

**The impact of malaria among the poor and vulnerable:
the role of livelihoods and coping strategies in rural Kenya**

Jane Chuma

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Health Economics Unit
Department of Public Health and Primary Health Care
University of Cape Town

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Declaration

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Summary

Malaria is a major problem in developing countries because of its contribution towards morbidity and mortality and the costs it imposes to households and the economy. This study has been driven by the concerns about the role of malaria as an obstacle to development and the costs incurred by households; especially in a context where the health system continues to charge fees for service. The thesis set out to explore how households cope with the costs of malaria and the implications of malaria cost burdens for household livelihoods and vulnerability. It uses a conceptual framework that takes a holistic approach to understand vulnerability and the link between malaria and livelihood change.

In order to investigate these issues, the study was designed to meet five main objectives: to improve the understanding on the economic burden of malaria; to identify factors that make households vulnerable to the costs of malaria; to identify and explore coping strategies; to understand the role of health care providers in aggravating cost burdens and; to inform policy debates on how to improve access to effective malaria treatment and protect households from high illness costs.

The research was conducted in a rural setting along the Kenyan coast. The area has stable malaria transmission, with malaria recording high peaks in the wet season when households are involved in agricultural activities. Using two cross-sectional surveys (wet season: n=294; and dry season: n=285) the study collected information on self-reported malaria, treatment responses and cost burdens. The main component of the study was to explore impact of malaria costs burdens on livelihoods in detail by following 15 case study households (selected from the survey) over nine months.

The key findings are as follows:

- Malaria posed significant cost burdens for both the poor and the least poor but the poorest households recorded the highest cost burdens in both seasons. Costs were significantly higher in the wet season than in the dry season. Households in the early stages of their life cycle were more vulnerable to illness costs.

- Households rarely had enough cash to pay for treatment and had to mobilise additional resources. Social networks were important sources of financial support for both the poor and the least poor. However, the poor could only access limited amounts of money because they were not creditworthy and/or their network members were in a similar socio-economic situation.
- The poor and vulnerable households had limited assets that constrained their choice of coping strategies. For them, ignoring illness from arising was a basic survival strategy.
- The public health care institution (the dispensary) has failed to protect the poor from high costs of illness due to many deficiencies.
- The shops are an important resource in terms of providing health care but are also important when it came to manage illness costs and other basic needs.
- Private clinics although expensive, played a major part in providing health care and improving ability to pay through innovative charging strategies.
- There was a clear relationship between vulnerability, cost burdens and livelihood change. However, malaria was not the only factor that impacted on livelihoods. The impact of malaria was best understood together with that of other shocks taking place within the context in which households live. Main shocks in this study included drought, seasonality of income and job opportunities.

The study findings have a number of policy implications for health and development sectors. Those related to health include providing free services for the poor through geographical targeting, designing charging strategies that are in line with the economic activities of communities and improving quality of care and educating households among others. At the development level, policy recommendations identify the need to improve infrastructure, build assets and encourage livelihoods diversification.

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Dedication

This thesis is dedicated to my late sister Anne Gathigia. Thank you for taking care of Audrey while I was studying. May you rest in peace.

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Acronyms

AMs	Anti-Malarials
ATC	Ability to Cope
ATP	Ability to Pay
FGDs	Focus Group Discussions
FWs	Field Workers
GOK	Government of Kenya
HHH	Household Head
HSH	Homestead Head
ITNs	Insecticide Treated Nets
KDDP	Kilifi District Development Programme
KEMRI	Kenya Medical Research Institute
MOH	Ministry of Health
MGRs	Merry Go Rounds
NGOs	Non-Governmental Organisations
PLI	Plan International
SAPs	Structural Adjustment Programmes
SSA	Sub-Saharan Africa
WHO	World Health Organisation
WTP	Willingness to Pay

Commonly used Kiswahili and Kigiriama terms

Homa	Fever
Shamba	Farm
Vipande	Portion to dig
Mnazi	Traditional brew
Makuti	Roof made of coconut leaves

CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.1 Introduction

The impact of malaria on household livelihoods has received little attention in the general literature on the economic burden of malaria. Few studies have systematically researched how malaria inflicts cost burdens on livelihoods, the type of strategies households adopt to cope with arising costs and why some households are more vulnerable to negative impact than others. A standard approach has been to estimate the direct and indirect costs resulting from the illness at one point in time using household surveys. These estimates have been used as the main indicators of the economic burden of malaria at a household level. Nevertheless there has been growing concern that the economic impact of malaria on households goes far beyond estimates of direct and indirect costs (Chima et al. 2003). Researchers, international agencies and donor organizations are recognising that malaria is a major obstacle towards livelihoods development and economic growth. Eradicating poverty in developing countries would therefore require putting measures in place to reduce the burden of malaria on households.

There are various problems that arise regarding the current measures of the economic burden of malaria. Firstly, the costs of malaria are not only felt at the time of illness: the implications arising from spending on treatment and loss of income can spread over a year or longer. Secondly, households incur costs in their attempts to raise money for treatment and/or to minimise potential income losses that are unlikely to be captured in cross-sectional surveys. For most households for example, seeking treatment has opportunity costs; to be able to meet illness costs, poor households have to balance current needs against future well-being. Such households are often required to make adjustments in their daily budgets, foregoing 'less urgent' needs (like food or education) in order to finance health care. Where adjustments in

budgets are inadequate, households adopt other strategies such as selling assets, borrowing or seeking treatment from cheaper alternatives at the expense of good quality. While such strategies may meet the short-term goal of paying for treatment and minimising costs, adopting these strategies can add to the overall burden by depleting households' resources, and making them more vulnerable to future impacts of illness and other shocks. In the process households become 'chronically' poor and get into a medical 'poverty trap', a situation that makes it impossible for them to move out of poverty (Whitehead 2001).

To be able to understand the implications of malaria cost burdens for livelihoods, a more detailed analysis of the interaction between vulnerability, illness costs, coping strategies and livelihoods is necessary. This study sets out to contribute to this relatively under-researched area by investigating vulnerability and coping behaviour in a rural setting along the Kenyan Coast. The study was conducted at a time when everybody was expected to pay for health care at the point of delivery regardless of his or her ability to pay. Evidence from the literature presented in Chapter 2 shows that health care charges act as a barrier to access for the poor. The situation can be worse for households which are constantly exposed to recurring illnesses like malaria, and which have to deal with costs of such illnesses for a large part of their life cycle. Most malaria cases are also experienced in the wet season, when many rural communities make a large proportion of their annual income. Being ill during this period can reduce households' annual income and impact negatively on crop yields. Cost burdens and the ability to cope are therefore likely to differ depending on economic activities and on seasonality. However the dimension of seasonality of household economies and cost burdens has received little attention in the studies on the economic burden of malaria.

This study aims to provide a better understanding of the economic impact of malaria at the household level and its potential contribution towards poverty. It identifies factors that make households vulnerable and the role of context in enabling livelihoods development and coping behaviour. The study goes further to establish

the overall implications of cost burdens and coping strategies for household vulnerability and livelihoods over a period of nine months.

The remaining part of this chapter provides an overview of the background information that led to the study development, introduces key concepts and identifies areas that require attention in order to improve the current understanding of the role of malaria on livelihood development and poverty:

- Section 1.2 defines two key concepts used throughout the study: livelihoods and vulnerability;
- Section 1.3 discusses the policy context that acted as a driving force behind the study. It gives an overview of health sector reforms and of the debates on malaria, poverty and development;
- Section 1.4 provides an overview of the economic impact of malaria at a macro and micro level;
- Section 1.5 develops the research questions and objectives;
- Section 1.6 identifies the contribution of the study towards understanding the economic impact of malaria.

1.2 Livelihoods and vulnerability in the context of the study

This section briefly introduces two key concepts of the study. A detailed discussion on the conceptualization of livelihoods and vulnerability is presented in the literature review (Chapter 2) and applied in the development of the methodology (Chapter 3). However, a brief introduction at this stage is necessary to enable the reader to understand how the terms are applied in the context of this study.

Livelihoods: Livelihoods comprise of the different types of assets that households draw on in order to make a living. The livelihoods framework identifies five main types of assets or capital¹ that households use to generate income. These assets have been shown to play a major role in household coping behaviour in the development,

¹ The term asset and capital are used interchangeably throughout the dissertation.

famine and health literature (Moser 1998; Russell 2001; Sauerborn et al. 1996a; Sen 1981). The different types of capital as identified by Scoones (1998) include:

- Natural capital: the natural resource stock (soil, water etc.) from which resource flows and services useful to generate livelihoods are derived;
- Financial capital: cash income, credit and other economic assets;
- Human capital: skills, knowledge, ability to labour and good health that together enable households to pursue a livelihood;
- Physical capital: assets such as housing, equipment, machinery and livestock that households use to generate income;
- Social capital: the social networks household members have, including contacts with other family members, neighbours, friends and organizations.

Malaria can erode these assets and reduce the strength of households to cushion themselves against further illness and other shocks. This study investigates the role of different types of capital in meeting the costs of malaria, and the way in which malaria disables asset accumulation. The study however makes adjustments in the definitions to make them suitable to the context (Chapter 4).

Vulnerability: To capture diversity and change in livelihoods and in coping behaviour, the study incorporates the concept of vulnerability. Using ‘vulnerability’ to capture change requires consideration of both the ‘risk’ and the ‘resilience’ of households over time. According to Chambers (1989), vulnerability is *“the exposure to contingencies and stress and difficulty in coping with them. Vulnerability has thus two sides: an external side of risk, shocks and stress to which an individual or household is subjected: and an internal side which is defenseless, meaning a lack of means to cope without damaging loss”* (Chambers 1989; p. 1). Loss can take many forms, becoming or being physically weaker, economically impoverished, socially dependent, humiliated or psychologically harmed.

In the context of this study, vulnerability refers to three sets of risks namely: the set of factors that increase the risk of malaria infection and its impact, the risk of not being able to mobilise resources to cope with the costs of malaria and the risk of

being subjected to the consequences of malaria, coping strategies and implications for livelihoods.

1.3 Policy and intervention context: the driving force behind the study

This study was driven by two main topics that have acquired wide recognition in national and international debates on health care financing and development policies in developing countries:

- Health care charges arising from health sector reforms of the 1980s and their implications for the poor;
- The relationship between poverty and ill health, and in particular the link between malaria, poverty and development.

These two topics are briefly reviewed here but a more detailed discussion is presented in Chapter 2.

1.3.1 Health care charges

This study was driven by the changes in health care financing that were introduced in many developing countries as a step towards economic recovery during the 1980s. In most cases, these changes were part of the wider Structural Adjustment Programmes (SAPs), which were advocated by the World Bank and the International Monetary Fund as conditions for further aid (World Bank 1987). Before the changes were implemented, most developing nations including Kenya provided free health care services for all, but the changes required developing countries to introduce charges in government health care facilities. Health care charges have the potential to generate revenue for under-resourced health sectors. However, they also increase the financial burden on poor households by imposing additional requirements on budgets that are often insufficient to meet minimum basic needs (Russell 1996). Imposing health care charges in countries where the majority of the population live in poverty can therefore impact negatively on people's health and living standards. This study was designed to generate more information on how poor households manage to meet the

costs of malaria while balancing other day-to-day responsibilities and on how these costs may make them more vulnerable in future.

User fees as part of SAPs

The review of SAPs in the health sector presented in this study focuses on user fees as part of cost sharing in public health care facilities, because user fees were widely implemented and supported by developing countries governments. Other reforms included an increasing role of the private health sector in service provision and decentralization of financing and service delivery (Creese 1991; Hong 2000; World Bank 1987). Among these changes user fees was the most popular in the country of the study.

The main objectives of user fees were to generate additional revenue and promote equity and efficiency in the health sector. It is almost two decades since developing countries implemented changes in health care financing and yet most countries have not achieved their objectives. Rather the changes have raised concern particularly regarding poor people's access to health services and the potential implications for equity (Arhin-Tenkorang 2001; Gilson 1997; Stierle 1999). Equity concerns regarding user fees are attributed to: (1) Failure of exemption and waiver mechanisms that were supposed to act as safety nets for the poor and vulnerable; (2) Decrease in utilization of health care services among the poorest populations; and (3) Failure to involve community members in designing and implementing these charging systems.

The extent to which user fees policies have met their objectives remains unclear. The evidence, as presented in Chapter 2, is contradictory. While the objectives of user fees look attractive, achieving them in practice has proven difficult for most developing countries. It has been argued that the policies were not well designed; that they were mainly informed by theoretical considerations of demand for health care rather than by empirical evidence. Theoretical considerations included:

- The demand for health care is price inelastic. Price increases would therefore have little impact on demand creating an opportunity to generate revenue (Akin et

al. 1986; Mwabu 1986; Heller 1986). Such models ignored the fact that purchasing health would be accompanied by a basic trade-off with other commodities;

- User fees would increase efficiency and equity if revenue generated was directed towards providing improved service for the poor. Fees would deter ‘unnecessary’ use of health care services and encourage people to use primary health care and reduce excess use of tertiary facilities. This would in effect reduce excess demand in health services facing resource constraints (World Bank 1987). This theory ignored the fact that people might prefer to use tertiary health care facilities because of the ‘low’ quality of care in primary health care facilities and therefore the concerns of ‘unnecessary’ use do not apply.

1.3.2 Malaria, poverty and development

Another factor that motivated the development of this study is the emerging recognition that health is a key asset for the poor and vulnerable. Good health enables the poor to use their labour to generate income and acquire assets. There exists a vicious cycle between malaria and poverty. Malaria may cause poverty in some households (through spending on health care and income losses), and poor people are at increased risk of becoming infected because they are less likely to purchase preventive measures and/or seek prompt effective treatment (DFID 2005; Worrall et al. 2002; World Bank 1999; 2000). The World Bank’s poverty reduction strategy states that poverty is both a consequence and a cause of ill health because the poor lack resources to pay for treatment, and illness undermines their ability to cope financially (World Bank 2000). This recognition has contributed to major international agencies including the World Bank, Department for the International Development (DFID) and the United Nations Development Programme (UNDP), among others, to recently broaden their fight against poverty to include the fight against malaria and other infectious diseases. This commitment was incorporated as

part of the Millennium Development Goals² which recognize that malaria is not only a health issue but also critical for economic development:

“Malaria is much more than a health issue. In many countries, it is now endangering development, targeting the poor and, especially, children who have little or no defence, we need to give them those defences.” (Wolfensohn 2001 p. 1)

Another response to growing recognition of the impact of malaria on development has been the creation of the popular Roll Back Malaria programme (RBM). RBM targets to halve the burden of malaria by the year 2015 and recognizes the importance of understanding the social and economic elements of the disease. These international concerns are highly relevant for Kenya where the burden of malaria is high and where public health facilities continue to charge user fees.

A common goal across all of these programmes is improving malaria control interventions by ensuring that preventive and treatment measures are affordable to all people living in malaria endemic areas. Most recently, debates have shifted towards providing free prevention interventions such as Insecticide Treated Nets (ITNs) to populations on the basis that such interventions would reduce the risk of infection (and thus the costs), and protect households from becoming poorer due to consequences arising from the disease. Despite this shift in commitment towards malaria control, issues around affordability and vulnerability to the costs of malaria are critical to improving access to effective treatment because:

- Preventive measures like ITNs reduce the risk of infection but do not eliminate malaria. Even with the use of ITNs many people still get infected;
- For those who get infected, prompt effective treatment is necessary to avoid complications and deaths arising from the disease. The costs of treatment consume scarce household resources and continue to be high within health care

² The millennium development goal 6 is to combat HIV/AIDS, malaria and other infectious diseases. It addresses the target 8 that aims to have halted and begun reversing the incidence of malaria and other major diseases by 2015. In total 4 out of the 18 development targets in the millennium development goals are related to promoting health.

systems that charge fees. In addition the weakness of the health care system (lack of drugs, poor quality) exacerbates the impact of illness on households;

- Increasing drug resistance requires that new effective drugs be developed. These drugs are often costly and unaffordable to most of the population;
- Malaria preventive and treatment interventions are not universally implemented, and do not necessarily reach the poor and vulnerable (Barrat et al. 2004). This group may consequently continue to bear significant costs of illness and be further impoverished by the disease.

As governments, international agencies and donors continue to design interventions, there is urgent need for research to examine how costs impact on livelihoods (and thus poverty), how households respond to costs and how the impact is felt on the ground. This information is needed to ensure that malaria intervention measures protect the livelihoods of the poor and vulnerable through building on existing resilience protecting households from falling into a 'medical poverty trap'.

1.4 Why malaria? The significance of malaria at a global and national level

This section identifies the nature of malaria burden in the world and reviews the evidence of the impact of malaria at a macro and micro level. By providing the evidence, the section justifies why malaria was chosen as the focus of the study and the need to improve the understanding on vulnerability to the costs of malaria and the implications for livelihoods and poverty.

1.4.1 Malaria: a global priority

Malaria is primarily a disease of developing countries and has been labelled by the World Health Organization (WHO) the most important infectious disease. The disease is present in 101 countries occupied by approximately 40% of the world's population (WHO 1999). In any given year, nearly 10% of the global population suffers cases of malaria. Malaria is the single most prevalent infectious disease in children. It is responsible for about 25% of all childhood deaths. The vast majority of

these deaths occur in Sub-Saharan Africa (SSA), especially in rural areas with poor access to health care services. It is estimated that every second a child in SSA dies from malaria and that 90% of the estimated 300-500 million new clinical cases of malaria per year occur in SSA (WHO 1999).

In Kenya the country of the study, malaria is a predominant cause of morbidity and mortality. Facts of the malaria burden in Kenya include (Ministry of Health (MOH) 2001; MOH 2000):

- Almost every Kenyan household is afflicted by the human suffering and financial hardship caused by malaria;
- Each year, an estimated 26,000 children (72 per day) die from the direct consequences of malaria infection;
- 30% of all outpatient illnesses in Kenya are due to malaria. Malaria accounts for 19% of all hospital admissions, 5.1% of whom die from complications of the disease. Hundreds of thousands more sufferers do not seek treatment from the formal health care system;
- An estimated 170 million working days are lost each year as a result of the disease.

These facts highlight the need for more research in SSA. The following sub-section shows the different ways in which malaria impacts on household livelihoods, as an indication of why households may be vulnerable and why they might adopt coping strategies.

1.4.2 Economic impact of malaria: the focus of the study

Malaria poses economic burdens at both macro (national) and micro (household) levels. At the micro level, economic costs are incurred through spending on treatment and prevention (direct costs), and by reducing income earning opportunities (indirect costs). At the macro level, malaria endemic countries have lower levels of economic growth than non-endemic countries, because malaria

consumes scarce resources and hinders investment opportunities (Sachs and Malaney 2002).

Evidence of macroeconomic impact of malaria

Few studies have estimated the overall impact of malaria on the economy. A basic problem when studying the macro economic impact of malaria is the lack of high quality data on malaria incidence or prevalence in the most severely affected countries. Because morbidity and mortality data are often lacking, it is difficult to arrive at the correct estimates of the disease's economic impact at a national level (Gilles and Warrell 1993; Gallup 2001; Oaks et al. 1991).

The few studies that estimate the impact of malaria at a macro level reveal that malaria affects trade linkages between malaria endemic and non-endemic regions. It is argued that malaria can influence foreign investment decisions impacting directly on long-term growth since investors from non-endemic regions tend to shun malaria endemic regions for fear of contracting the disease (Speilman and Antonio 2001). For example, an international mining and metal company invested US\$ 1.4 billion to build an aluminium smelter in Mozambique. Within two years, employees at the company suffered 7,000 cases of malaria leading to 13 deaths among expatriates (Sachs and Malaney 2002). Although direct measurement of the impact of malaria on decision-making by foreign investors is difficult, under such circumstances investors can withdraw and direct future investment to malaria free zones. Other possible impacts of malaria on the economy can be felt in the tourism industry when tourists avoid visiting malaria endemic regions due to the high risk of infection. In countries like Kenya, where tourism is the main source of foreign exchange, the impact of malaria on long-term growth is likely to be great. However, such impacts are difficult to measure.

Shephard et al. (1991) estimated the overall economic costs of malaria in Africa. Using four country case studies in Burkina Faso, Chad, Congo and Rwanda, the total direct and indirect cost of malaria in 1987 was US \$ 791 million for SSA. This corresponded to 0.6% of the gross domestic product (GDP) or about US\$ 2.34 per

capita for the region. Sachs and Malaney (2002) estimated average per capita growth between 1965 and 1990 and showed that regions with plasmodium falciparum malaria had a GDP of 0.4% per year while other countries had an average growth of 2.3%. Leighton and Foster (1993) estimated the output loss due to malaria in Kenya and Nigeria. The results of the study, summarized in Table 1.1 revealed much higher level of costs as a proportion of GDP than Shephard et al's (1991) estimates, suggesting greater impacts on economic growth.

Table 1.1: Overall economic impact of malaria in Africa

	Kenya	Nigeria
Production loss as % of GDP	2 to 6	1 to 5
% of work days lost	3 to 14	1 to 8
Total cost of malaria as a % of income to households		
Small rural farmers	0 to 18	7 to 13
Agribusiness labourers	1 to 5	-
Urban self employed	-	11 to 19

Source: Leighton and Foster 1993.

Evidence of micro-economic impact of malaria

A recent review of studies on the costs of malaria at the household level highlights the difficulties of comparing results across studies (Chima et al. 2003). These difficulties arise due to differences in methodological approaches. For example, it is not clear as to what should be incorporated as direct costs. Some studies include all cash expenditures like transport, while others include only cash medical expenditures. In addition some studies report indirect costs in the form of number of days off productive work, while others attach a monetary value to the potential income loss based on the opportunity costs (Aikins 1995; Asenso-Okyere and Dzator 1997; Ettlign et al. 1991; Leighton and Foster 1993; Sauerborn et al. 1995). Attaching a monetary value might not be appropriate for a rural community, where healthy household members substitute for labour to minimise income losses. Even in urban settings, intra-household labour substitution can exist among jobs requiring little or no formal skills. When households manage to substitute for labour, the

potential income loss calculated on the basis of the marginal product can over-estimate the actual loss. Perhaps the most important weakness is that studies do not describe in detail the items they incorporate in their costs estimates (for example drugs, transport, special foods) making comparison more difficult.

Even where studies use similar methodologies, other differences exist because the burden of malaria is dependent on the endemicity of the disease. In highly endemic regions, where most deaths are among infants and children, the impact on productivity and income losses might be considered lower than in settings where the burden of disease falls primarily on adults. Secondary effects are attributable to adult deaths as surviving members adjust to the loss of those primarily responsible for their well-being (Malaney 1993; Over et al. 1991). It should however be noted that although the impact on production may be lower where malaria is prevalent in infants and children, the effects on cognitive skills may have long term impacts on human capital and future earning capacity.

Despite the methodological differences, it is evident however that malaria inflicts economic and social burdens on households, some of which are difficult to quantify. This evidence is presented below:

Health care expenditure

Studies that estimate the costs of malaria on households show that a large proportion of income is spent on malaria prevention and treatment. In a recent review on the economic impact of malaria Chima et al. (2003) found the costs of malaria treatment to range from US \$ 0.46 in Malawi, through US\$1.56 in Sri Lanka and US\$1.84 in Nigeria, to US\$ 8.67 in Ghana. Of all of the studies reviewed, only one classified the costs of malaria by socio-economic group (Ettling et al. 1994). This study found that the poorest in Malawi spend a larger proportion of their income on treatment than the least poor. Annual household expenditure on malaria treatment by the poorest group was 28% of household's income. The corresponding figure for the highest income group was 2%. Only 4% of the poorest households spent money on prevention as compared to 16% of other households. This implies that cost burdens are greater for

poor households who are unlikely to spend money on preventive measures. Failure to adopt preventive measures exposes poor households to higher risk of morbidity and mortality. A summary of the costs of malaria as estimated in different studies and presented by Chima et al. (2003) are presented in Table 1.2.

Table 1.2: Summary of the direct costs of malaria treatment and prevention

Country	Direct costs per capita per month (1999 US\$)		Monthly total direct costs	Author
	Prevention	Treatment		
Malawi, nation wide	0.05	0.41	0.46	Ettling et al., 1994
Tanzania, urban	0.76	-	-	Evans 1994
Zaire, urban	0.97	-	-	Zandu et al. 1991
Cameroon, urban	1.29	2.05	3.34	Luois 1992
Cameroon, urban	1.74	2.67	4.41	Desfontaine et al. 1990
Cameroon, urban	2.10	3.88	5.98	Desfontaine et al. 1990
Burkina Faso, rural	0.09	-	-	Guiguemde et al. 1997
Burkina Faso, urban	0.93	1.18	2.11	Guiguemde et al. 1997
Ghana, rural	-	0.65	0.65	Asenso-Okyere and Dzator 1997
Nigeria	-	1.84	1.84	Onwujekwe et al. 2000

Source: Chima et al. 2003

Demographic composition

Malaria affects the demographic composition through its contribution to mortality and morbidity. Deaths due to malaria impact directly on population levels, demographic structure and composition (Galloway 1998; Handa 2000). It has been argued that parents base their decisions on family size on assumptions that a certain number of children will survive (Yamanda 1985). Risk averse households aim for more children than expected mortality in order to ensure a high likelihood of the desired number of children. Consequently high rates of malaria mortality may

contribute to high fertility and population growth rates in areas of intense malaria transmission.

