a detailed analysis of the impact of low salaries for health workers in the delivery of sound health services in Malawi.

7.4 The way forward

Testing the hypothesis of this dissertation:

' in the face of limited resources to the health sector in Malawi, the health status of the majority of Malawian population could be improved through a more efficient and equitable allocation of the limited resources currently available rather than by concentrating all efforts on looking at the alternative ways of bridging the resource gap, which is not yet known'.

This investigation has established that although the Malawian health sector has a shortage of resources, a high percentage of public funds allocated to the public health sector are not used on cost effective goods and services. There is great scope for improving the health status of Malawians within the resource envelope currently available by reducing inequities and inefficiencies. Instead of symbolic pledges, time has now come to actually allocate resources to preventive and primary health care (even though primary health care expenditure is higher than that recommended by UNICEF of 20% of public health care expenditure) and reduce public spending on expensive and urban-based curative health care.

The categories of disease diagnosis are the same between the levels of care, hence if primary level facilities could be adequately resourced in terms of both financial and human resources, it is more likely that utilization rates at secondary and tertiary level facilities could decline significantly. Most episodes of illness reach a critical stage requiring secondary and tertiary care because of a lack of adequate care at the peripheral and peri-urban facilities (Franco 1997).

In summary therefore, this investigation has established that:

- **there is scope for improving equity in resource allocation;**
- **there is scope for improving resource distribution in favour of the primary health care level;**
- **there is potential for efficiency gains, however, further investigation needs to be carried out; and**
- **there is need for multi-sectoral approach in implementing programmes since the health status of individuals is not influenced by health care alone and this investigation has shown that all indicators are worse in Malawi.**

It is therefore incumbent upon the Malawi Government through the Ministry of Health and Population to improve equity and efficiency of the of the use of the existing resources. Only then can they consider additional financing mechanisms of health care services.

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APPENDIX 1: Health service delivery in Malawi

		Primary level		Secondary level	Tertiary level
	community	health centre/dispensary/ maternity	Rural hospital		
Services	promotive /preventive e.g water, sanitation,	curative, preventive and promotive including under 5 clinics, EPI, nutrition clinics, antenatal clinics, basic delivery services, family planning	same as health centre plus in-patient care and some times laboratory, x-ray and essential obstetric care	same as health centre plus first referral services: in-patient care, lab, and x-ray, surgery, comprehensive of obstetric care, mobile clinics, ambulance services	primary and secondary for host district, tertiary medical and surgical care for the region, specialized lab/radiology/ engineering support services
Staff	Health Surveillance Assistance	Max1, ENMx2, HAx1, +/- CHN	CO/MA, RN/ENM/HI, +/- CHN	MO/CO/RNM/ /CHN/HI/LA/P A/DA/CCT	As Secondary level, in addition specialist MOs and support technicians
Supervisory function	VHC/CHV/ TBA	HSA/TBA/CHV	sometimes health centre's HSA/TBA/CHV	Manages and supplies all govt. health centres, supervises and co-ordinates all district facilities and programmes	Technical back-up for clinical services in district hospitals, Specialist visits to district hospitals.

Source: Adapted from EU (1995)

Staff Legend

CHS-Chief of Health Services
DHO- District Health Officer
RHO- Regional Health Officer
VHC- Village Health Committee
TBA- Traditional Birth Attendant

Preventive Staff

HI- Health Inspector
HA- Health Assistant
HSA- Health Surveillance Assistance
CHN- Community Health Nurse
CHV- Community Health Volunteer

Clinical Staff

MO- Medical Officer
CO- Clinical Officer
MA- Medical Assistant
ENM- Enrolled Nurse Midwife
RNM-Registered Nurse Midwife
DA- Dental Assistants

Support Staff

PA- Pharmacy Assistant
LA- Laboratory Assistant
RA- Radiology Assistant
CCT- Cold Chain Technician

APPENDIX 2: MAIN CATEGORIES OF TRAINED HEALTH STAFF IN MALAWI

Medical Officers: Trained doctors found at the Central and District hospitals. At District hospitals, they work in the administrative positions as District Health Officers and as well as general medical duties.

Clinical Officers: this is the back-bone of the District Hospitals. They undergo a 4 year diploma course at the Lilongwe College of Health Sciences in mostly curative, in-patient and surgical care. They perform most of the basic surgical operations at the District level, including Cesarean Sections.

Medical Assistants: undergo a 3-year certificate course in predominantly curative care, with some preventive content, but minimal maternity care. They are the back-bone of health service delivery in Malawi-in both health centres, District and Central Hospitals and in rural and urban areas.

Registered Nurse/Midwives: They used to undergo a 4 year diploma course at the university, but currently it has been upgraded into a degree programme.

Enrolled Nurse Midwives: undergo a 3-year certificate course. They perform most of the nursing and midwifery functions, especially at the peripheral, as well as under 5 years and nutrition clinics, family planning and outpatient diagnosis and dispensing if necessary.

Community Health Nurse: Generally, they have a post-basic training in community health at the Lilongwe College of Health Sciences. They are intended to improve health services provision at the rural health centres. They have managerial and practical skills.

Health Inspectors: Undergo a 4-year diploma course at the University, and have both managerial and practical skills.

Health Assistants: Undergo a 3-year certificate training in preventive/promotive work including environmental health, at the Lilongwe College of Health Sciences, with mostly practical skills.

Pharmacist: They under a degree training outside Malawi. Very few in number and mostly found in the private sector.

Pharmacy Technician: Undergo a diploma training outside Malawi. Very few in number and mostly found in the private sector.

Pharmacy Assistant: Undergo a 3-year training at the Lilongwe College of Health Sciences. They are the ones dispensing and managing drugs at all public health facilities.

Health Surveillance Assistant: These are front-line workers for almost all programme activities, with mostly preventive and promotive duties. They under a 6-week training programme conducted by the MOHP staff or NGOs.

APPENDIX 3: OPERATIONS OF MEDICAL AID SOCIETY OF MALAWI (MASM)

The medial aid society of Malawi was established under the Trustees Incorporation Act Chapter 5.03 of the Laws of Malawi. It is a non-profit making organization and it became operational on 17th August 1983.

The common benefits of being covered by MASM are:

- consultations
- drugs
- hospitalization
- maternity
- dental
- laboratory and x-rays
- optician refraction tests
- ambulance fees (between hospitals in the same locality)
- specialist foreign treatment to countries the Southern African Zone

Cover ranges from 50-100% apart from AZT drug, diabetes, epilepsy and hypertension. There are basically three schemes namely; the basic , general and extended schemes. Contributions are MK26.00 per month for basic scheme, MK125.00 per month for the general scheme and MK350 per month for extended scheme.

MASM operations 1993/94- 1996/97

	1993/94	1994/95	1995/96	1996/97
Membership	16,00	17,000	18,000	20,500
Contribution (MKmillions)	20.5	30.1	40.6	42.5
Claims (MK millions)	15.4	25.5	25.2	34.5
Administration (MK millions)	3.9	4.6	5.2	5.6
Total Claims	50,000	89,000	101,000	121,000
Foreign Claims (MK millions)	1.4	3.0	0.6	1.5
Number of Staff	15	17	19	20
Investment Income(MKmillions)	-0.2	-2.9	+9.6	+0.9