High fertility rates among poor households could reduce investment in education and health, which can affect the level of human capital and the future earning capacity of children. When women have very high fertility rates, parents choose to invest less in educating girls, because they are likely to spend a considerable part of their working years involved in child rearing activities rather than in the labour force where they would contribute to household income (Reher 1995). While the hours that women spend caring for children may not represent high rates of forgone income, it limits their employment opportunities. Such factors have a potential impact on productivity and economic growth in the long run. Although the possibility of a link between malaria mortality and increased fertility should not be ignored, it is important to note that a direct link is yet to be proven.

Labour productivity

Malaria affects the economic status of households through days off from productive activities. Studies on the effects of malaria on labour productivity yield varying results. Some researchers have argued that malaria reduces agricultural production by reducing the working capacity of farmers (Brinkmann and Brinkmann 1996; Gazin et al. 1988; Wernsdorfer 1980) while others have found no effect on agricultural output (Audibert 1986; Brohurt et al. 1986). The difference in results could be explained by variations in study methods and context. However it is generally accepted that malaria affects the quality of labour (and hence productivity) during acute attacks. Even though an acute malaria attack might not prevent people from working, it can reduce the quality of productivity and output (Goodman et al. 2000).

Agricultural land use

There is no clear relationship between malaria and agricultural land use. Some studies report negative effects on the acreage cultivated because sick members cannot participate fully in agricultural activities (Jayawardene 1993; Rosenfield et al. 1984). In other settings, malaria has been reported to have no impact on land use

(Wang'ombe and Mwabu 1993). The latter was attributed to the existence of coping strategies, including labour-hiring practices to cushion effects on income, and intra-household labour substitution. The role of labour substitution among agricultural activities in preventing income losses is well recognised. However it is not clear as to how one would separate labour substitution activities from normal activities, especially in cases where the person substituting for labour would normally conduct these duties in the absence of illness. It is worth pointing out that the study by Wang'ombe and Mwabu (1993) had a shortcoming in that it used presence of parasitaemia to indicate malaria. In an area with stable malaria transmission, presence of malaria parasites is a poor proxy of malaria since immune adults may have parasites but experience no clinical symptoms. The presence of parasites in the blood may have no impact at all on an individual's working capacity (Goodman et al. 2000).

School attendance and cognitive skills

Although malaria morbidity is concentrated on children and infants below school going age, few studies have looked at the impact of malaria on school attendance and cognitive skills. A study conducted in Kenya and Nigeria provides evidence on the number of school days lost due to malaria (Leighton and Foster 1993). In Kenya, primary school students reported an average of 4 episodes of malaria per year and missed 5 school days per episode. In secondary schools, children lost 8 days per child per year. In Nigeria, school days missed varied between rural and urban settings, and primary and secondary schools. However the range was 3 to 12 days per year per student. It is not known how this could affect overall performance but it is expected that school absenteeism may impact on a child's performance in school, influencing future employment and human capital.

In addition to school absenteeism, malaria affects the cognitive development and learning ability of children. Children with malaria have poorer nutritional status than non-malarial children, an outcome that can impair brain development (Shift 1996; Brewster et al. 1990). Studies conducted in Kenya revealed that malaria accounted for 31.3% of childhood seizures and that 11% of cerebral malaria survivors had

neurological sequelae at discharge of whom 26% had major residual handicaps of cerebral palsy and blindness (Brewster et al. 1990; Waruiru et al. 1996). A recent study in Kenya shows that children who develop severe malaria with seizures have a genetically higher risk of epilepsy or febrile seizures (Versteeg et al. 2003). The impact of malaria on cognitive development and learning skills has long-term effects on human capital. However, the overall impact of malaria on human capital development in children remains relatively unexplored.

The above discussion has shown that malaria impacts on households in different ways. However it is difficult to make generalizations across settings even with similar malaria endemicity. In addition, the existing methods to estimate the economic burden of malaria over simplify the reality of the nature of the burden at the household level. Of major importance is the failure to capture seasonal variations and the implications that unfold over time. Clearly, there is need to improve methodologies in order to make comparisons across settings possible and to get a better understanding of the burden.

1.5 Research questions and objectives

The background information presented in the previous sections and the literature review presented in Chapter 2 raise questions of concern regarding poor households' access to effective malaria treatment and the contribution of malaria towards poverty. These questions include:

- What factors make households vulnerable to the costs of malaria? Why are some households more vulnerable than others despite being exposed to the same risk of infection and having a similar livelihood status?
- What are the consequences of the costs of malaria on households and how do these costs vary between seasons? What are the implications of cost burdens for livelihoods over time?
- What strategies do households adopt to cope with illness costs? What factors influence the choice and access to coping strategies? What are the implications of coping strategies for household livelihoods?

- What policy conclusions can we draw from a better understanding on vulnerability and coping behaviour?

To be able to answer these questions, the study set out to achieve various objectives. The overall goal of the study is:

To provide information that can improve household access to prompt effective malaria treatment by making it more affordable to the poor and vulnerable, and to make recommendations for interventions that can reach the poor and improve household ability to cope with the costs of malaria.

General objective 1: To improve the understanding of the economic burden of malaria.

Specific objectives:

- To estimate the direct and indirect costs of malaria and to show how they are distributed over time;
- To compare how self-reported malaria varies by seasons and investigate the role of seasonality on economic activities and cost burdens;
- To describe how cost burdens vary across socio-economic groups and by type of treatment.

General objective 2: To identify and explore factors that make households vulnerable to costs of malaria.

Specific objectives:

- To establish the role of context in influencing household vulnerability and ability to cope with costs of malaria;
- To investigate the implications of seasonality of work and income for meeting illness costs;
- To evaluate how the characteristics of formal and informal health care providers aggravate cost burdens.

General objective 3: To identify and explore types of strategies that households adopt to cope with the costs of malaria.

Specific objectives:

- To identify the types of assets that households use to meet the costs of malaria;
- To identify factors that influence access to different types of coping strategies;
- To investigate the implications of coping strategies for household livelihoods.

General objective 4: To establish the link between malaria and poverty at the household level.

Specific objectives:

- To evaluate the impact of malaria cost burdens on household livelihoods over time;
- To analyse if vulnerable households incur significantly different cost burdens and livelihood depletion from the least vulnerable.

General objective 5: To make policy recommendations on how households can be protected from 'catastrophic' costs of illness.

Specific objectives:

- To inform Kenyan policy on how to make malaria treatment affordable by addressing barriers in household access to health care;
- To inform international debates on how to build on the existing resilience in order to prevent households from being pushed towards poverty.

1.6 Contribution of research towards a better understanding of the economic burden of malaria

Section 1.4 highlighted the different dimensions of the impact of malaria. The review on household expenditure provided estimates of direct and indirect costs. It is worth

noting that none of the studies reviewed considered the implications of costs for livelihoods and that all used a single cross-sectional survey to collect cost data. This study improves on existing information by looking at the costs within a broader context of household livelihoods. In so doing the study contributes towards understanding the economic burden of malaria in various ways:

- Most of the studies that estimate the costs of malaria use a single methodological approach (cross sectional surveys) and estimate costs at one point in time. These studies are based on reported illness and expenditure over a specific point in time, (usually two or four weeks) and do not reflect variation in disease burden and economic impact throughout the year. A major strength of this study is that it combines the survey approach with a longitudinal component in order to investigate the costs of malaria over time. A small number of households identified in the survey are followed for a period of nine months. This period creates an opportunity to observe how households manage malaria cost burdens together with other livelihood shocks and how the implications unfold over time.
- A majority of the studies estimating the costs of malaria do not reflect seasonal variations of reported episodes and economic impact. Those that try to adjust for seasonal variations in disease patterns fail to consider other variations in the household economy and seasonality in income (Ettling et al. 1994; Sauerborn et al. 1991). The element of seasonality of income is particularly important among agricultural communities. Differences in access to cash income between dry and wet seasons influence health seeking behaviour, illness costs and ability to cope. In addition, people perceive illness differently between wet and dry seasons. It is argued that people tend to over-report illness during the dry season (or under-report in the wet season) since the opportunity costs of time are lower. Acknowledging illness during the peak season leads to income losses. Households can therefore choose to ignore the illness in order to minimise income losses and only seek treatment when it becomes serious (Jayawardene 1993; Sauerborn et al. 1996b). This study takes into account seasonal variations in risk of infection, costs of illness and household economic activities. It locates costs within households' economic situations and provides adjustments for incomes between wet and dry seasons.

- Another strength of this work is that it looks at the costs of malaria as part of people's real life situation. The majority of studies that investigate the costs of malaria take a narrow approach that looks at cost burdens independently from other things taking place within households (for example managing other shocks and basic needs). This study takes a holistic approach and argues that the economic impact of malaria on livelihoods is broad and that direct and indirect costs are just part of the wider household experience. A livelihoods approach is adopted and applied among rural households living within an area of stable malaria transmission. The study argues that the impact of malaria on households is influenced by many factors including vulnerability at the household and community level, asset endowments, livelihood strategies and ability to cope. The study therefore attempts to understand the vulnerability context, the shocks and trends that influence the cost of malaria and the risk of infection in detail. Understanding context helps one to visualize the costs of malaria in a clearer way than what statistically representative data alone allows.
- Studies on the economic costs of malaria pay little attention to various strategies that households adopt in order to cope with the impact of the disease. Households living within malaria endemic regions are likely to employ strategies to minimise potential illness costs; strategies similar to those they will use to achieve broader livelihood outcomes. Whether or not strategies succeed in managing the costs of malaria, and the potential implications for households' livelihoods, has not been studied extensively.

1.7 Outline of the dissertation

This section describes the outline of the dissertation and how the findings address the objectives presented in Section 1.5.

Chapter 2 reviews the literature on key issues and concepts relevant to health care costs, households' livelihoods and coping strategies. The chapter has three main subsections:

- Section 2.1 builds on the discussion on SAPs presented in this chapter and reviews in detail the structure of health sector reforms and the implications for the poor. It goes further to present the empirical evidence on the success and failure of reforms in different settings;
- Section 2.2 reveals the origin and development of the livelihood framework, coping and vulnerability;
- Section 2.3 reviews the role of the different types of assets in coping with illness costs and presents an overview of coping strategies.

Chapter 3 develops the conceptual framework and the methodology. It justifies the selection of the study site and describes key characteristics of the site that are relevant to the study (Section 3.2). It discusses the methods of data collection that include: focus group discussions, two household surveys covering different seasons (wet and dry), and longitudinal case studies conducted over nine months. Also presented are analytical approaches (Sections 3.3-3.4), ethical issues, limitations of the study and the researcher's attempts to overcome the limitations (Section 3.5-3.7).

Chapter 4 locates the community under study within a livelihoods framework. Using the conceptual framework, the chapter analyses the factors that influence vulnerability at a community level. It also highlights the different types of capital (defined in Section 1.2) that households in the study community use to manage their day-to-day activities as well as to cope with the costs of malaria when they arise. This description reveals the nature of asset endowment and vulnerability at a community level and provides information that is necessary to contextualise the findings presented in later chapters. The findings presented in this chapter contribute towards achieving objectives two and four.

Chapter 5 analyses the livelihoods of 15 case study households whose data form the key analysis for the case study results. The chapter provides additional information towards addressing objectives two and four. It identifies vulnerability at a household level and classifies the 15 households into different categories of vulnerability. In so doing it identifies factors that made households vulnerable before the research

started. These factors are important because they contribute to household vulnerability during the research period. This information enables all of the findings presented in Chapters 6 to 8 to be compared by vulnerability categories established at the outset of the research.

Chapter 6 estimates cost burdens among survey and case study households. Information presented in this chapter addresses objectives one and two. The survey data are used here to show the level of self-reported malaria and cost burdens at a broad community level, while case study data are drawn upon to enrich the findings and illustrate the complexity of cost burdens and treatment seeking patterns. The survey data show how illnesses and costs are distributed between households and socio-economic groups while case study data reveal how the same differs between vulnerability categories. The presentation of these data at this stage is important because they form the foundation of all the information presented in Chapters 7 to 8.

In Chapter 7, data on treatment seeking behaviour and the potential role of health care providers in enabling asset accumulation and livelihood development are analysed. This chapter takes the analysis presented in Chapter 6 and addresses objectives one and two further by looking at the use of the key types of health care providers. The chapter relies heavily on case study data to discuss the interaction between health care providers and livelihoods. It looks at the strength and limitations of the key types of providers and establishes the role that health care service delivery plays as a 'safety net' for the poor and vulnerable.

Chapter 8 explores coping strategies and primarily addresses objective three although the information presented also contributes towards identifying factors that make households vulnerable (objective two). The chapter demonstrates how coping strategies differed between seasons and categories of vulnerability. Also explored are the different factors that influence access to coping strategies and the role of assets as buffers against the costs of malaria. The chapter focuses on three types of assets (human, financial and social) that were identified as key to coping behaviour.

In Chapter 9, information on livelihood change over the nine months research period is presented. This information primarily addresses objective four but also contributes broadly towards objective two. In this chapter, the livelihood of the 15 case study households are analysed in detail and their situation at the beginning of the research is compared to that at the end of the research. Livelihood improvement and decline are identified and the links between malaria cost burdens, coping strategies and livelihood change established. The chapter summarises all of the findings and considers the way in which the range of factors in the conceptual framework interact to influence livelihoods.

Chapter 10 uses the information presented in Chapters 4 to 9 to address objective five and complete the dissertation. It draws conclusions, makes policy recommendations and demonstrates that the research objectives have been met.

1.8 Summary

This chapter has presented an overview of the background that led to the development of the study, at a local and international level, and the research questions and objectives. The chapter has looked at two broad themes that motivated the study:

- SAPs and their impact on the finance and delivery of health care services;
- The burden of malaria globally and locally and the economic impact of malaria on households.

First, the chapter discussed the policy context that motivated the development of the research (Section 1.3). It briefly described the origin of economic reforms and how they impact on the health sector. The section also identified why user fees (as part of SAPs) have failed to meet their stated objectives of equity and efficiency, and described the relationship between malaria and development. The need for empirical evidence to advocate for policy changes and appropriate interventions was emphasised, and the role of this study in contributing to building evidence highlighted.

Secondly, the chapter demonstrated why malaria is a top priority in many countries in SSA. It highlighted the different ways in which malaria impacts on household livelihoods: directly through cash expenditure on prevention and treatment or indirectly through time off from work and reduced productivity. These costs motivate households to adopt various coping strategies, some of which have opportunity costs for their livelihoods.

Thirdly, the chapter has given an outline of the research questions arising from the background and the objectives that it set out to achieve. Finally, an overview of the contribution of this study toward understanding the economic burden of malaria was presented. Four main strengths were emphasised: (1) the use of multiple methods; (2) incorporating a seasonality component; (3) taking a broader livelihood framework approach and looking at cost of malaria within other elements of people's real life situation; and (4) exploring coping strategies.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the literature relevant to illness costs, vulnerability and livelihoods. The review contributes towards identifying knowledge gaps and informs the development of the conceptual framework presented in Chapter 3. The chapter is divided into four main sections:

- Section 2.2 revisits the debate on SAPs and presents empirical evidence on the implications of user fees for the poor;
- Section 2.3 traces the livelihood framework to its origin and development;
- Section 2.4 distinguishes between coping and struggling and identifies the role of assets in household coping behaviour;
- Section 2.5 presents the evidence on coping strategies.

2.2 Structural Adjustment Programmes: origin and impact

The period between 1980s and 1990s marked significant changes in the economies of many developing countries. Economic instability and an increasing debt crisis stimulated changes in the financing of various social sectors of the economy including health. In most cases, these changes were driven by macro-economic policies and the wider implementation of SAPs. Objectives of SAPs included: liberalization of the economy, privatisation of public services and companies, deregulation of labour services and improving competitiveness. These objectives were thought to have the potential of improving the performance of developing economies through increased exports and reduction in government spending (World Bank 1987; Jauch 1999; Kabuga 2001).

The impact of SAPs on the economies of developing countries remains a subject of controversy. While proponents of SAPs attribute major economic recoveries to the

programmes (Clark and Manuh 1991; Warr 1996), critics argue that SAPs have done more harm than good (Harrigan and Mosley 1991; Hong 2000; Jauch 1999; Tsikata 2000). The liberalization of markets and the delivery of social services are said to have benefited the rich at the expense of the poor, contributing more towards inequities. In particular, the privatisation of health and education made social services unaffordable for the poor and other vulnerable groups like women. Other impacts include rising levels of unemployment as a result of retrenchment of employees in government institutions, high interest rates, rising debt levels and flow of capital from developing to developed countries (Hong 2000; Jauch 1999). Various reasons for the poor performance of SAPs have been given. It has been argued that SAPs focused on financial problems and ignored the structural problems that required to be solved in order for the financial reforms to succeed (Kabuga 2001). Such structural problems include political commitment, good governance and capacity building among the people involved in the implementation and management of the programmes.

SAPs: The Kenyan case

Kenya like many other developing countries experienced a period of economic reforms. Before the recorded deterioration in the economy, Kenya was one of the most politically and economically successful countries in SSA. A brief review of the Kenyan economy before and after SAPs reveals different phases of economic growth (Government of Kenya (GOK) 2000a):

- *Rapid growth after independence from 1964-1973:* In the first decade after independence, Kenya had the highest GDP growth and the most robust macro-economic indicators in the East African region. The high growth was attributed to increased agricultural output, an expansion of the manufacturing sector supported by the adoption of import substitution strategies, rising domestic demand, the expansion of the regional market and a substantial inflow of foreign aid.
- *Decrease in the growth rate from 1973 to 1976:* The first oil crisis together with an inadequate macroeconomic policy response reversed the economic growth reducing it to below 4% for much of the 1970s except for the 1976/77 financial year when an unexpected coffee boom raised the GDP growth rate to 8.2%.

- *A period of stabilization and structural adjustment in the 1980s:* The drought of the 1980s and the international debt crisis further reduced economic growth. The economic instability led to the introduction of liberalization and deregulation of trade and exchange rate regimes as well as public and financial sector reforms as part of SAPs. The implementation of SAPs led to a resurgence of growth of about 5% over 1986 to 1990. However this era was accompanied by a deteriorating balance of payment and a widening budget deficit.
- *An era of liberalization and declining donor flows from 1990s:* Economic performance deteriorated yet further in the 1990s. This was mainly as a result of declining donor support, poor infrastructure, and a low level of investments, insecurity, and poor performance of the manufacturing sector.

The deteriorating economic performance that the Kenyan government experienced contributed towards donor pressure to introduce SAPs. Economic performance is important for this study because it influences ability to finance malaria treatment and other costs through increased charges at health care facilities, the quality of service delivery and people's standards of living.

2.2.1 User fees and implications for the poor

Chapter 1 argued that changes in health care financing have the potential of promoting inequities by increasing barriers to access among the poor. It highlighted the need to redesign policies based on evidence rather than theoretical considerations. The chapter pointed out the two main types of policy changes that were implemented in most developing countries; user fees and a heavy reliance on the private sector in service delivery. A more detailed discussion on the design of user fees and their impact is presented in this section.

User fees: origin and theoretical considerations

There were two broad categories of user fees introduced in developing countries: those associated with health sector reforms and those implemented locally, at regional districts or at health facility levels as part of the Bamako Initiative (BI)

schemes (Arhin-Tenkorang 2001; Nolan and Turbat 1995). The BI schemes are not reviewed in detail here, because they were not widely integrated into health facility networks in the country of the study.

User fees were introduced on the basis of the following arguments:

- Demand for health care is price inelastic and introducing charges at health facilities that were previously free would not reduce much utilisation. Some health care was noted as necessary for survival, and increase in prices was unlikely to affect the demand for health care because people would have to adjust the amount of money allocated to other goods (Aikin et al. 1986; World Bank 1987). On this ground it was possible to generate additional revenue for the health care system;
- Charging fees by tier of the health system would help reduce unnecessary demand for tertiary health services by limiting the chances of people by-passing low level cheaper services like dispensaries. This was found necessary for health sectors that were already under resourced (Heller 1982; World Bank 1987);
- People already paid high charges for private health care services because of their perceived high quality. In Africa particularly, people often spent a lot of money on traditional medicine and remedies. This money would be used to purchase services from government facilities so long as people received good value for their money. Fees would hence increase demand if revenue collected was used to fund quality improvement in government facilities (Muela et al. 2000b; Patterson 1997);
- Charging fees would promote equity and efficiency in the health sector. Equity would be achieved if revenue generated was targeted towards providing and improving services for the poor, and if effective exemption and waiver mechanisms were put in place. Efficiency would be achieved if resources generated were reallocated to more cost effective primary health care, which would encourage people to use primary health care services at lower costs (Arhin-Tenkorang 2001; Gilson 1995; World Bank 1987).

Exemptions and waivers: Their role in protecting the poor

For those countries that introduced user fees, most countries including Kenya, Uganda, Ghana, Zambia among others introduced some form of targeting mechanisms to ensure that the needy were protected from potential negative implications. These protection mechanisms came in the form of waivers and exemptions. Waivers are meant to reduce or eliminate charges for the poor based on an assessment of their ability to pay, while exemptions require that a defined group of people (such as an age group, or people suffering from a specific disease or needing a specific service) receive free treatment (Newbrander and Sacca 1996). Exemptions function well and are widely known among communities. Unlike waivers, exemptions are straightforward, target specific groups of people and offer automatic 'free' services to the targeted population.

In contrast, the success of waivers in most countries is limited. It has been argued that governments and policymakers did not make adequate preparations for waiving policies (as with overall implementation). Lack of training of hospital staff, poor or no records regarding the number and value of waivers and lack of community awareness are some of the reasons given for the failure of the waiver mechanism. Generally, the overall process of acquiring a waiver is complex for the patient and for hospital staff, it is not well defined and the functioning is reported to be minimal (Collins et al. 1996; Newbrander and Sacca 1996).

In conclusion therefore, although impressive in theory, the practicalities of waiving mechanisms are questionable. There is a need to re-design policies that take into consideration the practicalities and the problems that have led to poor functioning of these mechanisms. The failure of protection mechanisms hinders access for the poor and vulnerable who already lack ready cash to pay for health care services, thereby promoting health inequities.

User fees in the Kenyan health sector

The Kenyan health sector, like many health sectors in developing countries, has not been spared from the negative impacts of SAPs. The MOH has suffered from

inadequate financial resources and declining expenditure. The decline in budgetary allocations together with other problems translated into inadequate funding and shortage of key inputs required to maintain an adequate standard of care in the health sector. In an attempt to respond to this crisis the Kenyan government committed itself to a series of health financing reforms in 1980s, including user fees (Mwabu 1995). The user fees policy was first implemented in 1989. It was argued that charging fee for service to those who can afford to pay would improve poor people's access through channelling the subsidies to the most poor. The policy hence set out to achieve various objectives: (1) to generate additional revenue for the health sector; (2) to encourage people to be more responsible for their own health care; and (3) to encourage use of more cost effective preventive and primary health services (Collins et al. 1996; Ellis 1987; Kirigia 1989; Mwabu 1995).

Exemptions and waiver mechanisms were put in place to protect those who could not afford to pay for treatment. The policy was however suspended in 1990 and reintroduced in phases the following year. Reasons for the failure of the first implementation were attributed to various factors including (Collins et al. 1996; Mwabu 1995):

- Lack of quality improvements;
- Poor revenue collection;
- Waiving mechanisms that were not well understood by both patients and providers;
- Fees being charged as a consultation and having to be paid before a person received treatment, regardless of whether drugs were available or not. People preferred paying for what they could see (for example drugs);
- Massive declines in utilisation of health care services;
- The policy being introduced without any pilot testing, leaving no room to resolve any potential problems.

The suspension of the programme gave room for better planning and implementation (Mwabu 1995). The user fees policy still exists in Kenya, although most fees were very recently officially removed from the lower levels of the health system

(dispensaries and health centers). Patients visiting these 'free' facilities are still required to pay a consultation fee however, despite the problems associated with consultation fees when user fees were first introduced in the late 1980s.

2.2.2 Empirical evidence on the impact of user fees: willingness to pay versus ability to pay

A series of studies were conducted in the 1980s and 1990s to assess the extent to which the objectives of user fees had been achieved. The majority of these studies looked at utilization patterns before and after the introduction of fees as evidence of the impact on demand for health care (Bennett 1989; Moses et al. 1992; Mwabu et al. 1995; Yoder 1990). The results were used to inform policy on whether people could afford to pay for health care and to decide upon wider implementation. Based heavily on the assumption that people are able to pay whatever they are willing to pay, these studies argued that people's continued use of health care facilities implied that they could afford to pay. Critics of this approach argue that this is not necessarily the case because utilisation of services can indicate Willingness to Pay (WTP) but not Ability to Pay (ATP); that households will seek treatment regardless of their ATP in order to avoid income losses or reduce pain and suffering (Gilson 1995; Muela 2000; Russell 1996; Russell 2001; Whitehead 2001). In the process of seeking treatment, households may incur additional costs through adopting coping strategies that are detrimental to livelihoods. Evaluating the impact of user fees on demand for health care therefore requires incorporating an indicator of ATP or Ability To Cope (ATC) by exploring household coping strategies and their impact on livelihoods.

The results from utilisation or demand studies yield differing results with some indicating that fees deter access for the poor and others suggesting that fees have potentially positive impacts on service utilization, especially if fees are accompanied by quality improvements. Those that report negative impact on utilization note that user fees hinder utilization of services among the poor in SSA. Evidence from Ghana, Kenya and Lesotho shows that people tend to delay treatment or seek cheaper treatment outside the formal health sector when they can not raise the required fees

(Aikins et al. 1992; Asenso-Okyere et al. 2000; Bennett 1989; Mwabu et al. 1995; Waddington and Enyimayew 1989; Yoder 1989). Delaying treatment, or seeking alternative cheap treatments which are often inadequate to treat disease, has particularly negative implications in a disease like malaria where progression from infection to severe cases and ultimately death can occur within a few days or even hours (WHO 1999). Further implications of delayed or inadequate treatment are drug resistance, spending more on treatment than might otherwise have been necessary, and developing serious complications. It is not clear if the changes recorded in the above-studies were a result of user fees alone, because other social and economic factors such as education, employment, gender, access to information and quality of care are known to influence health care seeking behaviour. Nevertheless, the relative impact of user fees is considered to be substantial (Diop et al. 1995; Litvack and Bodart 1993; Mwabu 1986).

In contrast, other studies indicate that user fees improve utilization of health services, if the effect of fees is compensated for by increased quality. Improving quality has the potential of lowering the effective price of health by counter-balancing the increased price of user fees and by so doing increasing utilization. In Cameroon, for example, the introduction of fees increased utilization of health care services among the poorest population because it was accompanied by improved drug availability (Litvack and Bodart 1993).

A final group of studies illustrate that even when accompanied by quality improvements, user fees can have a negative impact on the demand for health care by the poor; that for those who are unable to pay, even the lowest level of charge could have detrimental impacts if proper exemption and waiving mechanisms are not put in place. Studies from Ghana and Zambia for example show that the poor felt excluded from improvements in health service quality, which mainly benefited the rich (Nyonator and Kutzin 1999; Van de Geest et al. 2000). The lessons from these studies are that improving quality is not a sufficient option to protect demand for health care in the context of user fees.

While it is clear that user fees have an impact on health seeking behaviour, the direction of change is less straightforward. Undoubtedly however, user fees impose additional burdens on household budgets, impact on their consumption and investment patterns and in so doing impact on their livelihoods. Recognising this, researchers are increasingly incorporating ATP components into their studies on illness costs; investigating coping strategies and the implications for livelihoods (Sauerborn et al. 1996a; 1996b; Russell 2001). Recently WHO has moved towards the concept of 'capacity to pay' that estimates affordability of health care using a proportion of monthly income spent on treatment (WHO 2004). They estimate that households spending over 40% of their monthly non-food expenditure on treatment are likely to face catastrophic impact. Other authors have arrived at differing estimated catastrophic 'cut-off' points of total household expenditure (Falkingham 2004; Russell 2003; Waters et al. 2004) to identify households likely to incur catastrophic illness cost burdens. However, whether illness costs are catastrophic or not is subject to debate and there exists difficulties in using a single cut-off point. The impact will depend not only on the level of cost burdens but also on household vulnerability and ATC using their asset endowments.

2.3 Livelihood frameworks: origins and development

The work of Sen (1981) on famines was perhaps the starting point of studying and understanding coping behaviour and the role of household livelihoods. Sen developed a framework that focused on two key conceptual tools: entitlements and coping strategies. In this framework the entitlement set refers to the bundle of commodities that a household can command. These include the types of assets that households can access and transform into beneficial outcomes. The bundle of commodities is determined by:

- The household's endowments (assets), usually land and labour;
- Direct entitlements through its' own production of crops and livestock;
- Exchange entitlements (land and labour) and direct entitlements (crops) that can be exchanged for money which can then be used to purchase other commodities;
- Common property or open access to rights to common land for grazing and food;

- Extended entitlements, established conventions and social relations that make certain claims legitimate but not enforceable by law.

A major strength of Sen's framework is that it highlights the role of assets and how they interact to generate a viable livelihood, including the ability to transform assets into cash (liquidity) and the conflicts that are likely to arise over access to common property rights like land (Sen 1981). These conflicts can reduce access to essential commodities. However Sen's framework was based on a rural agricultural community and therefore does not take into account the important entitlements for an urban community.

Following the work of Sen (1981) a modified framework for analysing rural livelihoods and coping strategies was developed by Bebbington (1999). This framework suggests that a viable livelihood is characterized by:

- Different resources or capital (natural, produced, human, social and cultural);
- Opportunities to turn these resources into sources of income, dignity, power and sustainability;
- The means of enhancing the existing ways in which resources contribute to households' livelihoods, for example improving the terms of exchange through negotiations of power relations;
- Other actors such as kin, ethnic networks, social organisations, state and civil society that determine access to both resources and opportunities for transformation of the assets.

A framework that focused on assets among urban households was developed by Moser (1996; 1998) in her work on household responses to economic crisis and poverty in four countries. In this framework, Moser argues that assets are key features in household vulnerability to poverty. Analysing vulnerability involves identifying the threat to livelihood, and household responses to the threat that help them to recover from the negative effects of the shocks. The more assets households have, the less vulnerable they are and the more they are able to respond to crises. The framework identifies five important assets for the urban poor:

- Labour: the most important asset for the urban poor;
- Housing: an important asset that can generate income through renting out;
- Socio-economic infrastructure: good infrastructure enables people to use their labour to generate income;
- Household relations: households act as safety nets through restructuring in times of crises;
- Social capital: reciprocity networks are increasingly mobilised to manage crises. However, a crisis can erode networks as households' ATC deteriorates and the community breaks down.

In recent years, there has been growing interest in the livelihood frameworks particularly after Sen's entitlements approach (Sen 1981) and Moser's asset vulnerability framework (Moser 1996; 1998). Donor organizations like DFID have modified these frameworks to come up with a Sustainable Livelihoods Framework (SLF)³ that is used to understand poverty and inform development policies (Scoones 1998; Baumann 2000). The SLF provides an overview of the range of factors influencing people's ability to achieve a sustainable livelihood within a given context. Key themes across the range of SLFs are:

- People pursue livelihood outcomes by drawing on a range of assets. SLF identifies five different types of capital that households combine through livelihood strategies in order to achieve beneficial outcomes. The positive outcomes arising from livelihood strategies include: more income as a result of creating gainful employment; increased well-being or capabilities, reduced vulnerability; and a more sustainable use of the natural resource base. These types of capital include human, financial, social, natural, and physical capital (Scoones 1998) (see Section 2.4 for a detailed discussion on the different types of capital);
- Income provides access to dimensions of well-being like nutrition, health and education. The possibility to achieve this is influenced to a large extent by the

³ Numerous institutions have developed SLFs. There has been debate regarding the relative importance allocated to different elements of frameworks, the appropriate level or scale at which they are used, and on whether the focus is on the socio-political or the economic (DFID 1999).

households preferences, policies and institutions in place and the context in which different people live (Dercon 2001);

- The institutions influence the ability to carry out strategies and achieve outcomes. However, external shocks including trends and seasonality are likely to influence the outcome (Baumann 2000; Scoones 1998).

Most recently Russell (2001) has modified these frameworks to develop one that specifically addresses coping with costs of illness. This framework identifies three levels that influence the impact of illness and households ATP:

- The health care system and its interaction with livelihoods: including quality of care, trust and charges;
- Factors at the household level including work and income, illness and health;
- The nature of assets a household has access to (human, financial, physical and social). The framework emphasizes the important role of social assets in promoting access to financial capital and ATP for health care.

This study builds on the information identified in the various frameworks presented above to develop a conceptual framework that analyses vulnerability and coping in relation to malaria. It takes a tracer specific approach and places emphasis on the role of vulnerability context in influencing risk of infection and the implications of malaria for livelihoods. This framework is presented in Chapter 3 (Section 3.1).

2.4 Vulnerability, coping and struggling

The discussion on user fees has shown that illnesses impose an additional burden on households' budgets. In SSA and other developing countries meeting the costs of illness is difficult for the majority of the population. How then do households manage to meet these costs? To be able to answer this question the study revisits the concept of vulnerability and introduces the concept of coping strategies, a term commonly used in the work of famines to address households' response to food shortages (Corbert 1988; Davies 1993; Sen 1985).

Vulnerability and coping are two sides of the same coin. The more vulnerable one is, the less one has capacity to cope, and the more one tends to adopt a coping mechanism. Poor households are usually the most vulnerable to any type of shock, including malaria. Physical, social and economic factors combine to make sickness potentially more frequent and a more serious economic liability to poorer households (Corbett 1988; Moser 1998). However, not all vulnerable households are poor. Even wealthy households can be vulnerable if their resources are directed towards meeting needs that do not lead to more development and sustainability of livelihoods (for example illness, alcohol, and drugs).

Vulnerability has two dimensions: (1) an external side that involves exposure to threat and (2) an internal side that involves weakness and defenseless or inability to cope with shocks (Dercon 2001). Vulnerability is dynamic. It is composed of past and current events. In the context of this study, vulnerability is determined by various factors interacting at the individual, household and community level to influence ability to cope with the costs of malaria and implications for livelihoods. Such factors include natural risks, economic risks (work and income), social and demographic factors (including age, gender), ownership and access to assets and the ability to transform them into beneficial outcomes like health and livelihood improvement. All these factors interact to determine the level of impact incurred by different households.

Coping refers to a short-term strategy adopted within the prevailing rule systems to avert a negative effect on an actor (Davies 1993). Reflecting on this, coping in the health care context would refer to individuals' and households' attempt to raise money for treatment within the existing health system and their attempt to manage the potential loss of valuable time. Various issues arise from relating the concept of coping strategies to ATP for health care:

- Coping implies the ability to survive in difficult situations. Being able to cope with the costs of illness could be interpreted as ability to raise money rather than an indicator of difficulties in meeting costs. If taken narrowly the concept may be used to justify people's ability to pay, an indication that could lead to even higher

charges in the health care system. In most cases coping strategies to meet health care costs imply a difficult situation, requiring households to mobilise additional resources and make sacrifices in order to meet the costs of illnesses.

- Unlike coping with food crises where households are likely to plan in advance, there are significant uncertainties regarding health and health care. It is difficult to predict an illness and plan for it. Moreover the sick person, or rather the consumer, relies to some extent on the provider to judge the cost and quality of treatment. The consumers may not therefore know how much they are likely to pay for treatment well in advance. Sometimes an illness could cost more than expected and therefore the 'planned' coping strategy might not succeed in meeting costs.
- While coping strategies may indicate ability to cope with difficult situations, some coping strategies refer to a situation of desperation rather than an ATC. Such 'erosive' strategies can leave permanent damage on household livelihoods (De Waal 1989). For a strategy to indicate an ATC, it should be non-erosive, one that protects and enhances the sustainability of household livelihoods. Erosive strategies increase households' vulnerability to future shocks and impoverishment through the inability to accumulate and sustain the asset base. In this regard the term coping strategy is not ideal; instead one would say that such households do not cope but 'struggle' with the costs of illness (Rugalema 2000). Labelling such strategies as coping strategies underestimates the difficulties that households have to undergo in their 'struggle' to finance the costs of illness.

Of late, the concept of coping is receiving increasing attention in the health literature. Researchers and policy makers are recognizing the need to improve the understanding of households' coping behaviour. A major strength of this approach is that it has the potential of understanding already existing resilience (the capability to resist shock and stress i.e. to be able to prevent, minimise or overcome damaging effects) that can be strengthened to protect households from the costs of illness. The few studies that have focused on coping with the costs of illness show that households mobilise a wide range of assets in their attempt to pay for treatment (Russell 2001; Sauerborn et al. 1996b; Wilkes et al. 1997; Jayawardene 1993).

The role of assets in household coping behaviour

Households use a wide range of assets to manage costs of illness and to cope with other financial stresses. The types of assets available within a household are important because they dictate the range of options viable to the households. While some strategies may look attractive, accessing them may be limited by the type and level of resources available. Literature on development and coping strategies distinguishes between different types of capital that are important for ATC. It has been argued that it is not the resources per se that are important but the ability to make use of them and transform them into viable livelihoods (Bebbington 1999; Moser 1998; Sen 1981). Transforming assets into a livelihood includes being able to exchange assets for money and an ability to substitute the different types of assets.

Human capital

Human capital is mainly presented within households through the amount and quality of labour available; which varies according to household size and composition (Scoones 1998). Human capital in itself is important because it enables households to make use of the other types of assets to generate income. When faced with financial difficulties, households will often mobilise their labour to cope with financial or income loss. The ability to mobilise labour depends on household structure (age, sex and household size) and the type of job requiring labour substitution (Moser 1996; 1998). In the context of ill health, mobilizing labour depends on the sick members and their role within the households. An illness of an economically productive person can lead to loss of income and healthy members often have to mobilise labour in order to minimise the loss. Ability to substitute for labour will vary from one job to another. While it is easy to substitute labour in jobs requiring little or no skills, it would be difficult to substitute for jobs requiring high or specialised skills.

Substituting labour can bring significant economic pay-offs. However this strategy can have negative consequences on future livelihoods. Withdrawing children from school, for instance, affects human capital and reduces future income earning capacity. Similarly, by joining the labour force, women often neglect other health-

related duties (for example, cleaning and cooking), which may have a negative effect on the households' welfare in the long run (Sauerborn et al. 1996b). While it is difficult to estimate the effects of labour substitution on children, earning capacity and on health status, the potential implications of this strategy should not be ignored.

Natural capital

Natural capital is particularly important to the rural population who rely on agriculture as the main source of income. Land ownership cushions households against economic shocks (Scoones 1998). In times of severe difficulties, households may sell or lease part of their land to meet other costs. In an urban setting, where land owned is often in the form of small plots, housing acts as an important asset. During a crisis, households sub rent their houses for additional income or use them to conduct small businesses (Moser 1996; 1998). Natural capital also protects households from shocks through agriculture. Fertile soils together with adequate rainfall enable households to have good stock of agricultural products. These food products referred to by Sen (1981) as exchange entitlements can then be transformed into cash that can be used to finance other aspects of livelihoods including paying for treatment.

Physical capital

Access to physical capital is important because these assets can be stored as savings, which can be transformed into cash. Different assets have varying levels of liquidity and the ability to transform assets to cash will depend on its liquidity and the nature of the market. Physical assets have been shown to assist in meeting the costs of illness in Burkina Faso and rural China (Sauerborn et al. 1996a; Wilkes et al. 1997).

Social capital

Unlike other forms of capital, the concept of social capital is relatively new in the health literature. There is growing interest in the potential role of social capital in improving access to health care services for the poor population. Social capital is not clearly defined but recent research has shown that the ability to cope with illness or

financial crisis will depend on the amount of social resources that a household can access (Muela 2000a; Russell 2001).

According to Putnam (1993, p. 167), “*social capital refers to features of social organizations, such as trust, norms and networks that can improve the efficiency of society by facilitating coordinated actions*”. Coleman defines social capital in terms of its structural, relational and functional elements (Coleman 1988), while Narayan and Pritchett (1999) refer to social capital as the norms and social relations embedded in the social structures of a society. These relations can be at a household level (including friends, neighbours and relatives) or at a community level comprising of voluntary groups. Social capital serves as a kind of collateral, that is available to those who have no access to ordinary credit markets. Since poor people may lack physical assets to offer as surety, members of rotating credit associations pledge their social connections thus improving poor people’s access to cash (Madembo 1997). Although different, one thing is common with these definitions; that social capital reflects collective dimensions that exist at the level of the community or society and not at the individual level.

Social capital can have a special role for poor households’ access to health care services by enabling access to other assets that can be used to pay for health care. The few studies that have looked at the role of social networks in meeting health care costs indicate that social networks are an important form of capital mobilised by households in times of illness. In Tanzania social support played a significant role in meeting the costs of ‘personalistic’ illness (illnesses that are imposed by people on others through witchcraft) but a limited role in natural illness. The burden of ‘personalistic’ illness was often a community’s responsibility with costs being spread between kin and relatives (Muela et al. 2000b). While social assets are an important resource that people use to cover illness costs, income poor households have the weakest social resource endowments (Muela et al. 2000b; Russell 2001). Key elements of social capital are presented in Box 2.1.

Box 2.1: Key elements of social capital

The concept of social capital is gaining popularity in the health literature. Because little is known about its role in meeting health care costs, this Box presents additional information on this type of capital and its dimensions:

Trust: trust is an emergent property of the social system. Individuals are able to be trusting because of the social norms and networks within which their actions are embedded (Lyon 2000; Putnam 1992). Trust can come from both the generalized norms of morality and personalized sources embedded in social networks. The employment of trust involves some risk and depends on the probability that other parties will behave in a way that is expected. Although the concept of trust has not been widely used in the health literature, it is hypothesized that patients' trust in public health system can help to improve access to health care and minimise illness cost burdens (Gilson 2003; Russell 2004).

Norms: Norms can be seen as part of a social structure or a habit that shapes intuitive actions. Norms can be learned through processes of socialization during childhood, from families, schools and religious institutions (Platteau 1994). Norms include balanced and generalized reciprocity. Balanced reciprocity refers to a simultaneous exchange of items of equivalent value, while generalized reciprocity refers to a continuing relationship of exchange that is at any given time unbalanced (Sahlins 1972).

Social networks: Networks are relationships between individuals that provide social support, self-esteem, identity and perceptions of control (Cohen and Syme 1985). Networks can be classified into two groups: horizontal networks which bring together agents of equivalent status and vertical networks, which link unequal agents in asymmetric relations of hierarchy and dependence (Putnam et al 1993). In the real world, almost all networks are mixes of both the horizontal and the vertical.

2.5 A review of the evidence on coping strategies

It was mentioned briefly in Chapter 1 that illnesses inflict direct and indirect costs on households. Few studies have looked at coping with the cost of illness and even fewer have looked specifically at how households cope with the costs of malaria. This section gives an overview of the range of strategies that households adopt in their attempt to manage illness costs.

2.5.1 Financial cost management strategies

Recent reviews of literature on the economic impact of illness emphasise the difficulties of comparing results from different studies (McIntyre and Thiede 2003; Russell 2004). The authors highlight the need to adopt methodologies that would make comparisons possible. However, even without a proper basis for comparison, these reviews reveal that health care expenditure represents a substantial proportion of household income, with the poor spending larger shares of their income compared to the rich. Table 2.1 summarizes the direct costs of illnesses found in various studies considered in the above reviews.

Table 2.1: Summary of direct costs of illness

Country	Direct costs as % of households income	Author
Burkina Faso	3.7	Sauerborn et al. 1995
Sri Lanka	6.5	Russell 2001
Thailand	3.4	Makinen et al. 2000
South Africa	4.9	Makinen et al. 2000
Nigeria	7.0	Onwujekwe et al. 2000
Guatemala	16.0	Makinen et al. 2000
Malawi (% for rich and poor households)	2-28	Ettling et al. 1994

Source: McIntyre and Thiede 2003; Russell 2004

The data presented in Table 2.1 show the range of financial costs varies from 3.4% of households' income in Thailand to 28% in Malawi. To be able to finance these expenditures, households make adjustments in their budgets and where possible mobilise additional resources. Some of the strategies that households adopt include:

Cash savings

The use of cash has been identified as the first response adopted by households to meet health care costs. Cash savings are often insufficient to meet treatment costs and in most cases households resort to other means of raising money. In a study conducted in Burkina Faso, in only 4 out of 25 cases were illness costs completely covered through the use of cash. In China, only 3 out of 28 households met the full financial cost of treatment from cash (Muela 2000b; Kabir et al. 2000; Mock et al. 2001; Sauerborn et al. 1996b; Wilkes et al. 1997). It is worth noting that even when cash is readily available to pay for illness, for poor households, this cash is usually budgeted for well in advance and use of this money to finance treatment would mean adjusting their daily needs. The use of cash savings in this case is therefore not an indication of cash availability but rather a form of 'dissaving' and of foregoing other needs to pay for health care.

Sale of assets

Where cash is insufficient, households mobilise additional resources to finance the costs of illness. The amount and type of assets sold vary depending on their degree of liquidity (Tibajjuka 1997; Sauerborn et al. 1996a). In rural China assets like livestock and stores of grain are less liquid in the most remote areas, limiting the ability to use this strategy (Wilkes et al. 1997). Even when assets are highly liquid, households are reluctant to sell assets whose sale has significant opportunity costs. In Sri Lanka, households were likely to sell unproductive assets such as jewellery while in Burkina Faso, households sold agricultural products as a last resort but the sale of livestock was more widespread and acceptable. In contrast, households in Ghana frequently sold food items and only sold livestock as a last resort (Mock et al. 2001; Russell 2001; Sauerborn et al. 1996a).

The different findings highlight that types of strategies vary between regions and between livelihoods. In particular, coping strategies are likely to vary depending on the economic activities in the region. The differences in the types of assets sold in these studies can be explained by the differences in livelihoods among the two communities. The communities under study in Ghana mainly depend on growing crops while those in Burkina Faso keep livestock as their main economic activity.

Borrowing and Loans

Borrowing money from formal and informal sources assists households to meet the cost of treatment. In Africa, the informal financial sector acts as an important source of income in time of need since poor households have limited or no access to the formal credit market (Hyuha 1990; Lucas and Nuwagaba 1999). However, even the ability to access informal loans to some extent depends on an assessment of ability to repay. Loans may be borrowed from relatives, friends and neighbours, rural cooperatives, moneylenders, and rotating and saving clubs. Informal loans are usually preferred because they charge no interest and repayment is flexible and contingent on need and ability to pay. Borrowing and lending is done on the basis of trust and reciprocity. The option to take loans is however, only readily available to relatively wealthy households who have a guarantee in the form of livestock or other assets (Muela 2000a; Lucas and Nuwagaba 1999; Russell 2001; Sauerborn et al. 1996a).

Gifts

Households with strong social networks receive gifts to meet health care costs from kin, relatives and relatives. In studies conducted in China, Ghana and Burkina Faso, gifts were more likely to be received by wealthy households and were given by either a sibling or adult child of the ill person (Mock et al. 2000; Sauerborn et al. 1996a; Wilkes et al. 1997). This is not surprising because poor households often raise their children in difficulties and are less likely to invest in elements of human capital that promote future earning capacities. Children from poor households are unlikely to be in well paying jobs and more often the cycle of poverty is carried over to later generations.

Income diversification and sale of labour

Rural households use slack time in the dry season to generate additional income. In rural Burkina Faso, households undertake income generating activities such as selling firewood, building fences and beer brewing. Similar results were observed in Uganda, Zambia and Tanzania (Lucas and Nuwagaba 1999; Barnett et al. 1995; Sauerborn et al. 1996a). Disadvantaged households resort to working as casual labourers in other people's farms. This strategy has high trade-off during the rainy season when most rural communities make their income. As Sauerborn et al. (1996a; p 294) put it "*...the trade-off between working on ones own field to ensure household's livelihood and selling ones labour to generate money for health care expenditure was especially stark*". Households that do not have the ability to diversify their income find it difficult to cope and are more vulnerable to the costs of illness.

Use of cheaper alternatives

People tend to self-treat using shop drugs or herbs as a way of managing costs (Asenso-Okyere et al. 1998; Government of Kenya (GOK) 1997; Nyamongo 2002). While self-treatment may be ideal for mild illnesses and/or as a first action before seeking formal care, there exist difficulties among households identifying what illnesses are mild and those that are likely to require professional treatment. A nationally representative survey conducted among the poor in Kenya identified high use of herbs because it was the only existing 'free' treatment (GOK 1997). The poor people in Kenya reported having self treated with herbs when they could not afford to raise money required at the government facilities, while others reported turning to prayers for emotional support, relying on God's mercy to heal the sick. Herbs were seen as the saviour in the community. As one respondent put it in the Kenyan study "*...God has provided trees free of charge and all one needs to do is to get the herb, boil it and take*" (GOK 1997: p 44).

Indicators of struggling or desperation

The discussion presented above focuses on coping strategies adopted to raise cash. However there are other strategies that do not aim to raise cash. These strategies are often adopted as a last resort and are possible indicators of 'struggling' or desperation rather than ATC.

Ignoring illness

Studies have shown that sick individuals carry on with their working activities as long as possible in order to minimise disruption from work. This type of strategy is common among poor households because their perceptions towards illness is low (and thus are less likely to be ill), in addition to experiencing difficulties raising cash to pay for treatment (Sauerborn et al. 1996a; Jayawardene 1993). Among agricultural communities households tend to ignore illness during the rainy season, which is the season for intense activities when households make the most of their annual income (Sauerborn et al. 1996a). Work absenteeism during the rainy season is likely to lead to high-income losses, but in an area of stable malaria transmission the risk of infection is also higher in the rainy season than in the dry season. Ignoring illness can lead to complications or even deaths due to delay in treatment. However, this strategy is difficult to document since people ignoring illness might not even report it to researchers. Nevertheless ignoring illness is a common strategy for poor households who cannot afford to be sick.

Begging

When all strategies fail, households resort to begging. In Bangladesh, only households with chronically ill members resorted to begging in the market place (Pryer 1989; Sauerborn et al. 1996a). Begging is associated with emotional distress and many households are reluctant to adopt this strategy.

2.5.2 Time cost management strategies

In addition to the financial costs, illness affects households through time off from their normal activities. Evidence from the literature shows that households lose

significant time through illness for reasons ranging from transport time, through time spent at the health facility, to time at home caring for the sick. Valuing the time loss is difficult but it is noted that time costs can be even higher than financial costs leading to high-income losses (Asenso-Okyere 1997; Mock et al. 2000; Russell 2001). Households manage loss of time through various strategies:

Intra-household labour re-allocation

Intra-household labour reallocation is the most frequently used strategy to cope with anticipated production losses (Jayawardene 1993; Mock et al. 2001; Moser 1998; Wilkes et al. 1997; Sauerborn et al. 1996a). The ability to re-allocate labour depends on a household's size and composition, with large households being in a better position to mobilise labour than small ones. Mobilizing labour will also depend on the sick person and their productive role within the household. An illness affecting a main income earner may require healthy members to substitute for labour as compared to the illness of a child. However, not all labour is substitutable and while most family members may contribute to agricultural activities, they may not be able to help in activities that require specialized skills.

Hiring labour

Households may hire additional labour to meet their production requirements. Hiring labour is often a strategy for better off households since it requires the availability of extra income to pay for the hired labour. Poor households rely on free labour from relatives and supportive community members (Sauerborn et al. 1996a).

Diversifying crop production and changing the factors of production

Households may cultivate a mixture of subsistence and cash crops depending on the demand for labour. Some crops like maize and beans are time consuming and a delay in attending to them could lead to low yields. Other crops like cassava and bananas require less attention and can be left unattended for some time without affecting the yields. Households can choose between the different types of crops depending on their ability to mobilise additional labour. Wealthy households may also choose to

change the factors of production from labour intensive to capital intensive (Barnett et al. 1995; Wilkes et al. 1996; Sauerborn et al. 1996a).

Decreasing areas under cultivation and lengthening of working days

In some cases, households respond to illness by reducing the area of land under cultivation. In Tanzania, households choose between food and cash crops to economize labour, while in the case of surplus land households may resort to sharecropping or putting in extra hours to make up for labour shortages and loss of income (Tibaijuka 1997; Wilkes et al. 1997).

Inter- household labour substitution

When households are unable to substitute fully for loss of labour, they seek help from other households within the community. In Burkina Faso, households whose members suffered from severe illness received free labour from the community. However free labour was less common than intra-household labour substitution (2 out of 27) and was only given to wealthy households (Sauerborn et al. 1996a). In China and Sri Lanka, households drew on labour resources of close relatives and neighbours. Free labour was usually given with a general expectation of reciprocity with households feeling obliged to return the labour services from their relatives and neighbours. The return of labour assistance may be delayed over an indefinite period (Jayawardene 1993; Wilkes et al. 1997; Russell 2001). It is important to note that availability of free community labour was found to depend on the agricultural season and the strength of social networks in the affected household. During the peak season, mobilising community labour was particularly difficult. Relatives and neighbours may only offer free services after clearing their own farms, which could lead to delays in agricultural activities and hence low productivity for the affected household.

A summary of the types of strategies identified in the literature and how different authors classify them is presented in Table 2.2.

Table 2.2 Summary and classification of household coping strategies

Sauerborn et al. (1996a)	Mutangandura et al. (1999)	Kabir et al. 2000	This study's classification
<p>Strategies to cope with financial costs</p> <ul style="list-style-type: none"> • Using cash • Sale of assets • Loans • Wage labour • Free care • Gifts • Income diversification <p>Strategies to cope with time costs</p> <ul style="list-style-type: none"> • Intra-household labour substitution • Changing the capital-labour mix of production • Hiring labour • Free community labour. 	<p>Strategies aimed to raise income</p> <ul style="list-style-type: none"> • Income diversification • Use of savings and sale of agricultural produce • Loans • Sale of assets • Relying on extended family <p>Strategies aimed at alleviating loss of labour</p> <ul style="list-style-type: none"> • Intra-households labour reallocation • Withdrawing children from school • Changing households production and substitution of crops • Decreasing areas cultivated • Lengthening of the working day <p>Strategies aimed at improved food security</p> <ul style="list-style-type: none"> • Reduced consumption of food • Substitution with cheaper alternatives • Reliance on wild fruit • Begging 	<p>Economic strategies</p> <ul style="list-style-type: none"> • Loans • Income diversification • Use of savings • Sale of assets <p>Socio-cultural strategies</p> <ul style="list-style-type: none"> • Merging households • Joining another household in the city • Returning to the rural home • Gifts and help 	<p>Financial cost management strategies:</p> <p>(a) Strategies to raise cash</p> <ul style="list-style-type: none"> • Cash savings • Sale of assets • Borrowing/loans • Sale of labour • Gifts • Income diversification <p>(b) Strategies to reduce costs</p> <ul style="list-style-type: none"> • Use of cheaper alternatives <p>(c) Struggling and desperation indicators</p> <ul style="list-style-type: none"> • Ignoring illness • Begging <p>Time cost management strategies</p> <ul style="list-style-type: none"> • Intra-households labour reallocation • Hiring labour • Lengthening working days • Inter-households labour reallocation

2.6 Sequence of strategies

Various studies have attempted to come up with a coping strategy sequence (Corbett 1988; Sauerborn et al. 1996a; Longhurst 1986). Generalizing sequence is difficult because it will vary from one household to another depending on the options available. In one study that particularly looked at sequencing of strategies to cope with economic costs of illness in Burkina Faso, Sauerborn et al. (1996a) came up with the following sequence:

- Use of savings: use of saving is normally the first strategy to cope with financial costs of illness. In very rare cases are the savings available enough to meet all the related costs;
- Sale of assets: once a household has exhausted its savings; the next strategy is to sell assets mostly livestock and equipment;
- Borrowing: if unable to meet all the required costs through the sale of assets, households resort to borrowing, with wealthy households being in a better position to acquire credit than poorer households;
- Wage labour: mainly involves intra-household labour substitution and in some cases, hiring of additional labour;
- Community assistance: where intra-household support is insufficient, households seek support from kin and non-kin members of the community.

The costs of coping strategies

Section 2.5 has presented the various strategies that households adopt in response to a crisis. Few studies have examined opportunity costs of coping strategies but it is expected that households make decisions, which reflect trade-offs between different needs. Bebbington (1999) notes that adopting strategies involves making certain choices regarding the substitution towards different needs. Examples of trade-offs include: women joining the labour force and leaving other household duties unattended; and where people in rural areas choose to desist from migration in order to be in a calmer environment, closer to family and kin and familiar institutions, but at a cost of reduced

income. Coping strategies involve some trade-off between different needs or different individuals, between the sick and the healthy, or between current survival and future well-being. Bloom et al. (2000) identify three forms of adaptations that poor households make:

- Primary adaptation: resources are re-allocated and reserves depleted without substantially affecting future productivity. For example, use of savings and sale of unproductive assets such as jewellery;
- Secondary adaptations: choosing between neglecting a sick individual and compromising the households' ability to withstand future shocks;
- Tertiary adaptation: where coping requires either migration in order to find food or work, or reconstructing the household.

Although Bloom's formulation recognises the complex and difficult trade-offs that the poor are forced to make, Goudge and Govender (2000), argue that it places too much emphasis on the economic trade-offs without acknowledging those that occur within the socio-cultural and political arenas. The trade-offs are likely to be greater when this is taken into consideration.

2.7 Lessons from the literature review

The background presented in Chapter 1 and the review presented in this chapter contributes towards identifying the research questions presented in Section 1.5. It identifies key areas in ATP and ATC that require more attention and which are addressed in this study including:

The strategies households use to cope with the costs of malaria: Most of the evidence on coping strategies reviewed has focused on coping with general costs of illness (Sauerborn 1996a; 1996b; Russell 2001; Wilkes et al. 1987). Those that focus on specific illness conditions mainly look at coping with HIV/AIDS (Barnett et al. 1995; Tibaijuka 1997; Rugalema 2000). Of the studies reviewed, only one has specifically looked at coping with the costs of malaria. This study, conducted in Sri-Lanka, provides

evidence about type of strategies used to cope with the direct and indirect costs of malaria (Jayawardene 1993). However the study does not link the type of coping strategies to other livelihood aspects, neither does it incorporate the relationship between coping strategies, treatment seeking behaviour and cost burdens. Clearly more information is needed on the interaction between different factors that make households vulnerable to the costs of malaria.

Although most studies focus on coping with general costs of illness, this study argues that it is important to take tracer specific approaches because the need for health care resources will vary depending on the nature of illnesses. Households' responses to recurring illnesses (like malaria) might differ from responses to a once off illness or to chronic conditions. With respect to policy, different levels of need require different planning and resource allocation decisions.

Implication of cost burdens and coping strategies for livelihoods: Illness costs and coping strategies can contribute towards livelihood depletion. This happens for example through sale of assets or accumulating debts. However there is limited information on how households' livelihoods are affected by malaria cost burdens.

Cost burdens by socio-economic status: Few studies compare differences in malaria cost burdens across socio-economic groups. The evidence on economic impact of malaria presented in Chapter 1 and the recent review of literature by Russell (2004) identify only one study that analyses malaria cost burdens by socio-economic status. This study conducted in Malawi shows high inequalities in cost burdens between the poor and the least poor. There is need for more studies to compare costs across socio-economic groups and provide a better understanding of how the poor manage the high cost burdens.

Cost burdens and catastrophic spending: It was mentioned in Section 2.2.2 that various studies have used an arbitrary cut-off point to identify households that face potentially catastrophic cost burdens. Yet whether costs are catastrophic or not will depend on the

affected household and their ATC. There is need to generate more evidence on different levels of illness cost burdens and their implications for households.

The importance of understanding vulnerability context: ATP and coping strategies are influenced by factors that are beyond households' control. Such factors will differ by disease endemicity and geographical location. While seasonality of economic activities is a key factor among rural communities it might not play a significant role in urban economies. Seasonality is therefore a key factor influencing malaria cost burdens and ATC but has remained relatively un-explored.

2.8 Summary

This chapter has provided a review on various issues of concern about households' coping behaviour including:

- User fees and implications for the poor;
- The different types of assets and their role in coping;
- Evidence on coping behaviour.

Firstly, the chapter reviews changes in health care financing and their implications for the poor. The discussion on the origin of the user fees policy shows the information used to justify their implementation. The section shows that the policy was based on theoretical grounds that seemed very attractive at the start, but which failed to achieve their objectives. The review has also shown that user fees have an impact on health care seeking behaviour among the poor population. It has revealed that the poor are worse hit by health care financing changes, because targeting mechanisms have failed to protect them. The conclusions are that policies need to be redesigned in a way that ensures that the poor are protected from any potentially negative implications, and that there should be increasing community awareness on the way in which various policies have been designed to work in favour of the poor.

Secondly, the chapter presents an overview of the development of livelihood frameworks and the different assets identified in various frameworks. Also highlighted are issues of concern about coping strategies and the importance of distinguishing between erosive and non-erosive strategies. Some strategies do not reflect ATC but rather are an indication of desperation or 'struggling' with the costs of illness. The review discusses the role of household assets in ATC. It analyses five key types of assets that households mobilise in order to meet the costs of illness: human, financial, natural, physical and social.

Finally, the chapter presented empirical evidence on coping strategies. The review shows that households choose from a wide range of possible responses to cope with financial and time costs of illness. The type and level of strategies adopted depend on various factors including:

- The context in which households live. This is important because it has direct impact on the types of assets available and hence the range of strategies. A good example is differences between agricultural versus pastoral and rural versus urban communities.
- Socio-economic status: mainly determined by a household's access to the different types of capital. Rich households have a stronger asset base as compared to poorer households. Poor households rely on their social relations for support, although access to social networks for such households is limited.
- Ability to mobilise the different types of capital in order to manage the costs of illness: it is not only the availability of resources that matter, but also the possibility of mobilising these resources in order to manage a crisis.

The review on coping strategies highlights that coping strategies have both positive and negative implications. Few studies have looked at the negative implications, explaining why the review presented has focused on positive implications. Negative implications include depletion of a households' asset base (which pushes households into poverty), less time dedicated towards household duties, and depletion of social status. Although coping is often a short-term response to manage a crisis situation, the type of strategy

adopted could have long-term negative implications. This study aims to capture both the negative and positive implications of coping strategies for household livelihoods.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter develops the methodology and justifies the selection of the study setting and methodological approaches used in data collection and analysis. The chapter addresses the following topics:

- Section 3.2 develops the conceptual framework;
- Section 3.3 gives a background of the study setting;
- Section 3.4 discusses the research design and processes of data collection;
- Sections 3.5 to 3.10 use the conceptual framework to design methodological approaches addressing the different elements of the framework including focus group discussions, household surveys and longitudinal case studies;
- Section 3.11 develops techniques of data analysis;
- Section 3.12 identifies the limitations of the study and attempts to address them.

3.2 Conceptual framework

The framework used in this study is drawn from the work of Russell (2001) but developed further to suit the study through a wide review of the literature. This included literature on costs of illness, coping strategies, vulnerability and livelihoods (Chapters 1 and 2). It picks up on the main components of these broad categories of literature and develops a framework suitable for the study. The framework, presented in Figure 3.1, identifies the main levels of analysis and how they interact as households attempt to cope with the costs of malaria. It shows the various variables to explore and measure and informs the development of methods of data collection presented in Sections 3.6 to 3.9 and summarised in Figure 3.3.

The levels of analysis identified in the framework are: vulnerability context; household; and institutions (of which the health care system is one). The main level of analysis is the household. In this study a household is defined as a group of people living in the same area, who are answerable to the same head and share a common source of food and income. Members of the family living or working outside the study area are not considered as household residents. A person was defined as a resident if he or she had already lived in or was intending to live in that household for at least three months. The household was chosen as the main unit of analysis for various reasons:

- Households are the locus of much decision-making, functioning as producers, and investors in human capital, as managers of risk and as consumers. Many resources are allocated within the household and the effects of many policies depend on the dynamics of households' decision-making. Decisions to seek treatment and sources of finance involve discussions between household members (Doss 1996; Sauerborn et al. 1995).
- Time and financial costs of illness are borne largely by healthy members of households rather than by the sick individual (Sauerborn et al. 1996a).

Households

Information investigated at the household level (Box A) contributes towards achieving all study objectives. Variables explored at the household level include age, gender, household size, work, income and how they influence treatment seeking behaviour, cost burdens and coping strategies. These data were collected using two cross-sectional surveys covering a wet and dry season, together with longitudinal case studies collecting similar information for a sub-sample of the survey households (see Figure 3.3).

The reason why it is important to explore different variables at the household level is because treatment seeking behaviour, coping strategies and thus implication for livelihoods may differ between large and small households and between the gender, age and economic productivity of the ill person. Large households with many productive members may find it easy to substitute for labour as compared to small households.

Similarly, an illness of a child requires different responses from those adopted in case of a sick adult.

An episode of malaria inflicts costs to households, directly through cash expenditure on treatment and indirectly through inability to conduct income and non-income activities. The level of costs will depend on factors at the institutional level (including quality of care, community groups and access to cash, Box C) and the external context in which households live (Box B). Households have assets (human, natural, physical, social, financial) that they use to make a livelihood. These assets are essential in meeting the costs of malaria and choosing between different treatment and payment strategies. Limited asset endowments reduce the ability of households to seek prompt and effective treatment thus increasing their vulnerability to the economic impact of the disease. Households adopt coping strategies in order to meet the costs of malaria. The choice of these strategies will depend on the opportunity costs and the set of asset endowments. Coping strategies may be successful in managing costs in the short term, but may reduce ability to cope with future shocks. All of these variables interact at the household level to determine vulnerability and ability to cope with the costs of malaria.

Vulnerability context

The type of assets and level of costs (Box A) are influenced by the vulnerability context (Box B). The vulnerability context refers to the external environment within which households live or the factors beyond their control. The variables explored at this level primarily address objective two and include risks, seasonality of work, income and transmission patterns. These data were mainly collected using focus group discussions and in-depth interviews with key informants.

The vulnerability context will vary from high to low levels of malaria transmission with some households being at a greater risk of suffering from malaria than others. The context is critical in exposing households to malaria infection and its costs. These costs act as a shock to livelihood and can require the adaptation of a coping strategy.

Households living in different levels of transmission are exposed to different levels of impact.

On the other hand the costs of malaria are influenced by seasonality of infection and economic activities. Treatment seeking behaviour, cost burdens and coping strategies will vary between wet and dry seasons. Seasonality is important when studying rural households who mainly depend on agriculture as their main source of income. In addition to malaria, households experience other income and livelihood shocks, which they have to manage, and which can impact on their asset base and/or ability to cope with future shocks.

Health care providers and other institutions

The costs incurred at the household level are determined by the health sector and other institutions in place (Box C). The health system influences treatment seeking behaviour and cost burdens through policies, the availability and accessibility of health care providers and quality of care. Variables explored at this level address objective two by investigating how perceived quality of care and health care charges influence treatment seeking behaviour. Other social and development policies influence household livelihood and access to cash income used to pay for treatment. In countries where social policies protect vulnerable groups from high costs of illness, the impact on household livelihoods is likely to be lower. These data were collected through the focus group discussions, household surveys and case studies.

Factors at these three levels of analysis interact with each other to determine household vulnerability and ATC with illness and other livelihood shocks.

Box 3.1: Definitions of terms and concepts

Household: A group of persons living in the same area, who are answerable to the same head and share a common source of food and/or income.

Household head: The person all members of a household regard as the head and who is responsible for day-to-day decision making within the household.

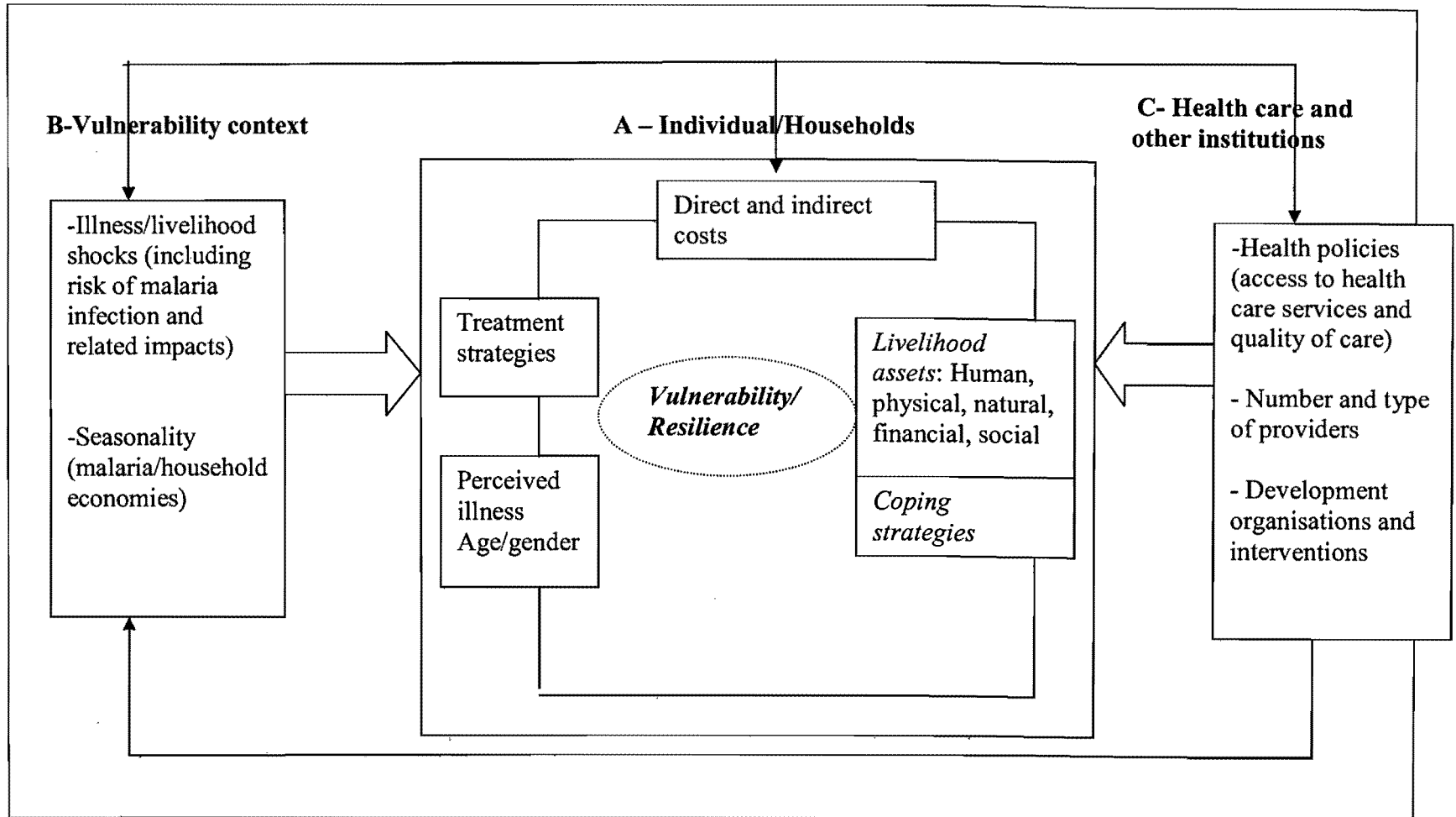
Homestead: A collection of adjacent or nearby households with a single individual as administrative head. There may be more than one household within a homestead because residents do not always share income or eat from the same pot.

Resident or normal resident: A person who has already lived in or is intending to live in that household for a period of at least three months.

Community: A specific group of people usually living in a common geographical area, who share a common culture, are arranged in a social structure and exhibit some awareness of their identity as a group (Allman et al 1997).

Coping: A short-term strategy adopted within the prevailing value system to avert a negative effect on the actor (Davies 1993). In the context of this study, the actor is the household, while the negative effects are the economic costs of malaria.

Figure 3.1: Framework for analysing vulnerability and coping with the costs of malaria



3.3 Kilifi: the Study district and reasons for choice

The study was conducted in Kilifi district along the Kenyan coast. The district has a population of about 550,000 persons and a density of 113 persons per square kilometre. The population is predominantly Giriama, a sub group of the Mijikenda ethnic group. The main occupation is small scale farming. Maize and cassava are the main food crops while coconut and cashew nuts are grown for sale.

The climate and seasons of the district are very important for this study because they influence mosquito breeding and prevalence of malaria. The wet season (April to July) is a season when mosquito breeding is prevalent and the risk of malaria infection is high. In other times of the year malaria transmission is low (Snow et al. 1993). The climate of the study area is hot and humid. The temperatures provide an ideal environment for mosquitoes to be present throughout the year. People tend to spend most of their time in the evenings outside their houses, which exposes them directly to mosquito bites. The structure of most houses is such that it allows air to circulate freely. While such structures provide cool air in a rather hot environment, the openings act as mosquito entry paths, increasing people's exposure to mosquito bites and risk of malaria infection.

Health care services in the district are provided by both the private and public sector. At the public level, the government provides health services through one district hospital, 6 health centers and 25 dispensaries. In addition, there are several private clinics and a few private hospitals, which are mainly found in the urban and semi-urban areas. Other service providers include shopkeepers and traditional healers.

Kilifi district was chosen for various reasons:

- The district has stable malaria transmission. Malaria is present throughout the year and records a peak during the wet season. This implies that households are continuously faced with the burden of meeting the costs of malaria.
- The district is mainly rural and records high levels of poverty. It is the second poorest district in Kenya and 64% of the population cannot meet their basic needs

including food, clothing and shelter (GOK 2003). Such poor households are likely to experience greater difficulties in financing costs of malaria as compared to their well off counterparts living in more developed regions. A summary of key indicators of Kilifi district is presented in Table 3.1.

- The Kenya Medical Research Institute (KEMRI) has been conducting research in the district for over 12 years. The existence of a medical research unit within the district was likely to be of significant help to the researcher because KEMRI has developed a good relationship within the community. This would make it easy for the research to penetrate the community. It also meant that the researcher could benefit from accessing resources and information about the area from the KEMRI research unit and would also get valuable support from the staff within the research unit.
- A large research project with similar aims with what this study proposed was already under way at the KEMRI unit. The overall aim of the study was to explore household ability to pay (ATP) for health care, while this study aimed at using malaria as a tracer condition to explore similar issues. Since funding for the malaria study was not available (which meant that it would not have been possible to collect data for this thesis), the ATP project provided a good opportunity for the fieldwork to be conducted within the ATP budget. This required working closely together with the principal investigator of the ATP project in terms of collecting data and overseeing the day-to-day activities of the project. However, the two projects maintained a high level of independence in terms of the questionnaire used to collect data on the different areas of interest, each had its own data set and the analysis and write up was conducted independently.

Table 3.1: Summary of key indicators for Kilifi district

Indicator	Rate
Population	550,000
Population density	114 people/km ²
Total number of households	90,000
Average household size	6
Under five mortality	11.1%
Literacy	45%
Income per capita	US\$9
Poverty rates (absolutely poor people)	55%

Source: Kilifi district development programme (KDDP) 2000

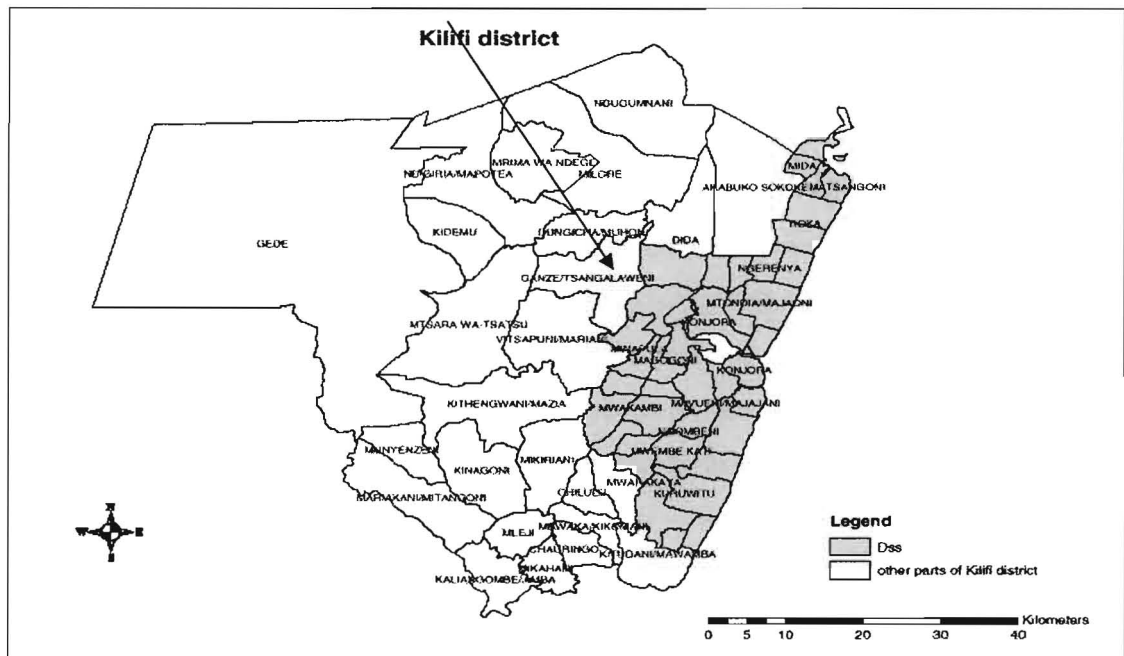
Ganze: the study area

Kilifi district is large and has seven administrative divisions namely Bahari, Kikambala, Chonyi, Kaloleni, Bamba, Vitengeni and Ganze. Of these seven, Ganze division was chosen as the research setting because:

- It is located far away from the main towns of Kilifi, Malindi and Mombasa (35 kilometers west of Kilifi town). The area has limited access to health care facilities due to distance and poor roads;
- The KEMRI research unit has been conducting research in the surrounding areas of the Kilifi town for the 12 years of its existence. While this would be an advantage in that the study area would be part of an already existing programme, it is disadvantageous because biomedical studies that are conducted near the hospital often pay bus fares to people to facilitate their participation in research involving follow-ups. This would possibly impact on the quality of study, would raise expectations and introduce bias. The community around Kilifi town hold KEMRI with high regard and are likely to report what they think the researcher wants to hear rather than what is actually happening. It was therefore ideal to move to an area where KEMRI had not worked before. Although the community had knowledge of the existence of KEMRI they had not been exposed to its research activities before. A map of Kilifi district showing Ganze division and the areas where KEMRI unit conducts its activities is shown in Figure 3.2;

- The area is a typical remote rural setting and has been involved in development programmes with Kilifi District Development Programme (KDDP) and Plan International.

Figure 3.2: A map of Kilifi district showing Ganze division and the sites where the KEMRI unit conducts most of its research activities (shaded area)



3.4 Research design

By the time the study started, there was little information on how households respond to the costs of malaria and illnesses in general. Hence the study took the form of an exploratory design, with the main aim of improving the knowledge on vulnerability and coping behaviour rather than testing any theories or hypothesis. In order to develop adequate knowledge on the subject, the study adopted a multiple design approach. This design combines Focus Group Discussions (FGDs), household surveys and longitudinal case study methods. The use of a combined design is important because while surveys provide a general representative picture, case studies often illuminate, enrich and bring to life the survey findings (Robson 1993). Since the aim of the study is to generate an in-

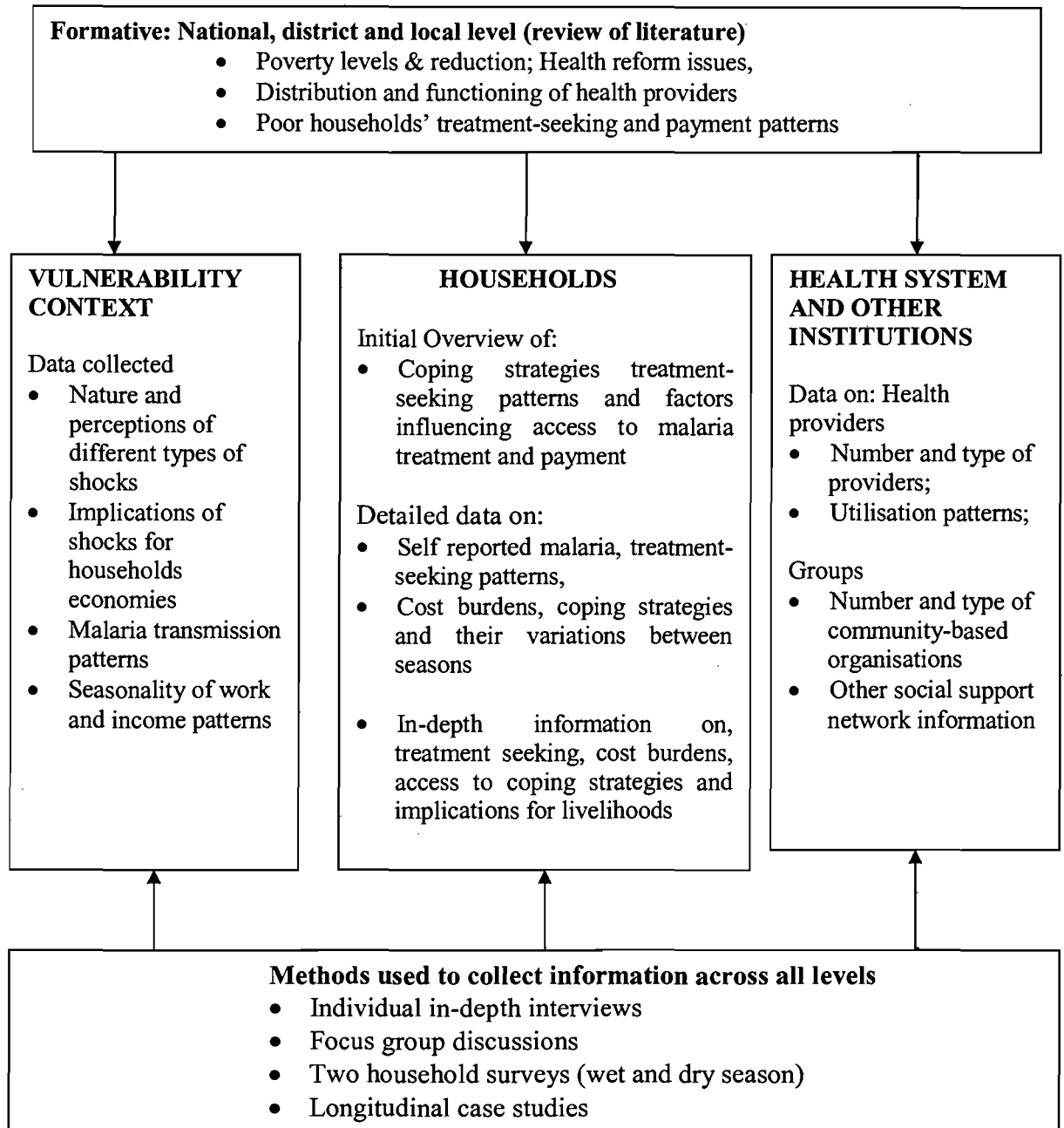
depth understanding on vulnerability and coping behaviour, a combined design was found appropriate.

Data collection: process and methods

The study applied a combination of qualitative and quantitative methods. Triangulation or the use of multiple methods and/or a multi-member research team helps to ensure validity and comprehensiveness of the data. Triangulation reduces weaknesses associated with one specific method. As Bowling (1997, p 180) puts it: "*No research method is without bias. Interviews and questionnaires must be supplemented by methods testing the same social variables but having different methodological weaknesses.*" In this case, the use of multiple methods helps to address any potential limitations of a single approach. The longitudinal case study is important because it enables the researcher to develop rapport with households making it possible to collect more accurate information on rather complex and sensitive topics. In addition, following households over time helps one to observe illnesses as they happen and watch other types of shocks and their impact unfold over time. While the survey is important for providing statistically representative data, the case study addresses the details of the 'whys' and 'hows' arising from the survey data.

Quantitative research methods included semi-structured questionnaires used in the household survey to collect data on socio-demographic characteristics, expenditure patterns, assets, group membership, and types of illnesses, treatment seeking patterns and levels of costs. Qualitative research methods included FGDs, individual in-depth interviews with key informants and participation techniques. These methods were mainly used to collect background information on the study areas and to establish rapport and trust in the community. Qualitative methods were also widely used in the longitudinal case studies. A summary of the information collected using this multiple method approach is presented in Figure 3.3.

Figure 3.3: Overview of information and methods used in the study



3.5 Field workers selection and training

A total of fourteen field workers (FWs) were selected from 150 applicants to help in conducting the study. Selection was based on their level of education (minimum requirement of completed secondary education), ability to speak the local language, and performance in role-play interviews. Training took place over a period of four weeks. It covered a wide range of topics including: introduction to research, background and aims of the study, basic communication skills, how to introduce the work, informed consent, giving constructive feedback, data collection, mapping, expected problems and their solutions, how to complete the questionnaire and other basic field work information. The training was participatory and aimed at ensuring FWs fully understood their role and that they were able to complete the data collection tools without any difficulties. An additional field worker was selected to help in supervision. This particular field worker had 10 years experience of conducting interviews that he acquired while working at KEMRI. Further training of fieldworkers for specific methodologies as described below.

3.6 Phase I: Establishing contact with the community

Before conducting the study, the researcher firstly established contact with the community. This involved seeking clearance from the district administration, the local chiefs and the community leaders. It was important to get to know the community leaders at an early stage because their support was required to reach the wider community.

Mapping the study area

Having established contact with key community leaders, it was important for the research team to expand to the whole community. To be able to do this, it was useful to work with a map. An up to date map of the study area was not available, therefore the study team had to draw new maps indicating the position of homesteads, shops, schools, churches, health facilities, major foot paths and other key features such as rivers, water

points, boundaries etc. As part of the mapping, the names of all the homestead heads were recorded. Efforts were made to include all homesteads in order to minimise sampling bias. Maps were drawn by hand by the FWs assisted by community leaders (see appendix 1 for a sample copy).

The mapping period was also a time to interact with the community leaders and to make them feel part of the study. It was also a good time to get introduced to community members that we met along the way, to understand more about the social organization of the community and the politics of the villages. The mapping was a very challenging exercise; it involved walking for long distances, crossing valleys and climbing hills while persevering in the hot coastal weather. During the exercise, the research team carried along information sheets explaining the purpose of the study. These sheets were well designed using simple language and also had some pictures to help clarify the written information. The sheets were written in the local language (Kigiriana). Kiswahili and English versions of the same information were available for those who preferred them.

3.7 Phase II: In-depth interviews and Focus Group Discussions

A total of 9 individual in-depth interviews and 18 FGDs were conducted. The characteristics used to select group participants were age and gender (Old men n=4 and young men n=5; young women n=5 and old women n=4). Young individuals were defined as those aged between the age of 18 and 45. The aim of the FGDs included:

- Help establish contact with the community: a good time to talk about the study;
- Build up an overview of the vulnerability context in which the community exists;
- Gather overviews of how people talk about treatment seeking and payment strategies, and difficulties in raising money to pay for treatment;
- Generate information to inform questionnaire development for the survey;
- Generate information that will enrich and give meaning to the survey data and case studies.

FGDs were conducted in two rounds; the first round included the presentation of illness scenarios or vignettes to group members and asking them about the different strategies they would adopt for the different scenarios. Vignettes presented cases of malaria in a child under the age of five; a child over ten, a pregnant woman, a 30-year-old man and the elderly aged over 65. The discussion was guided by a facilitator who asked open-ended questions regarding possible diagnosis, where one was likely to seek treatment and potential sources of financing and how this varied between seasons. Also present was a note taker and the researcher who acted as an observer. A copy of the interview guide is presented in appendix 2.

The second round of discussions was a follow up of issues arising from the initial discussions. It involved asking open-ended questions on payment for malaria treatment and strategies adopted for different amounts of money and at different seasons. The use of tape recorders was encouraged, unless the respondents indicated that they were not willing to have the information recorded. Interviews were conducted in the local language. Tapes were transcribed and information translated to English immediately after the discussion.

3.8 Phase III: the household surveys

Two cross sectional surveys were conducted; the first one was conducted during April to July 2003 (wet season) and the second one conducted in October to December (dry season). Two surveys were conducted because: (1) The incidence of malaria varies depending on the season, malaria being more prevalent in the wet season; (2) Economies of most rural households highly depend on the agricultural season; (3) Illness perceptions are likely to vary between wet and dry seasons (Sauerborn et al. 1996b). The main objectives of the survey were:

- To generate data on socio-demographic and treatment seeking behaviour and to identify the range of coping strategies;
- To generate information on the types and costs of illness;
- To capture seasonal variations in illness, income and coping strategies;

- To provide a sampling frame for case study households.

The questionnaire and interview schedule were initially developed based on a review of literature on livelihoods, coping with famine and health care, vulnerability, and treatment seeking (see appendix 3 for a copy of the questionnaire). The survey questions were divided into five sections each containing various types of information including:

- Social and demographic characteristics (age, gender, marital status, income source, education etc);
- Information on social assets (group membership, group characteristics, trust);
- Asset ownership, expenditure patterns and other indicators of well being (for example housing);
- Illnesses, treatment seeking patterns, costs and coping strategies;
- Other socio-economic indicators such as housing and water.

The questionnaires were later altered on the basis of piloting and pre-testing. A few alterations were made from issues arising from the pilot:

- The expenditure section: Questions in the expenditure section initially asked households to state their average expenditure for each item. The pilot indicated that data from this section was unreliable and respondents experienced difficulties trying to estimate their average expenditure. A change was found necessary and the questions were reworded to ask about how much people spent within a specific time period (yesterday, last week, last month, last term). An issue of concern about this approach is that expenditure is bound to vary, more so in rural communities where income is highly dependent on seasons. This shortcoming was taken into consideration and the study argues that since one of the main objectives is to investigate the implications of different seasons on the costs of malaria and household income, asking what was spent within the most recent period would form a basis for comparison between the different seasons.
- Translating some questions into the local language: In the course of piloting, it was identified that FWs were asking some questions differently. This occurred especially in questions that had terms which could not be translated directly into the local

language or had different meanings when translated. A good example was the word 'trust'. FWs reported that people did not understand what it meant when directly translated. As a result this question was translated using different words that could mean trust but which were better understood by the community. Translation applied across all questions that posed difficulties during piloting.

- Some cross-check questions were introduced to help people remember when they were ill. For example it was difficult for people to talk about hospitalisations because of the one-year recall period. In such cases FWs helped the people to recall and asked to see health cards if available in order to establish whether the hospitalisation occurred within the required recall period. A similar approach was used for acute illnesses (illnesses in the last two weeks).

The survey method was chosen as the most appropriate for collecting the kind of information outlined above because it is cost and time effective. The sampling allows statistical inferences to be made in relation to the broader population and allows generalization thus increasing the external validity of the study (Bowling 1997). Interviews were conducted face to face. This approach was chosen because the community is highly illiterate, the interviewer could clarify questions and their presence was likely to encourage participation. Conducting face-to-face interviews is disadvantageous in that:

- Data may be affected by characteristics of the interviewer (for example, their motivation, personality, skills and experience). There may be interviewer bias, where the interviewer, unwillingly influences the responses;
- Data may be affected by the interactions of the interviewer and respondents characteristics;
- Respondents may feel their answers are not anonymous and be less open (Robson 1993).

In order to address these limitations, FWs received intensive training. A pilot survey was conducted to ensure that FWs knew how to conduct interviews and record information accurately. Respondents were fully informed (prior to the study) about the purpose and

all aspects of the study that were likely to encourage their willingness to participate. Specifically, respondents were assured of strict confidentiality and that participation was on a voluntary basis. In addition, the researcher spent significant time in the field observing FWs as they conducted interviews. The researcher had key areas that were put down in form of a table and which were used to give constructive feedback to the FWs (see appendix 4 for a copy of the feed back form).

Sample size and sampling techniques

The sample size was calculated using the below formula. According to this formula, the sample size $n = (Z^2 \times p \times q) \div d^2$

Where:

Z= the degree of confidence;

p=probability of contracting malaria;

q=1-p;

d= the largest acceptable difference between the estimated value from the sample and true population.

In this case we assume that households are normally distributed around a given mean. In order to be highly confident in the results, the study assumes z values of 1.96 since it gives a reliability of 95%. The probability of illness in the study is assumed to be 25% (ideal in order to capture an acceptable number of illness episodes), p is therefore equal to 0.25 and q is equal to 0.75. The largest acceptable percentage difference between the estimated value from the sample and true population is assumed to be 0.05. The sample size is therefore: $(1.96^2 \times 0.25 \times 0.75) \div (0.05^2) = 288$ households. In order to allow for refusals and absenteeism the study settled for a sample size of 300 households.

3.9 Phase IV: the case study

The case study formed a major component of the qualitative work and the study as a whole. The main aims of the case study were as follows:

- To examine the costs of malaria over time;
- To identify and explore factors that make households vulnerable;
- Evaluate the impact of costs of malaria and coping strategies on household livelihoods over time;
- Explore the type of assets that households mobilise to cover treatment costs.

The case study was also a good way of comparing what people say and what they actually do. The case study method was found appropriate for generating this information because it allows an in-depth investigation of people's livelihoods and has the ability to deal with a wide variety of evidence that may not be available in a survey. However, case studies are disadvantageous in that; (1) they provide little basis for generalization; and (2) the investigator may allow biased views to influence the direction of the findings and conclusions (Robson 1993). The study takes these limitations into consideration and argues that the response to malaria among case study households is likely to be similar among households living within the same geographical and social setting. Case studies are generalizable to theoretical positions and not to populations. The goal of the investigator in the case study is that of analytical generalization and not statistical generalization. As Lipset et al. (1956: p 419) note: *"The goal is to do a generalizing and not a particularizing analysis"*.

Training of the case study field team

As mentioned in Section 3.5, the research team received intensive training before performing any interviews. However it was found necessary to provide additional training to those FWs involved in the case study. This is because of the qualitative nature of the work, which is different from the quantitative nature of the survey. Out of the initial fourteen FWs, three were selected to conduct the case studies. The three comprised of two males and one female. Two were allocated 15 case study households each while one acted as a supervisor.

Training of the case study team took an initial period of one week. It involved a formal qualitative course organised by the KEMRI research unit. In addition, field workers

received training before each specific visit to discuss the aims of that visit, the best way to ask the questions and in doing some practicing and piloting of each study tool.

Case study household selection

Case study households were identified through the survey undertaken in the wet season. Households were selected purposively on the basis of different kinds of information and the apparent potential of the case to contribute to emerging theories rather than its typicality. Selection of case study households was conducted in three stages:

- *Socio-economic status*: Understanding variations in cost burdens and coping strategies between households of different socio-economic status is a key issue for the study. Thus the selection of case study households was built along this key component. Households were classified into three socio-economic groups (poor, less poor, and least poor) based on their monthly per capita expenditure and asset ownership. The aim was to select a combination of households purposively from the poor and the least poor that would help answer the research questions.
- *Malaria cost burdens*: A preliminary analysis of reported illnesses and treatment seeking patterns was conducted. Estimates of direct and indirect costs were derived. These costs were then expressed as a proportion of monthly expenditure and households were allocated into three groups (high costs, medium costs, low costs). These cost groups were then merged with the socio-economic data in order to have six groups of households¹. The middle category of households were not included for further analysis because it was expected that a combination of the poor and the least poor households would help understand differences in treatment seeking behaviour and coping strategies. Households were then picked randomly from these four groups because the total number of households that met the set criteria was more than initially targeted.
- *Field workers' suggestions*: A key concern of longitudinal studies is the amount of time the researcher spends with the respondents. To be able to understand households' vulnerability and coping strategies in detail required visiting households

¹ The six groups included; poor with high/low cost burdens; less poor with high/low cost burdens and least poor with high/low cost burdens.

regularly, sometimes twice or thrice a month depending on the type of questions and topic under study and sometimes during late hours in the night depending on availability of respondents. It was therefore important that the case study households were willing to cooperate and had a good relationship with the study team. In order to do this, FWs were asked to list down at least three households each that they had interacted with during the two surveys, which they thought would help us gather the information that the study was interested in, while at the same time being practically easy to get along with.² (Before asking them to do this, the researcher had already selected potential case study households in step 2).

- *Combining the researcher's potential households with FWs' suggestions:* The final stage involved merging FWs ideas with that of the researcher in order to come up with a final list of households. This was done by giving priority to households that had been selected by the researcher and FWs in their independent exercises. In total, twelve households met this criteria and the remaining eighteen were selected randomly from the list of potential households selected by the researcher in step two. In addition to this detailed selection process other issues that were put into consideration were household size and structure in order to allow for diversity in vulnerability and coping behaviour. Poor households with high direct costs were given preference because of their ability to contribute more to the understanding of coping behaviour. A total of 30 households were sampled for the case study work.

The distribution of selected case households across the targeted categories is as indicated below:

- 9 poor households with high cost burdens;
- 7 poor households with low cost burdens;
- 7 least poor households with high cost burdens;
- 7 least poor households with low cost burdens.

² It was discussed in Section 3.5 that FWs received intensive well-planned training on the study ensuring that they all understood the studies aims and objectives and to enable them answer arising questions while in the field. Thus FWs were in a good position to inform the research on households that were potentially suitable for the case study work.

Regularity of visits

An issue of concern was the amount of time spent with case study households. It was agreed from the very beginning that case study households should be well informed about the requirements of the case study work. An initial visit was set to seek consent with the households; this involved explaining to them more about our work, their ability to teach us more about the topic, and the importance of their contribution to the success of the study. Households who consented were visited 'once' every six³ weeks although there were short visits in between to address any follow up issues and collect diary and illness information. Each major visit focused on a different topic of interest. Information on illnesses and treatment seeking behaviour and coping strategies was collected during each visit.

In order to allow flexibility, FWs resided in the study area for the nine-month period. This was important because it enabled them to conduct interviews at a time convenient to the households. It also helped to improve our understanding about the community of study through observation⁴ and participation in social activities. A summary of the topics covered during each major visit is shown in Table 3.2. Photographs showing some of the methods used in the case study are shown in Figures 3.4 to 3.5.

³ Although major visits were supposed to take place once every six weeks, some topics covered took more time. E.g. the social network analysis visit lasted over 8 weeks while diaries took over twelve weeks because we needed complete data for 2 months while giving an allowance for piloting diary tools.

⁴ For example, one day as the FWs were talking a walk through the village they were able to observe a person who had persistently insisted that he was not able to do any work, including simple duties. This person was observed working in a building and construction site, conducting heavy activities.

Table 3.2: Topics discussed during each ‘major’ visit

Topic of visit	Issues covered
Historical profile	<ul style="list-style-type: none"> • Past major illnesses (malaria and other) and injuries; • Their impacts on household livelihoods; • How households coped with impact; • Deaths; • Non illness events with major consequences for household livelihood; • The good times and their impact.
Different types of assets	<p><i>Human assets</i></p> <ul style="list-style-type: none"> • Types of works members do, levels of income, and job security; • Advantages/disadvantages of each of them; • Types of skills, job losses etc. <p><i>Financial assets</i></p> <ul style="list-style-type: none"> • Ownership of any form of saving mechanism; • Types of saving institutions: advantages and disadvantages; • Access to credit; • Types of asset that household would consider selling to pay for treatment <p><i>Physical/ natural assets</i></p> <ul style="list-style-type: none"> • Housing; • Ownership of property.
Social networks	<ul style="list-style-type: none"> • Number and type of people relating with the household; • Type and degree of support given to household; • Trust; • Ability to borrow or receive gifts from different networks.
Pictorial diaries	<ul style="list-style-type: none"> • Number of malaria episodes; • Amount spent on treatment; • Amount spent on other daily items; • Debts and number of days spent without food.
Livelihood change	<p>Assessment of livelihood changes including: Changes in different elements of capital mainly:</p> <ul style="list-style-type: none"> • Human capital: job losses, promotions, new people acquiring jobs; • Financial assets: ability to save, sale or purchase of livestock; • Social capital: debt accumulation and payment.

3.10 Ethical issues and quality control

Ethical research practices were observed throughout the study. This involved providing information to the community about the study including the importance of the work, implications for the future and potential benefits. The information was conveyed using

the local language, simplified in a way that was easy for all to understand. Verbal consent was subsequently sought from a senior member of every household. The research team was informed of the importance of being flexible and conducting interviews at a time that was convenient for the households. Households were informed about the confidentiality and each household was allocated a code. All the data was stored in locked drawers that were only accessed by the researcher.

An issue of concern regarding case study work was how to balance meeting the needs of the researcher with those of the researched without biasing the results. This was important considering that the study was asking sensitive issues about wealth, vulnerability and poverty; treatment seeking and social relations in a longitudinal approach. After extensive thought and careful discussions with the research team, it was agreed that the study was taking much of the households' time and it was important to give something in return. This was particularly important during the 'major' visits that took about half a day, making it difficult for the respondents to go out to look for work and food for the family. However the dilemma was how to give 'something' to only 30 households and leave out the households that participated in the survey. It was decided that a careful explanation should be given to the case study households (about the nature of the work, requiring many visits over a long time unlike in the survey that took only a few hours) in order for them to be able to answer questions appropriately. Compensation was given in the form of foodstuffs for major visits; maize flour and beans that were calculated using the household size to cover enough food to feed the family for that day. In addition family photographs were taken during each visit and in the end the households received all photographs in a family album. It was made clear that anything given was a gift, a thank-you for their time and not a form of payment.

Various issues arise from compensating people for time. In particular there is concern regarding biasing results especially giving foodstuff to a community that was experiencing food insecurity. However one has to strike a balance between what is ethically acceptable and taking care not to undermine quality of the work. The FWs felt

that what was offered did not bias levels of participation, and that community members still felt able to withdraw without feelings of guilt or disadvantage.

Other plans to observe ethical concerns include feeding back results to the community during two open days where all community members and health workers are invited. The results will be carefully presented (towards end of 2005) in simple language that will give an opportunity for people to ask questions and understand what is taking place within their community. Photographs showing some of the ethical practices are shown in Figures 3.6 and 3.7.

Quality control

Serious attention was given to data quality control throughout the FGDS, and the survey and case study work.

The household surveys:

- To minimise sampling errors, the sample size was calculated on the basis of expected proportion of illness. Good coverage of the study area was made possible through the use of hand drawn maps showing all land marks (schools, churches, health facilities) and each homestead in the study areas. The maps were updated throughout the study period to ensure that new or previously omitted households were included in the sampling frame. The field workers ensured that all households were visited unless in situations where they could not find a respondent after three attempts.
- Field workers received extensive training for a period of four weeks.
- The study tools were pre-tested and piloted before the survey started and any problems addressed.
- Reliability of data was tested for a sub-section of the respondents and data compared for key variables of interest. This involved having a second FW re-do some sections of the questionnaire (see appendix 5 for a copy of the crosscheck questionnaire).
- Data from the survey was double entered and verified using Fox pro (version 6.0).

- The researcher spent as much time as possible in the field performing a supervisory role. Questionnaires were checked for any inconsistencies and if any gaps were identified, the FWs were asked to revisit the household to collect the missing information.
- Regular meetings were held with the research team to discuss and resolve fieldwork problems every day after fieldwork.
- A feedback form was designed to assist observers make comments on a range of topics covered in the course of training. The forms proved to be important in helping the researcher to stimulate productive discussions with the FWs after interviews.

The case study:

- Attempts were made by the researcher to make her own interview notes when possible. These notes were later compared with those of the FWs to ensure that no information was left out. In addition, the senior FW who assisted in supervision also made independent notes when he accompanied one of the team members for an interview. These notes were cross checked with the ones written by the other FW to ensure that nothing was being left out, and as a form of continuous training.
- A meeting was held once every week throughout the nine-month period. The aim of the meeting was to share field experiences and raise issues that posed difficulties for FWs and/or for respondents.
- The researcher read reports as soon as they were handed in to help identify any issues that needed follow up or any information that required more detail. Feedback on these reports was given during the weekly meeting.

Figure 3.6 (Photo 3): Case study household members admire their photo album



Figure 3.7 (Photo 4): A field worker with one of her case study households



Figure 3.4 (Photo 1): A field worker assists a case study member to complete a social network map



Figure 3.5 (Photo 2): A woman holding her pictorial diary



3.11 Data analysis

Quantitative data from the household survey was analysed using STATA, version 8.0 (Statacorp 2003). Key analytical issues arising from quantitative data are presented in the next sub-section. Qualitative data analysis was analysed manually using content analysis. All transcripts from FGDs were read and coded in detail using words identical to the respondents in order to stay as 'close' to the data as possible. The codes were later recorded in summary sheets and organised into sub-themes, which were then recorded in a table. The sub-themes were analysed to identify the main themes. Qualitative data for the case study was analysed using a similar method. However, because this data was massive and very detailed, the researcher familiarised herself with the data and summarised it into a manageable format before coding. Similar steps of analysis used in FGDs were then applied to identify the main themes. Additional details on qualitative case study data analysis and how it was grouped to arrive at meaningful categories is presented in the results chapters for the convenience of the reader.

3.11.1 Identifying malaria

Like the majority of studies on malaria, the study uses fever as the main indicator of malaria. While WHO recommends that all fever among children in malaria endemic zones be treated using antimalarials, a review of the literature by Brinkmann and Brinkmann (1991) estimates that malaria is only responsible for about 40% of all fevers in Africa. The remaining 60% are associated with other illnesses. A recent study by Reyburn et al. (2004) found that 46.1% of all people treated for malaria were had *plasmodium falciparum* (slide positive). The proportion of positive cases fell with increase in age, with only 31.1% positive cases among patients aged above five and 68.8% positive cases among under fives. This implies that there is a potential for over estimating the costs of malaria presented in this study since there was no confirmation as to whether the fever was caused by malaria or not.

The study attempted to minimise this limitation by asking respondents and/or the sick person to describe in detail all the symptoms that they experienced during the period of illness. Participants were asked to list symptoms spontaneously and then prompted on key symptoms like, diarrhoea, vomiting, and difficulties in breathing, convulsions, and cough. Respondents were also asked about the severity of these symptoms and if they knew the name of the illness or the problem they were suffering from. An illness was classified as malaria if the patient experienced a fever (mild or high) and if the name of the illness was given as malaria or '*homa*'¹. The criteria used to classify an illness as malaria is set out in Box 3.2.

Box 3.2: Identifying reported malaria

- Stated malaria or '*homa*' with high fever? (If yes=malaria).
- Stated malaria or '*homa*' with mild fever? (If yes=malaria).
- Did not state malaria or '*homa*' but reported high or mild fever and other symptoms indicative of malaria (e.g. headache, chilliness)? (If yes=malaria unless other named illness or more striking symptoms).
- Stated '*homa*' with mild fever but named other obvious illness? (If yes not equal malaria)

3.11.2 Estimating the costs of malaria

The study estimates the direct and indirect costs of malaria. Direct costs included all cash payments for treatment, drugs, tests, transport, consultation and any other financial payment due to illness. Total direct costs of malaria were therefore the total cash expenditure on all the above items. Indirect costs are expressed in terms of number of days off from productive and non-income generating roles for the patient and carers, and as days off from school for school going children. Days off work were valued in

¹ Malaria is locally referred to as '*homa*' a Swahili term meaning fever. Mwenesi (1993) describes '*homa*' as a folk illness related with febrile conditions of which malaria is one.

monetary terms using an average daily income that was based on expenditure data reported in the surveys. Days off from non-income generating activities were not valued in monetary terms.

3.11.3 Classifying the population into socio-economic groups

In order to assess the impact of malaria across socio-economic groups, households were divided into five quintiles using expenditure data. An issue of concern is how to estimate household income in a community where a large proportion is employed in the agricultural sector. The study collected information on households' expenditure in both surveys. Deaton (1997) argues that the use of expenditure data is preferred to income for various reasons:

- Data on income is difficult to collect in developing countries, especially in a setting where households rely on subsistence farming as the main source of income. Households tend to consume a large proportion of their own production which becomes difficult to value;
- Even where households are self employed in sectors other than agriculture, collecting data on income is of dubious reliability since households are unlikely to differentiate between profit from the business, cost of purchasing items and the amount used for their own consumption;
- Income is subject to fluctuations while expenditure is smoothed over time. Consequently the flow of expenditure over a short period of a week or a month is more likely to provide a good estimate of socio-economic status over a year than that of income.

Households were asked how much they spent on various items within the last month, week, or the last day. Although this information is expected to vary between time periods, asking about a specific period was found to be appropriate because it would provide information on seasonal variations in household income. Weekly expenditure data was converted into monthly data by multiplying by 4 and daily expenditure by 30.

Education expenditure per term was converted into monthly expenditure by dividing by four since there are three terms in a calendar year.

Total monthly expenditure was converted into per capita expenditure by adjusting for household size and composition. This meant that total monthly expenditure per household was divided by the household size but children were given a lower weight because of the differences in resource demand for different age groups. The weighting scale used in the analysis is set out in Table 3.3. This scale was considered appropriate because it has been used continuously in the Kenyan demographic and health survey, which means that the socio-economic welfare of the study households can be fitted within the national context.

Table 3.3: Weighting ratios used in per capita expenditure calculations

Age	Weight
0-4	0.24
5-14	0.65
15+	1

Source: Anzagi and Bernard 1977, quoted in Kenyan Demographic and Health Survey (2002)

3.12 Limitations of the study and attempts to overcome them

Although the study was carefully designed it is not without limitations. Some of the limitations of the study include:

- The study uses fever as the main indicator of malaria. While the use of fever as indicative of malaria has been adopted in various studies (Asenso-Okyere and Dzator 1997; Sauerborn et al. 1991; Shepard et al. 1991), all fever is clearly not malaria. Estimates show that 60% of all fevers are not malaria related (Brinkmann and Brinkmann 1991). It is difficult to overcome this limitation because it is not always possible for researchers to conduct parasite tests while administering illness questionnaires and even when tests are carried out, the presence of parasites does not

necessarily indicate clinical symptoms. Consequently there is a possibility that some of the cases reported as malaria in this study are not necessarily malaria. This has a potential of over-estimating costs burdens.

- It is worth noting that rural health facilities often have no laboratories, and treatment is mainly based on patients reported symptoms rather than parasite tests. Nevertheless, in an attempt to address this problem, residents were asked to describe all the symptoms they experienced during the illness period and whether or not they knew what the illness was. The additional symptoms and the name of illness that respondents gave were used to decide whether it was malaria or not (See Box 3.2).
- The study was conducted in a small rural setting along the Kenyan coast. While the results might be of major contribution to policy, they might not be applicable to other contexts especially the more urban developed settings. The results might however be applicable to settings with similar social and economic backgrounds. Even where the results might not necessarily be applicable, the study in general is a step forward towards generating the much-needed information on vulnerability and implications of malaria for livelihoods. Other studies in different settings can use this approach to yield results suitable for their contexts.
- Although one of the aims was to compare seasonal variations in illness cost burdens and household income, there was inadequate rainfall for the two years that fieldwork took place. Attempts were made to postpone the period of the study but it soon became clear that the rains were not to come. Consequently the findings presented in this study might not adequately present seasonal variations in reported malaria and cost burdens.
- The study uses information collected from households to discuss the quality of care and charges at health care facilities. While this is important because the main focus of the study is on the demand side rather than supply, getting the perspective of health care providers would have strengthened the study.
- There is a concern regarding the amount of time required in order to fully understand the implications of malaria for livelihoods. The nine months period used in this study is clearly not adequate to understand the nature of implications since they are likely to unfold slowly becoming significant over time. In order to fully understand the

implications on livelihoods, a longer time period is necessary. This was not possible for this study due to financial and time constraints although the historical profile conducted at the beginning of the case study work helped to capture part of the past implications. The study strongly recommends that a longer period is necessary where the research is not faced by time and financial constraints.

3.13 Summary

This chapter has developed the conceptual framework and identified the key variables to explore and measure at different levels of analysis. The chapter has also justified the selection of the study setting and the methodology. It has described in detail the multiple approach used in the study (FGDs, surveys and case study) and justified why such an approach is necessary.

The chapter has gone further to show how the research tools were developed and the role of piloting and pre-testing tools to suit the study setting. The chapter has also shown that careful training was conducted to ensure that the fieldwork team fully understood the study and were able to complete the questionnaires without difficulties.

Finally the chapter has addressed issues about quality control and has demonstrated that proper measures were put in place to ensure that the data collected was of high quality standards. The chapter has ended by highlighting the limitations of the study and attempts to overcome them.

CHAPTER FOUR

LIVELIHOODS IN THE COMMUNITY UNDER STUDY

4.1 Introduction

This chapter locates the community under study within a livelihoods framework by analysing different types of capital (see Section 2.4). The chapter gives a general overview of vulnerability at a community level in terms of the different types of idiosyncratic shocks, capital and institutions. Providing a detailed overview of the community at this stage is important because the results presented in this chapter form a foundation for subsequent chapters and enables findings to be put into the overall context.

Vulnerability and livelihoods at the community level are described using findings from the household surveys (wet and dry season) and FGDs conducted at the outset of the research¹. The survey data speak broadly about what is happening at the community level, while FGDs help to explain or clarify the findings from the surveys. The overall aim of the chapter is to describe the contextual factors that influence malaria infection, cost burdens, assets and ATC. The chapter is divided into three main sections each addressing specific issues relevant to vulnerability context (Box B of the conceptual framework) and which contribute towards addressing objective two:

- Section 4.2 describes the vulnerability context, the different types of shocks and the seasonality of household economies. It also describes the social and demographic factors relevant to malaria infection and cost burdens;
- Section 4.3 analyses the different types of capital and how households use them to generate beneficial outcomes;
- Section 4.4 looks at the role of institutions in promoting access to the different types of capital.

¹ The case study work provided an opportunity to understand the context in detail because of the amount of time spent in the field. However, data on the context is best described using surveys and FGDs because they provide information at a broader level.

4.2 Vulnerability context

The discussion on vulnerability (Section 2.4) and the conceptual framework presented in Chapter 3 highlighted the need to understand the context within which households live. The vulnerability context frames the external environment within which people exist. Key factors within the vulnerability context are geographic location, demographic or lifecycle structure, resource flows and the household economy (Worrall et al. 2002). Livelihoods and the wider availability of assets are fundamentally affected by shocks and seasonality, which have a direct impact on households' asset portfolios and the options available to them to pursue livelihood outcomes. The main types of risks and shocks that make households in this community vulnerable to malaria infection, cost burdens and ATC are discussed in more detail below.

4.2.1 Natural risks: drought and hunger

Drought was a key factor influencing all elements of livelihoods in this community. The area had not received adequate rainfall for a period of four years prior to the survey. Inadequate rains translated to low crop yields, low incomes and food shortages. Hunger had become a day-to-day experience and many households reported being without any food for several days at a time². Savings and investments became difficult because jobs were limited and the little money earned was spent on meeting food requirements. Occasionally residents received relief food from the government but this was irregular and often insufficient to meet their daily needs. People regularly talked about their frustrations in farming, blamed inadequate rains for all their problems, and were reportedly relying on God's grace that there would be adequate rain in the future. The contribution of drought to the overall problems discussed above is reflected in the following quotes:

² In one household, a man aged over fifty years broke down in tears as he narrated how his children had slept hungry for four days. They had stopped going to school because there was no food and the father could not go to look for work because he was ill. His efforts to put some food on the table had been unsuccessful for the four days.

“The big problem we face is drought, but if there is enough rain then things would change. Even the number of people getting sick would go down. You see people would eat well... Food is important.” (Young man, Malomani, 24/01/03)

“In such times [when there is rain] we say ‘mambo ni kwao’ [everything is fine] because when there is rain, even the jobs become available, the young people get jobs. Even people can drink more when they see there is enough food in the home. This is a time to make merry.” (Young man, Malomani, 24/01/03)

“For one to make the charcoal one must have had something to eat, to cut the logs into pieces requires a lot of energy. Yesterday you took a chicken to sell and nobody bought and you slept hungry, then you go and struggle with a log? Impossible! ...One can not work on an empty stomach.” (Old woman, Vilwakwe, 23/01/04)

The drought has important implications for this study because agriculture is the main source of income for most of the people and lack of rains means reduced food, work and income. Households therefore lived on a survival basis not sure where they would get a meal for the next day. In such a context even ‘low’ spending on illness can involve substantial adjustment in spending and consumption patterns.

4.2.2 Economic risks: work, income and seasonality

A key feature of the economy in this community is seasonality and diversification of livelihood strategies. Access to cash income is relatively high between the months of January and March, when farms are being prepared for planting and casual jobs are readily available. By June people have completed weeding and are now waiting for the crops to ripen. Access to money and food during this month can be so difficult it was often called ‘a cursed month’, a period of difficulties for the farmers, businessmen and everybody in general.

Seasonality of income influences treatment seeking and payment strategies. Results from FGDs indicated that in the dry season there are relatively few resources accessible to households, and at the same time the general shortage of cash in the community makes it difficult to sell assets. The seasonality of households' economies therefore limits the choices of strategies available during the dry season:

"Those who sell wine, nobody comes to buy, when one is sick and decide to try and sell a goat nobody will buy and if your husband is a tapper nobody will come to buy the wine. This is the condition [referring to the dry season]." (Young woman, Vilwakwe, 23/01/04)

"During the dry seasons, especially because there is no food the people have to move into towns to look for jobs or to work in the sisal farms.... This is a difficult period. People get really thin...you will see a man falling asleep and think he is tired but no, it is because he has not eaten for many days and there is no work to do." (Old woman, Mwaeba, 29/01/04)

In order to cope with the seasonality of incomes, households have different ways of raising money to meet their daily needs. Livelihoods are sustained by a combination of wages from agricultural labour, charcoal burning, small-scale business (sale of local brew and local baked pastries), and/or regular remittance from children and relatives working in neighbouring towns of Mombasa and Malindi. All these types of activities supplement their main income generating activity (farming). Supplementary activities are primarily seasonal, often only periodic, and involve different members of the household. Although complex and difficult to capture, these small activities can make a major contribution to households' income. The combinations of activities form part of household strategies to generate income and reduce their vulnerability to stressful events. A description of the types of jobs people do, their seasonality and income security is presented in Table 4.1.

Table 4.1: Description of the different types of work people do

Work	Description and payment levels	Seasonality and income security
Charcoal burning	A bag of charcoal sells at about Kenya Shillings (KES) 50 ³ in the area but fetches a higher price in other areas of about KES 150. Not easily sold in Ganze because the majority of households use wood as cooking fuel that is easily available at no cost.	Common in the dry season. Income highly unreliable and vulnerable due to limited market and poor infrastructure that links the area with other markets.
Local brew (Mnazi)	A bottle of 'mnazi' (about ½ litre) costs KES 8 to KES 15 depending on the season. When the season is good, a household can sell 10 bottles in a day raising enough cash to purchase four kilograms of maize flour.	Palm trees provide more wine in the wet season. Highly vulnerable but enough to feed the family when the season is good.
Tapping	Closely related to the above, but in this case men are employed to work for those conducting the 'mnazi' business. Difficult to estimate how much the tappers get from their job because they share the harvested wine with the owner of the trees or are sometimes paid monthly wages.	Regular income from employer but not secure.
Small businesses: Home baked pastries and 'makuti' roof	Women make home baked pastries. Businesses conducted when households have extra cash to invest. Both men and women weave 'makuti' (roof) from the leaves of the coconut tree. One 'makuti' costs KES 5 and a person can weave five 'makutis' in a day amounting to KES 25 (equivalent to a loaf of bread)	Doesn't depend on seasons. Conducted throughout the year depending on cash availability. Incomes from these jobs are highly unpredictable and insecure.
Building/ construction	Common job for men – amount paid varies and difficult to get an estimate.	Income regular in the medium term but not secure.

³ The average exchange rate of KES to the dollar during the period of study was 1US\$ to KES 78.

Table 4.1: Continued

Work	Description and payment levels	Seasonality and income security
Agricultural labour	A common job for all households except those with members in permanent employment or the least poor. In general a portion of 15 by 15 foot steps costs KES 20. It takes a whole day for a single person to complete this portion.	Conducted in the rainy season before planting or during weeding. Income highly insecure.
Rearing cattle and goats	Usually boys are employed to look after cattle for the 'least poor' households. Salary ranges from KES 800- KES 1000 a month.	Less fragile and medium pay in the area.
Teachers	Teachers are employed by the government and earn an average salary between KES 10000- KES 20000 per month.	Highly secure job with very high income by the study area standards.
Domestic labour	Girls and women are employed as domestic workers by the least poor households in the area or they move to neighbouring towns where the demand for these services is high. Domestic workers earn about KES 1000-1500 per month.	Regular income, though not secure but the regularity makes it very important for households.

Expenditure

Although households in the community are exposed to the same risk of malaria infection, the poor are likely to be at greater risk of morbidity and mortality due to lack of preventive measures like ITNS. Once infected the poor may face difficulties accessing prompt and effective treatment. This section looks at inequalities within the community using data on expenditure to estimate households' income and socio-economic status.

The expenditure levels closely reflect on the types of income generating activities discussed above. The mean monthly expenditure for the wet and dry season was KES 4456 and KES 4227 respectively. Although the wet season is expected to be a season where most households make a large proportion of their annual income, there were no

significant differences in expenditure levels between seasons. It was difficult to capture the seasonal variations in expenditure patterns due to the massive drought that limited households' income generating activities.

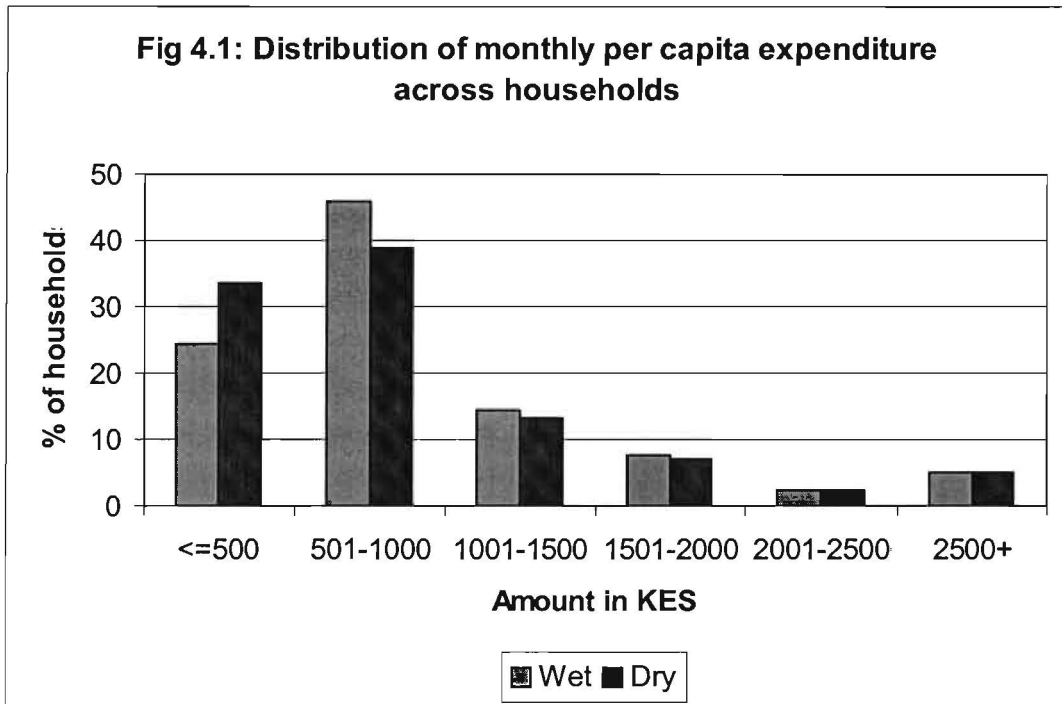
Table 4.2 shows the distribution of per capita expenditure across socio-economic quintiles in both seasons. The results indicate unequal distribution between quintiles with the least poor households reporting average spending that was about ten times that of the poorest.

Table 4.2: Distribution of monthly per capita expenditure across quintiles (KES)

Expenditure quintile (Wet season n=294)	Per capita expenditure ranges	Mean per capita expenditure
Poorest	27-441	242
Very poor	444-650	561
Poor	655-856	736
Less poor	866-1341	1044
Least poor	1343-7384	2383
Dry season (n=285)		
Poorest	15-375	204
Very poor	382-630	514
Poor	631-881	756
Less poor	888-1274	1064
Least poor	1278-3679	1982

The GOK estimates household expenditure levels in annual welfare monitoring surveys. Results of the survey conducted in 2002 estimated the national rural poverty line as KES 1239 per capita per month and a rural food poverty line of KES 927 per capita per month (GOK 2003). Comparing the results of the two households surveys with the national estimates shows that only least poor households live above the rural national poverty line and 60% of the households in Ganze are hardcore poor. In other words, they cannot

meet the basic food requirements even if they were to spend all their income on food alone. These findings compare well with the national estimates for Kilifi district. The 2002 annual wealth and monitoring survey estimated that 64% of the Kilifi population are hardcore poor, an estimate close to the 60% reported in this study (GOK 2003). The distribution of per capita expenditure across households is indicated in Figure 4.1.



The results show unequal expenditure distribution in both seasons. The majority of households are concentrated on the lower side of the curve, spending per capita levels between KES 501-KES 1000 per month with very few households spending a per capita above KES 2000 per month. This is not surprising since most people living in Ganze rely on farming and other small income generating activities indicated in Table 4.1. Differences in spending between seasons were observed among the lower levels of spending. For instance, the proportion of households spending below KES 501 was 24.5% in the wet season and 33.5% in the dry season. The proportion of households spending above KES 2000 was the same in both seasons, implying that the economies of the poorest households are more likely to experience seasonal fluctuations.

4.2.3 Health risks: malaria transmission patterns and infection

Geographical elements increase vulnerability through the climate and ecology favourable for the malaria carrying mosquito. The diversity in climate leads to a wide variation in the risk and subsequent implications of the disease depending on the nature of transmission. Malaria is present throughout the year but records a peak season during the wet season (April to July). This is the period when stagnant water is abundant for mosquitoes to breed. During this period people are highly subjected to mosquito bites and hence vulnerable to malaria infection. Transmission levels are lower during other times in the year (see Section 3.3).

Demographic structures make households more at risk of malaria infection. In an area of stable malaria transmission, malaria is common among children under the age of five and in pregnant women. Not only do women and children have a higher risk of infection, but also it has been shown that they face obstacles to prompt and effective treatment due to economic and cultural factors (Molyneux et al. 1999; Muela 2000a; Tanner and Vlassoff 1998). The social and demographic characteristics of the households in Ganze are therefore important factors in this study.

Results on the demographic⁴ structure of households are presented in Table 4.3. The results indicate that there are more females (57%) than males (43%), and that age patterns differ between men and women. For example, the majority of females are aged between 18-<35 (20.7%) while the majority of males are aged 10-<18 (23.8%). There are very few men aged between ages 18 and 50 (18.8%) compared to the females (45%). Stark gender differentials in the rural population have been noted elsewhere in Kilifi District (Molyneux et al. 2003) and are typical of much of SSA. In Ganze as elsewhere

⁴ The age groups are divided into large categories for ease of estimation. The pilot data revealed that people had difficulties reporting their age and that respondents felt embarrassed of their inability to tell their age and that of their children. This was not unexpected, given the low education levels of women, who formed the majority of respondents. Accuracy of age categories allocated to individuals was assisted by the use of event calendars.

males tend to migrate to the urban areas in search of jobs leaving their wives behind to look after children and work on the farms. In fact 26% of the survey households had household heads residing outside the study area. Such individuals did not meet the study's definition of residency and although their role in supporting the households was acknowledged they were not recorded as resident members of the households.

Table 4.3: Age and sex composition of survey households

Age	Females		Males		Total	
	Number	%	Number	%	Number	%
0-<1	39	3.2	36	3.9	75	3.5
1-<5	174	14.2	164	17.8	338	15.7
5-<10	204	16.7	198	21.5	402	18.7
10-<18	253	20.7	260	28.2	513	23.8
18-<35	266	21.7	113	12.2	379	17.6
35-<50	169	13.8	61	6.6	230	10.7
50-<80	114	9.3	87	9.4	201	9.4
>=80	3	0.2	4	0.4	7	0.3
Don't Know	2	0.2	0	0.0	2	0.1
Missing	1	0.1	0	0.0	1	0.1
Total	1225	100	923	100	2148	100

The age and sex composition has important implications for this study. There are a high proportion of children under five (19.2%) and 18.7% are aged between five and ten. Women in the childbearing age (18-50) also constitute a large proportion of the survey population (20.3%). Furthermore, a good number of childbearing women fall below the age of 18 because the cultural setting is such that girls get married early in order to fetch wealth (dowry) for their families. These findings therefore show that a good proportion of the population is at risk of suffering from malaria and thus more vulnerable to the costs arising from the disease.

Size and structure of households

The mean size of the survey households is 7 individuals and ranges from 2 (n=19) to 25 (n=2). The majority of the households live as extended families (52%). Among the Giriama community, it is common practice for married men to continue living in the same homestead with their parents and while they may have their own families, the

father is regarded as the household head and commands a lot of respect. The structure of the households is important for this study as revealed in the literature review (Chapter 2) and in the conceptual framework presented in Chapter 3. Large households are likely to mobilise resources to meet illness costs more easily than small households. In agricultural settings, large households reduce the impact of indirect costs more easily through labour substitution. A summary of the key factors arising from the vulnerability context is presented in Box 4.1.

Box 4.1: Key factors influencing vulnerability to malaria infection and livelihood shocks

- Drought and hunger are major shocks affecting the community and access to capital.
- Income sources are highly insecure and vulnerable to weather and climate changes. Most of the jobs that households do are conducted in the wet season.
- Average expenditure (proxy for income) is much below the national poverty line. Most of the households (60%) are hardcore poor.
- Although most of the households live below the national poverty line, there are wide disparities between expenditure groups with the least poor spending about ten times more than the poorest.
- Geographical location and nature of transmission is such that the risk of infection is high in the wet season. This season is a busy season for rural households and being ill at this time can lead to high opportunity costs.
- A good proportion of the population in the community under study falls in the risk groups (children under five and women in child bearing age).

4.3 Livelihood assets: influence and access to the different types of capital

Chapters 1 and 2 highlighted the important role of assets in households' coping behaviour. This section describes the nature of the different types of capital that

constitute livelihoods in Ganze. The asset endowments available to households are important because they determine vulnerability and ATC with the risks discussed above.

Assets can be classified into two groups: those that are owned individually at a household level (human, financial and social) and those that are owned 'communally' at a community level (natural, physical and social). However it is difficult to draw a line between community and household level assets because some community level assets influence those owned at the household level, and visa versa. For example groups and infrastructure can enable access to financial assets, which belong to the household rather than community yet these assets are accessed at a community level.

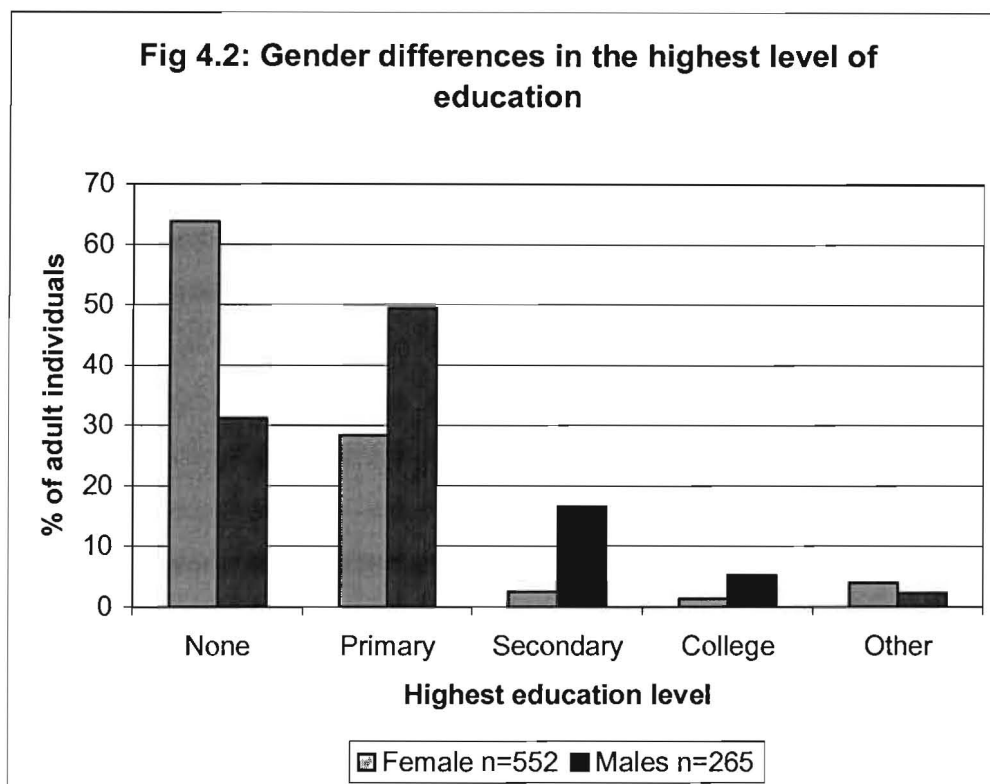
4.3.1 Human capital

Human capital enables households to make use of the other types of capital to generate income. In this study, the nature of human capital is presented through the levels of education, skills and the types of jobs that people do.

Education and skills

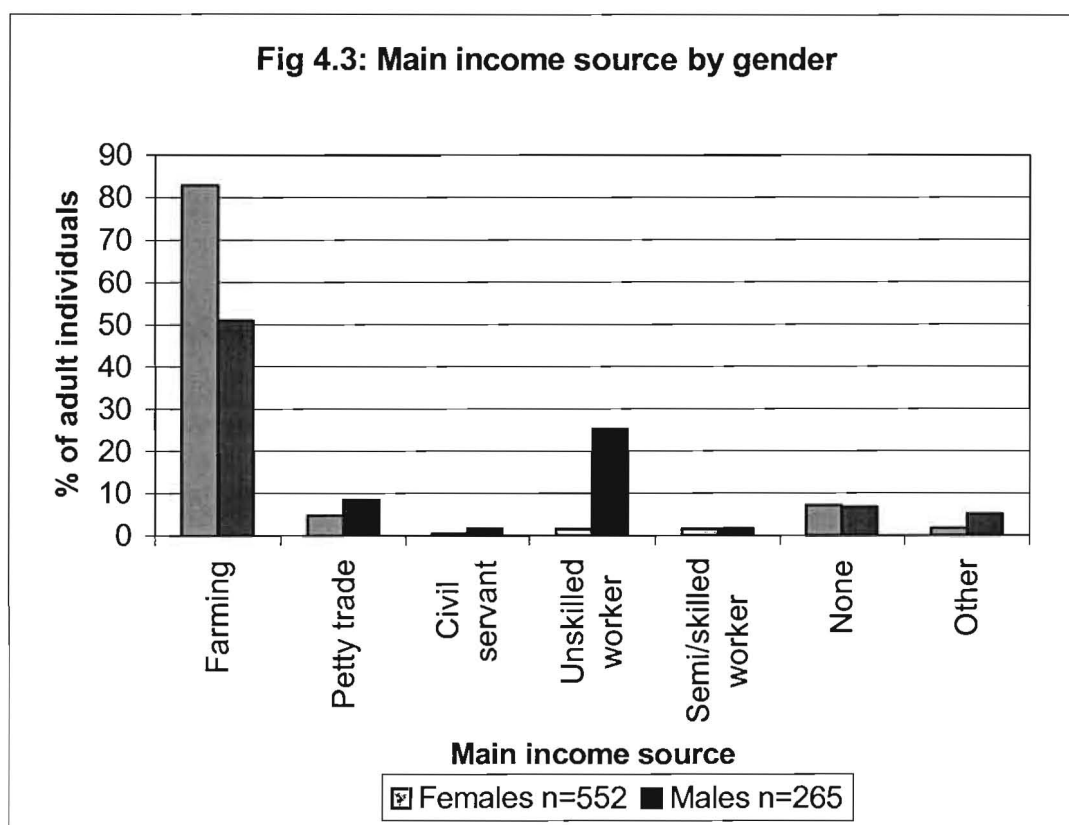
Kilifi district has low levels of literacy among men and women, with female illiteracy rates estimated as the highest in the country. Figure 4.2 presents gender differences in education among the adult population. The results show that 63.8% of adult women have never been to school compared to only 33.3% of adult men. Among females who have attained some level of education, only 2.5% proceed beyond primary school. The Kenyan national estimates show that the country has high levels of literacy reported as 86% of males and 69% of females (GOK 2002). Clearly literacy levels in Ganze are far below the national estimates. The low levels of education among females can be attributed to cultural factors. The life of a native Giriama woman comprises of domestic work, marriage and child bearing. Education might not be of high priority for the girls and the boy child stands a better chance of going to school. As a result, only a small proportion of adult women have at least one year of primary school. With time, more

and more girls are getting a chance to go to school but few complete primary education or progress to secondary school.



The low levels of education are further reflected in the types of skills and jobs people do. High illiteracy levels limit people's opportunities in the labour market and most of them are employed in jobs requiring less formal skills. The only skills that people have are learnt informally in the family through observation. For example, the descriptions of the types of work people do (Table 4.1) shows that most of the jobs are not dependent on the level of education. Tapping which is the main type of job for men is learnt from the elderly. A son for example will learn this kind of skill from his father or uncle who is a tapper. It might take him a few years to perfect the art of tapping and maintain balance while on top of the high coconut trees. On the other hand, building skills and construction are learnt through on the job training. Among the women, most jobs do not require training because they are basically domestic activities that girls learn as they grow up.

A summary of the main income sources for adults enumerated in the survey and which reflect on the types of work reported in Table 4.1 is presented in Figure 4.3. The main source of income is farming, with 72.1% of all adults making their livelihood from farm outputs. A small proportion (8.9%) work as unskilled labourers and 5.8% operate small-scale businesses. The other categories have relatively low proportions of between 1% for civil servants to 1.6% for semi skilled labour.



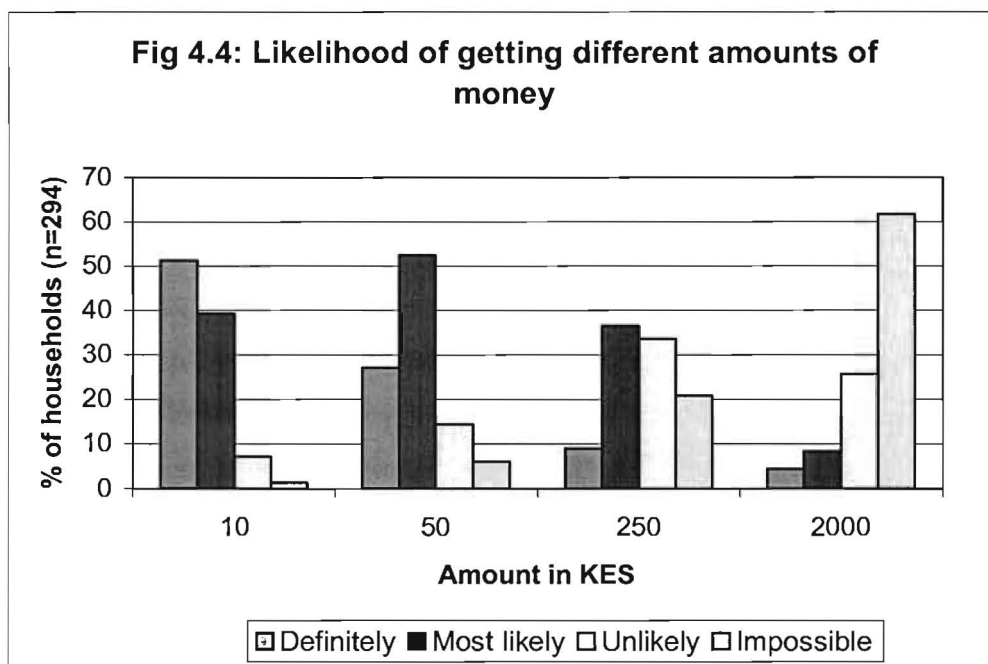
4.3.2 Financial capital

Financial capital presents itself in terms of money or other assets that can easily be transformed into cash. The survey data looked at the likelihood of accessing different amounts of money. These amounts were chosen deliberately to represent the average

charges incurred at different types of facilities in the community as a general overview of affordability. The amounts were:

- KES 10: equivalent to the average costs of shop drugs;
- KES 50: equivalent to average charges at the government dispensary;
- KES 250: equivalent to average costs incurred at a private clinic;
- KES 2000: an amount equivalent to charges incurred for hospitalisation in Kilifi district hospital.

The results indicate that it is relatively easy to get little amounts of money like KES 10 and KES 50 compared to large amounts of money (KES 250 and KES 2000). The majority of households reported that it was impossible to get KES 2000 (61.6%) and 20.5% reported that it was not possible to get KES 250. In contrast only 5.7% of all households reported that it was impossible to get KES 50 and even less (1.4%) said it was impossible to get KES 10. These results reflect on the nature of human assets discussed in Section 4.3.1. A summary of the likelihood of accessing different amount of money is presented in Figure 4.4.



In addition to access to cash, the study collected data on the types of assets kept for financial needs. In Ganze livestock are the main types of financial assets. Livestock act as 'ambulatory banks'; people prefer saving in the form of livestock rather than cash because of the financial hardships experienced in the area especially the difficulties of accessing cash and saving in times of drought. Households find it difficult to keep cash in the house, since there are always many needs to be met and people prefer buying small assets (mainly chickens and goats) in order to help save a few shillings. These assets are then sold when need arises.

Chickens are the easiest to sell, one chicken costs about KES 100-200 depending on the size. Chickens are mainly sold to meet day-to-day requirements including buying food, paying for health care or clearing debts. Goats are kept to assist in financing larger needs because they are expensive and do not sell easily. On average a goat costs between KES 1500-2000 depending on the size and the urgency of sale. Cows are more valuable, more difficult to sell and are mainly sold to raise big amounts of money. On average a mature cow costs KES 8000-15000 depending on the size. Since the community under study regards livestock as their banks, the study classifies them as financial assets.

The information on livestock ownership collected in the survey showed that 91.7 % of all households owned at least one type of livestock. The distribution of ownership was:

- 81.7% of households owned chicken;
- 67.5% owned chicken and goats and;
- 19.5% owned chicken, goats and cows.

4.3.3 Social capital

Social capital refers to the features of social organizations like trust, norms and networks. Social capital has been described as the 'glue' that holds society together, which is necessary to a functioning social order along with a certain degree of common cultural identifications, a sense of belonging and shared behavioural norms (Serageldin

1996). In this study social capital is represented through memberships to voluntary groups, trust and access to social networks like friends or relatives.

4.3.3.1 Voluntary groups

There are wide ranges of groups that operate within Ganze. Most of these groups are informal consisting of small numbers of people who come together to conduct an activity or to discuss a common issue of interest. The three most common types of groups that enable households' access to cash and other assets are discussed below. There are many informal groups functioning in the area conducting a wide range of activities. A few examples include:

Merry go round (MGRs): MGRs function like rotating savings and credit institutions. They comprise of a group of women who are known to each other directly or indirectly through network channels. The women come together to contribute some amount of money, within a certain period (monthly or weekly) and give the lump sum to one person until all the members get a chance to take the lump sum share. Once each person has got the lump sum share, the group may end or group members can restart the contributions again. Some of the MGRs operate bank accounts where a certain proportion of the money contributed each time is saved in a group account with a formal financial institution. This amount can then be made available for loans to members in case of an emergency like serious illness or death. In addition to this service, MGRs are popular because they provide a safety net in an emergency by allowing members to take the proceeds when it is not their turn.

Dancing groups: These groups comprise of men and women who come together to dance for social activities but also as a way of generating income. Members are paid to perform in social and political functions. In some groups, some of the money paid to them is saved to enable them to invest in more sustainable development projects in the future. Like MGRs dancing groups are more common among women than men. In some

cases, some members of a dancing group can form an MGR that functions as the one described above.

Farmers' field schools (FFS): FFS are groups made up of men and women. These schools are initiated by development organisations working in the area. The aim of these groups is to adopt modern farming techniques in their farming system in order to increase crop yields and income. FFS hires a piece of land from individuals in the community. The members contribute their labour on the farm in terms of planting, weeding and harvesting. Other requirements like seeds and fertilizers are provided by non-governmental organizations working in the area (discussed in Section 4.4). Once the crops are ready, the harvest is sold and the money shared among the members. Part of this money is saved for investment in other projects like dairy keeping and small business like water tap projects. In addition to providing their labour, members make small contributions on monthly basis (KES 50) that is put in a group saving account.

Group membership

Group membership is reported to be more common among women than men. Women found it easy to save a few coins for group contribution as compared to men who spent their money on drinking. The drinking behaviour among men contributed to the downfall of women, because they often asked their wives to give them money to spend on alcohol. Women tried to avoid such circumstances by keeping their group activities secret. Consequently it was difficult to discuss in detail about different groups within the community for fear that information revealed at FGDs would leak to the husbands.

“There are some mothers who have their own savings. This is because the mothers can save some amount of money when they do some work. Like saving KES 20 when one has earned KES 100 or 150. This [saving] happens when they have food in the house. It is also easier for the mothers to save than the men because the men usually go into drinking sprees when they have extra cash in their pockets.” (Young man, Malomani, 24/01/03)

“Actually am not sure if they have started [referring to MGRs] because they [women] can be secretive sometimes...they fear that when you come to know of it, you might borrow their money, drink it and never return it back... And that is why the women can even dig holes in the house [to hide their money].” (Young man, Malomani, 24/01/03)

The survey data indicated that 36.8% of all households had at least one member in a community group. The results also showed that 24.7% of all households had at least one member who had dropped out of a community group within the last two years. Although group membership was common, there was a high withdrawal of members depending on seasons and others factors like trust (discussed in the next sub-section). The wet season was a good time to join groups because households had relatively easy access to cash income through selling their labour on the farms. During this time, membership to informal groups was a way of saving which allowed people to access lump sums of money when it was their turn to receive contributions. This amount of money enabled households to purchase bulk items. The different types of groups that households reported membership in the survey are indicated in Table 4.4.

Table 4.4: Distribution of group membership across households

Type of group	Proportion of households with at least 1 member
Merry go rounds	25.6%
Financial or credit group	14.1%
Employment related	11.1%
Religious	6.5%
Sports/dance	7.5%
Education related	4.0%
Other (e.g. FFS)	31.2%

Challenges facing informal groups

Residents expressed concern that small informal groups do not function well and are difficult to sustain due to lack of money. People experienced difficulties when trying to save in such groups because the money they got was often not sufficient to meet food requirements for the family let alone to save. These factors lead to the collapse of most groups:

" If one can get KES 100 today, decides to save it and stay for four months without getting any other money, in the end you use it." (Young woman, Vilwakwe, 23/01/03)- Referring to difficulties in having spare cash to contribute towards group activities

"Us, the money you go look for today and miss, how will you give another person?" (Old woman, Mwaeba, 29/01/03)- Referring to MGR contribution

"This [sustaining groups] is impossible because there are no means of earning money. You can cook 'mandazi' [home baked pastries] and no one will buy them, you will end up giving them to your children." (Young women, Vilwakwe, 23/01/03)

The distribution of group membership by expenditure quintiles showed that least poor households were more likely to have a member in a community group ($p < 0.001$). A smaller proportion of poorest households had members in groups (28% of poorest households) as compared to 50% of the least poor. This implies that although groups improve access to cash income, the poorest households were likely to be less represented or excluded from group activities altogether. Memberships to most groups require cash contributions. Although these are generally small amounts of money, the poorest face difficulties in raising the cash and therefore might prefer to stay outside groups, rather than join and be unable to keep up with the requirements. In this regard groups can stop being social and become 'antisocial' or regressive especially when they widen gaps between the poor and the rich (Campbell et al. 2002).

4.3.3.2 Social networks: Borrowing and lending

Social networks are a key feature of social capital. Social networks comprise of different nodes (mainly individuals but also groups) that households have contact with. These nodes enable households to access other types of capital through creating opportunities for cheap credit.

The data from the survey indicated that households relied on borrowing money from different sources in order to finance illness and non-illness events. Households were asked to report the potential sources of the amount of money discussed in Section 4.3.2 in different seasons. The results indicated that borrowing was the main source for small amounts of money (KES 50 and KES 250). The main sources of credit were:

- Friends and neighbours: 29.5% of households in the wet season and 30% in dry season;
- Relatives: 47.1% in the wet season and 50% in the dry season;
- Private health providers: 3.9% in the wet season and 8.8% in the dry season;
- Other: 19.6% in the wet season and 11.2% in the dry season.

FGDs revealed more about the borrowing and lending behaviour. Borrowing and lending occurs between people who know each other well, a close relative, a neighbour or a close friend. It is based on generalized reciprocity; those who do not assist others are unlikely to get assistance. In other words borrowing and lending involves a continuing relationship of exchange, which can be unbalanced. The relationship is heavily based on trust and mutual expectation that repayment will be made some time in the future but when payment will be made is not clear (Putnam et al. 1993). The importance of a trusting relationship in borrowing and lending is reflected by the following quotes:

“When in need of help, you have to go to someone you know, a son in law, a brother, a neighbour or any other relative. It is difficult to get help from someone you do not know. There is no trust.” (Old man, Vilwakwe, 23/01/03)

“You go to a friend or a neighbour because you are in that situation and also because he or she can also come to you when in a problem.” (Old woman, Vilwakwe, 23/01/03)

The social costs of borrowing

Although borrowing is common in Ganze, people constrain themselves from borrowing for fear of being unable to pay back. Failure to pay back debts would strain social relationships and this information would sometimes spill over to the community. Jealousy was a common issue among network members and the whole community. People were unhappy about each other’s progress and would often talk ill of a ‘well-off’ person who denies them credit:

“If you fail to pay back in time, in the village she will start talking behind your back that she gave you credit three months ago and you have not paid back.” (Young woman, Mwaeba, 29/01/03)

“He will come and beg you to give him credit when he does not have money but when it comes to paying he will give you problems; he will refuse. If you give out things on credit because you are good hearted, you will end up closing the shop.” (Old man, Vilwakwe, 23/01/03)

“And if you do not give the person credit, he will talk ill of you and talk behind your back. ‘I will see how far he will go’. And if you give him, he will not pay.” (Old man, Vilwakwe, 23/01/03)

4.3.3.3 Trust

A key component of social capital is trust. People provide support to those they trust because they will be reciprocated some time in the future. The survey and qualitative

interviews collected data on trust within the community. The results indicate high levels of trust within the neighbourhood, with 70% of all households reporting that most people in the community can be trusted as compared to only 30% who expressed concerns at the levels of trust in the community.

Although the overall level of trust in the community was high, trust among group members and networks of people involved in financial activities was low. People did not trust others with handling money. Some members pull out of groups once they have received their share without giving their contribution to the remaining members. This reduces the level of trust between group members and eventually the group collapses:

“Because people would contribute and give it to someone and when it comes to his turn he says he has a problem in getting money to contribute. Then it becomes a problem for such a group to operate.... Why didn't he say he had a problem before he got his share?” (Young man, Mwaeba, 29/01/03) - A respondent explains why a certain MGR he belonged to collapsed.

A summary of key factors regarding human, financial and social capital and which are relevant for vulnerability and coping are presented in Box 4.2.

Box 4.2: Human, financial and social capital: summary of key factors

- Ganze residents have low levels of education and limited skills. This affects their ability to compete equally in the job market. Their income levels are low and can influence ability to meet treatment costs.
- Access to large amounts of money (above KES 250) is difficult for the majority of households.
- There is a wide range of informal groups in the area that enable people to access cash. MGRs are the most popular groups. Most groups are seasonal and difficult to sustain.
- Group membership differs by socio-economic status. The majority of households with at least one member in a group belong to the least poor quintile.
- Borrowing and lending is a common thing in the community. Friends are the main sources of credit. Although common, borrowing has social costs that make households restrain from it.

4.3.4 Natural capital

Natural capital is particularly important for rural economies because they rely on it for food and income. The development of many rural economies depends on the nature of natural capital and the ability to transform it to income. In Ganze, land is owned communally by clans and ownership is traced back to forefathers. All households in the survey own land. In most cases land belongs to the Homestead Head (HSH) and is shared between the sons, each having a portion to cultivate for the upkeep of his family. Land is owned in large quantities and a big proportion of the area is forests and bushes. This explains why charcoal burning is a major source of income (Table 4.1). The land is not properly demarcated and few, if any, have got title deeds. Lack of proper land ownership makes it difficult to sell, since it is not officially clear who owns what piece of land. Despite land being owned in large quantities, residents benefit little from it due

to inadequate rainfall that is essential for productive farming and income generating activities.

4.3.5 Physical capital

Physical capital presents itself as a community resource but its availability influences access to assets owned at a household level. Physical capital is derived from the resources created by people, for example, buildings, roads, electricity and water. Physical capital is important for meeting people's needs as well as providing access to other types of capital through infrastructure. Ganze is relatively under-resourced in terms of physical capital. There exists very limited infrastructure; the roads are of poor quality, inaccessible during the wet season.

The sanitation and drainage system is very poor. Toilet facilities of any type are rare to come across. Forests and bushes are used as toilets for most households, risking the danger of infectious diseases. Results from the survey indicate that only 14% of all households have access to toilet facilities (pit latrines). The remaining 86% had no toilets and used the bushes to relieve themselves. Water is equally scarce. The main source of drinking water is dams that trap water during the wet season. These dams dry in the dry seasons, and women have to walk for long distances in search of water. There are a few water taps in Ganze trading center that are operated on a commercial basis. A 20litre container of water costs KES 2. A summary of the main sources of drinking water available to the survey households is show in Table 4.5.

Table 4.5: Main sources of drinking water for survey households

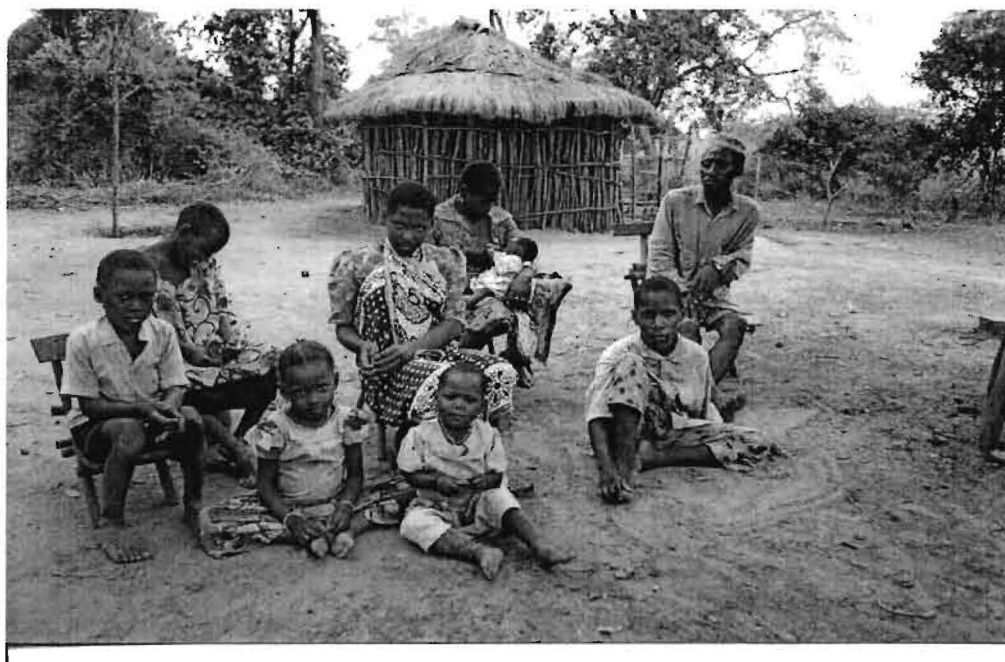
Water source	Wet season	Dry season
Dam	65.8%	34.3%
Tap	24.6%	64.5%
Other	9.6%	2.2%

The main source of lighting is kerosene. There is electricity in the Ganze trading center, which was initiated by a local powerful politician. However this electricity supply does not go beyond the politician's home. The standard of housing is very low, in most cases two small rooms. The majority are made of mud walls and floors, and 'makuti' roof. Most have holes on the side and one can easily see through to the inside. Perhaps these holes serve as good ventilations in the rather hot and humid environment. But nevertheless the holes and/or gaps act as easy access routes for mosquito entry increasing the risk of malaria infection and for other wild animals like snakes, which are abundant in the area. Photographs showing a modern Giriama house and a view of the area are shown in Figures 4.5 and 4.6.

Figure 4.5 (Photo 5): A modern Giriama house



Figure 4.6 (Photo 6): A typical Giriama family relaxes in front of the farm



4.4 Institutions

The conceptual framework (Figure 3.1) highlighted the role of institutions in shaping livelihood development (Box C). It shows the health care system as one institution that influences cost burdens and ATC at the household level. This section presents the types of institutions that potentially affect livelihoods in Ganze.

4.4.1 The health care system

Ganze residents seek health care services from both the formal and informal sector. There exists a wide range of biomedical treatment sources including a government dispensary, two private clinics and 22 shops selling drugs. In addition, there is wide use of traditional medicine either through self-treatment or healers. An attempt to record the total number of healers practicing in the area was difficult because the majority combine

the practice with other activities and do not regard themselves as healers but rather as people with some 'knowledge' of how to help treat minor ailments. Due to increasing Christianity most healers conduct the practice in secrecy because of the negative or 'evil' implications associated with it. The study located four popular healers who report healing as their main income generating activity. Each of these key types of health care providers is discussed in more detail below.

The formal health care system

The government dispensary is the only public health facility serving the whole Ganze division of about 481.9 Kilometre square and a population of 35,299 persons. People have to brave the long walk to the dispensary, usually covering an average of twenty kilometres to and from the facility. The next closest government facilities are a health center located twenty kilometres from Ganze and the Kilifi district hospital situated 35 kilometres away. The dispensary offers outpatient services but has a maternity wing that does not function due to lack of finances and personnel.

Like all other government facilities in the country, the dispensary charges fees⁵ for service at the point of delivery. Generally everybody is expected to pay regardless of their age and gender despite the government's guidelines of exempting children under the age of five from payment. FGDs revealed that charges vary depending on the type and severity of the illness ranging from KES 10 to KES 200. A rough breakdown of the charges includes KES 10 for consultation, and KES 10 for each type of drug prescribed. In addition, patients are required to buy some materials like bandages, syringes and exercise books to supply the paper in which the prescription is written. Once a person is issued with a prescription, the types of drugs they receive from the dispensary pharmacy will depend on the amount of money available to the person. Thus the doctor might prescribe three types of drugs (worth KES 30) but the patient will only be issued with all the three types of drugs if they have the whole amount. Issuing of half dosage is a

⁵ When the fieldwork started (November 2002) all government facilities charged a fee for service. In the last three months of field work (July-September 2004) the government abolished user fees at the dispensary and health center level. Minimal charges in the form of consultation fee still exist in these facilities except for children under five who are exempted from payment in the new financing mechanism.

potential coping strategy for households. However this strategy can have implications for the patient's speed of recovery, costs to the patient, and for drug resistance. While drug compliance is beyond the scope of this study, evidence shows that inappropriate use of Anti-Malarials (AMs) contributes to the increasing drug resistance in SSA (Foster 1995; White 1999).

Despite malaria being the major health problem in the area, the dispensary lacks the necessary equipment to conduct any parasite tests. FGDs revealed that some patients are referred to the private clinics for a parasite test after which they present the results to the dispensary in order to be issued with a prescription. These patients therefore pay twice, for the blood tests at the private clinic and for the drugs at the dispensary. Although most of the dispensaries do not have any diagnostic equipments and WHO recommends treatment of all fevers in children with AMs (WHO 1991) there are concerns of high misdiagnosis and a good proportion of fevers treated with AMs are not actually malaria. This raises concern of 'inefficient' use of limited resources and exposing patients to side effects of AMs when they are not infected with malaria (Amexo et al.2004). Misdiagnosis can also lead to higher cost burdens for the households as they change from one treatment to another.

There are two private clinics located in the Ganze trading center, a few metres from the government dispensary. Each of these clinics is operated by a clinical officer who has retired from government practice. One of the clinics started operating one year before the study started, while the other was opened during the study. In previous years, formal health care provision was only available from the government dispensary. These two clinics have improved access to formal health care services, especially because they are open until late and over the weekend (the government dispensary does not operate on Sundays). Private clinic charges are higher than dispensary charges, ranging from KES 200 to KES 1000 (consultation charges approximately KES 50, KES 50 for each type of test carried out and further costs will vary depending on the nature and severity of the illness).

The informal health care system

There is wide use of treatment outside the formal health care sector. The informal health care sector provides over the counter drugs that are easily bought for self-treatment. Other informal sources of treatment include traditional medicine (either self treatment using herbs or seeking advice from healers).

The shops

The local shops operate in semi-permanent structures at the shopping center or sometimes from a room in people's houses. Basically these shops sell foodstuffs but stock drugs for common ailments like colds, coughs and malaria. Unlike the formal providers who are located at the Ganze trading center, many kilometres away from people's homes, shops are located close to homes. Results from the FGDs revealed that shops are a main source of treatment for uncomplicated fevers⁶. Several trips may be made over a day or more to purchase a range of drugs mainly anti-pyretic and AMs. The costs of drugs sold at the shops will vary from as low as KES 2 (for one aspirin tablet) and KES 60-80 (for a dose of Fansidar tablets).

Traditional medicine

There is a heavy reliance on traditional medicine either through self-treatment or healers. People use local herbs to self-treat minor illnesses or as first aid before seeking specialised treatment. There is reported widespread use of '*mkilifi*' (neem tree) a local tree that is believed to cure forty illnesses. Herbs from this tree are very popular in treating malaria among children and adults within the district.

The number of people seeking treatment from healers reportedly decreases by the day because of the increasing levels of education and the wide spread of Christianity. Nevertheless people continue to use healers in secrecy, when all other attempts to treatment have failed and when cash is not readily available. FGDs revealed that healers are popular for treating specific types of illnesses especially '*nyago*' or '*nyama wa*

⁶ The role of shops in malaria treatment within the district and national level has been studied extensively and documented by researchers at the KEMRI research unit (Marsh et al. 1999; Snow et al. 1999).

dzulu' a local illness that refers to malaria that has gone to the brain or cerebral malaria as it is clinically defined. There are two types of healers; '*mburuga*' or herbalists who treat the illness and '*ramli*' or spiritual diviners who talk with the spirits to identify the root cause of illness and who later refer the patient to '*mburuga*' for treatment.

Healers ask for different forms of payment. Although most of them prefer cash payments, they often ask for livestock (chickens or goats) either as part of the payment or to perform some rituals. The charges are flexible depending on the relationship between the healer and the patient and the nature of the problem. A summary of the charges incurred at different providers is presented in Table 4.6.

Table 4.6: A summary of the charges as identified from FGDs

Provider	Charges
Private	<ul style="list-style-type: none"> • Consultation: KES 50 • Blood slide: KES 50 • Other tests: KES 50 • Total treatment charges KES 200 to KES 1000
Government dispensary	<ul style="list-style-type: none"> • Consultation: KES 10 • Drug: KES 10 for one type • Injection: KES 30 • Treatment charges depend on type of illness: can vary from KES 50 to KES 200.
Shops	<ul style="list-style-type: none"> • Drugs costs will range from as low as KES 2 to KES 60 depending on type of drug
Healers	<ul style="list-style-type: none"> • Red cock, a black hen (chicken,) flour and some little cash amounting to about KES 150 • In extreme cases, can ask for a goat

* Total treatment costs will vary depending on the nature and severity of illness and the relationship between provider and patient for private clinics and healers.

4.4.2 Other institutions

Other institutions that enable livelihood development can range from small to large NGOs and government organizations. Institutions promote livelihoods through building social capital and in the process pave the way to access other types of capital. In Ganze, there are a number of NGOs working in the area to promote development. The ones with

significant impact are Plan International (PLI) and the Kilifi District Development Programme (KDDP).

Plan International: PLI has been working in Ganze since 1995. This organisation mainly focuses on children's education and promotes human capital within Ganze. The main aim of PLI is to enable deprived children, their families and communities to meet their basic needs and increase their ability to participate and benefit from the society. It is involved in a range of activities including health, education and development.

The largest programme within PLI is education. The organisation identifies bright children from poor households and sponsors their education. PLI usually pays half the school fees and the households are required to raise the remaining half. In addition, the organization assists in building classrooms, training teachers, and buying desks. It was not possible to get the actual number of children that have benefited from PLI, but residents were in praise of the organization for their role in promoting education within the community.

At the health level PLI conducts a range of activities but the most relevant for this study is the malaria programme which provides free ITNs to the needy. In addition PLI provides drugs to schools (AMs and other drugs for common ailments) that teachers can administer to children when they fall ill. These drugs are kept at the school but children can access them out of school hours in case of illness. In terms of development, PLI has initiated water and agricultural programmes including the FFS discussed in Section 4.3.3.

KDDP: Like PLI this is a development organisation that works to promote different elements of livelihood. Its main goal is to reduce poverty through enabling the community to organise and govern their own development. It is mainly involved in education (building classrooms and buying desks), agriculture (supporting the FFS) and development. KDDP also runs a pre-school education programme that offers free pre-

school education. The organisation has also constructed water dams and has connected the few taps providing tapped water in Ganze.

The most relevant activity for this study in KDDP is the village bank, a community bank that is situated in Ganze trading center. The aim of the bank is to encourage people to save so that they can be eligible for loans. Loans are given depending on the number of shares that one has accumulated. The policy is: No shares, no loans. Though the aim of the village bank initially sounded promising, the bank has achieved little success. Residents argue that it is difficult to get loans, since the first batch of people who acquired the loans did not pay back. In addition, one of the key officials who is a government elected leader is said to have 'stolen' the money leaving the bank bankrupt. It is claimed that this official used the banks savings to buy land and to marry a second wife. People have lost trust in the bank and always talked about its failures. Nevertheless the bank still operates and helps people by providing a close 'convenient' place to save their money.

4.5 Summary and conclusions

This chapter has discussed the key features of the livelihood framework that are relevant for this study. Section 4.2 discussed the vulnerability context in which Ganze residents live and presented the key issues that make households vulnerable to the costs of malaria. Key points to note from the discussion on vulnerability context include:

- The economic activities in this community are seasonal. The seasonality of households' income influences treatment seeking behaviour and determines to a large extent the coping strategies available to them;
- Malaria is present throughout the year but records a peak during the wet season. Children under the age of five and pregnant women are at a higher risk of suffering from malaria;
- The main problem hindering people's development is drought. The area has experienced inadequate rain for four years, limiting the use of natural capital to generate food and cash income.

Section 4.3 presented a discussion on the five types of capital and how households use them to generate income. The discussion on human capital reveals that literacy rates are way below the national and district averages. With the increasing literacy levels in the country, job opportunities for those with low education levels are limited. These low levels of education are reflected in the types of work people do, with very small proportions of the population working as civil servants and/or skilled employees. Lack of access to stable cash income is important for this study because it reflects the difficulties households might experience in their attempt to pay for treatment.

The discussion on social and financial capital has shown that informal networks play a major role in households' access to cash. Informal groups are difficult to sustain because people do not make their regular contributions on time. This has led to low levels of trust among members and groups only operate during the wet season when people can easily access cash income.

The analysis of physical capital shows that a lot needs to be done to develop infrastructure in Ganze. The area has limited infrastructure, water, poor housing and sanitation. This puts the population at risk of contracting water borne disease, which makes households more vulnerable to the costs of illness. The government has only provided short-term solutions to the problems by providing relief food. Introducing development programmes that aim at empowering the community might provide a long-term solution to these problems and help improve households' livelihoods.

With respect to health care provision, residents seek treatment from both the formal and informal sector. The discussion on health care services has revealed a number of important points for this study:

- The dispensary is poorly equipped and often lacks drugs to treat even the most common ailments like malaria;

- Formal health care services are located at the Ganze town center. This makes it difficult to access them because people have to walk for many kilometres to get there;
- The informal health care sector is preferred because services are cheap and the 'providers' are located close to the people.

KDDP and PLI have been working in the area to improve access to the different types of capital for the last five years. Unfortunately KDDP closed down their project in February 2005 and it is not clear for how long PLI will continue working in the area. Although they have played significant roles, much more still needs to be done. There is need for other organizations and the donor community to initiate development programmes in Ganze. Although such programmes might not directly help in solving the difficulties associated with the costs of malaria and other illnesses, improved access to cash income can reduce the difficulties of payments and prevent households from adopting strategies with drastic consequences for their livelihoods.

CHAPTER FIVE

VULNERABILITY AND LIVELIHOODS AMONG CASE STUDY HOUSEHOLDS

5.1 Introduction

This chapter presents results from the case study work conducted between the months of January and September 2004. It analyses vulnerability among case study households at the beginning of the research. Providing this information at this point is important because it forms the foundation of the analysis presented in all subsequent chapters. The chapter is divided into two main sections, each addressing key issues relevant to household vulnerability:

- Section 5.2 analyses the characteristics of key case study households whose data is presented in the remaining parts of the chapter. It discusses why these households were selected for subsequent analysis and highlights the limitation of the survey definition of a household;
- Section 5.3 provides information on household vulnerability at the beginning of the research. It looks at how malaria and other shocks impacted on livelihoods before the research started and the link between past experiences and household vulnerability. This is essential because past illness events can impact on households' resources limiting their ATC and making them more vulnerable to illness and other shocks.

5.2 Characteristics of key case study households

The findings presented in this chapter are from 15 out of 30 selected case study households. The 15 households were selected for further analysis due to various reasons including:

- Initial selection of case study households was based on level of costs reported in the wet season survey and social economic status based on monthly per capita expenditure (details of case study selection is presented in Chapter 3). However

malaria is an acute illness and high levels of spending at one point in time as estimated by the survey does not necessarily imply high spending at a different point in time even when illness is reported in future. The perception of the illness severity, treatment seeking patterns and thus cost levels are likely to differ from time to time. It was difficult to tell if all the households selected at the beginning of the case study would answer the research questions. Based on this, it was found necessary to select a relatively large number of households in order to capture the different key topics of interest and focus on fewer households at a later stage.

- Over the course of the case study work, it became clear that households functioned in a far more complex way than was captured in the survey¹ definition. As noted earlier (Section 4.2.3), the majority of households in Ganze live as extended families. Over the course of the case study work it became clear that although most extended households shared meals, they often functioned as nuclear sub-households when it came to meeting the costs of treatment and other basic needs like soap and paraffin. Sub-households tended to have their own budget and only contributed to the large pool of resources to buy food. Thus in practical terms the case study had a higher number of households than initially targeted and it was not practically possible to follow all selected households for the entire period. To address this problem, visits to 15 of the households were suspended in the sixth month of the study. The remaining 15 households were only revisited in the last month to show appreciation for their support in the work. Data from these households therefore covers only six months of the work. Such complexity in the nature of household structure and functions would have been impossible to capture through the baseline surveys.
- The longitudinal nature of the work required spending significant time with the households and collecting detailed qualitative information. All selected households consented to take part in the study, but it became difficult to find household members despite attempts to try to arrange visits at times that they themselves had suggested. It appeared that although there were no open refusals

¹ The survey definition of a household is a group of persons living in the same area, who are answerable to the same head and share a common source of food and or income.

some households became reluctant to fully participate but did not feel able to withdraw.

A systematic approach was taken at the beginning of the sixth month to select 15 households that would provide the initial targeted categories of households (poor and less poor, high and low costs). An initial analysis of the data involved listing all the illnesses reported over the course of the five months and summarising expenditure patterns, treatment seeking behaviour, level of costs incurred and the payment strategies reported. Households were allocated into two groups; high costs and low costs and poor and less poor. The aim was to have households who had been affected by malaria and those that had not, and to balance between the poor and the least poor in order to have a basis for comparison. In addition FWs were asked for their opinions on the selected households based on their understanding and past experiences with them.

The description of the 15 households that were selected and visited until the end of the study, including the actual number of sub-households is presented in Table 5.1. The table shows that case study households had different sizes and structures ranging from small nuclear families to large extended polygamous families. These households functioned in different ways in terms of meeting daily needs. The diversity of these households provided a good opportunity to study variations in cost burdens and coping behaviour. The 15 households form the key case study households whose data is presented in the remaining part of this chapter and is build upon in all subsequent chapters. Occasionally, data from other households is used to illustrate cases of interest.

Table 5.1: Characteristics of key case study households

Household (HH) ID	HH size	SES 1=Low 5=High	Sub HH	Household type	Household structure
RB/039	14	1	1	Extended family	Household Head (HHH) and wife, 5 sons, 2 daughters, and five other relatives. 3 children attend primary school, 3 have not started school while 1 son does casual jobs.
RA/072	9	1	2	Extended family	HHH and his wife, 7 sons, 1 daughter, a married son (living in town) and his wife. The daughter in law manages her money separately from the main HH but they eat together.
RC/065	10	5	1	Nuclear family	HHH, his wife and eight children. Two of his children are living with religious leaders (Koran school teachers), who meet their school and other expenses.
RC/021	11	1	2	Nuclear polygamous family	HHH and 2 wives, 6 sons (attending primary school) and 2 daughters below five years. The women cook together but manage other domestic issues including finances separately.
RB/023	14	3	2	Nuclear polygamous family	HHH, his two wives and 11 children (6 daughters and 5 sons). Two of the children are in secondary school while the rest are in primary school. Wives cook separately but husband feeds from both sub-households
RA/059	6	2	1	Nuclear	HHH and wife, 3 daughters and a son. All children are aged under 10.
RC/019	14	3	3	Extended polygamous family	HHH with two wives, 6 sons, 3 daughters, 1 daughter in law, 1 grandchild. They eat from the same pot but the wives and daughter in law manage finances separately. The main provider is the married son. The women meet all other additional expenses. HHH does not provide at all towards basic needs.
RC/026	8	1	1	Extended polygamous family	HHH, his mother, 2 wives and 5 children. One of the wives works away from home and only comes occasionally. All the children are in primary school.
RB/057	5	5	1	Nuclear polygamous	HHH living together with his two wives and two children.
RC/044	19	3	3	Extended polygamous family	HHH, his 3 wives, 6 sons, one of whom is divorced but living with his three children, and 6 daughters. Feed from the same pot but the first wife and the son (with children) manage their finances separately. 2 of the daughters are domestic workers, 7 attend primary school, while the remaining have not started school
RA/008	26	2	5	Extended family	Household comprises HHH and wife, 4 sons, who are all married with children (total number of children is 13) together with six other relatives (5 children). The four married sons are away in town working leaving behind their wives and children to work in the farms. All sons contribute an equal amount of food per week but other expenses are met individually.
RD/084	9	4	1	Nuclear family	HHH, his wife, 4 sons and 3 daughters. 5 of the children are in primary school while two are below school going age.
RD/080	8	2	2	Extended family	HHH, his wife and their 2 children, HHH stepmother, 3 stepbrothers and one sister. Two of the stepbrothers are in secondary school, while the rest are in primary school. His two children are below five. The step mother has her own budget but eats from the main HH.
RA/033	14	4	1	Nuclear family	HHH, his wife and, 7 sons and 5 daughters. 2 children are working while the rest are either in primary or secondary school
RA/006	10	5	1	Extended family	HHH, his wife, 6 daughters and 1 grand child. Two daughters are in secondary school, the grand child is in primary school and the rest are working.

5.3 Household assets and vulnerability at the beginning of the research

A detailed discussion on vulnerability and coping was presented in Chapters 1 and 2 (Sections 1.2 and 2.3). The discussion highlighted that in any community some households will be more vulnerable than others based on:

- Their demographic and social characteristics;
- The nature of shocks they are exposed to (malaria, other illness, other shocks);
- Their asset endowments (type of assets accessible);
- Their ability to mobilise assets to avoid adverse outcomes in relation to the nature of shock they are exposed to.

These key factors affect households' vulnerability or resilience to malaria cost burdens and other shocks and influence the classification of key case study households into vulnerability categories. However it should be noted that vulnerability in itself is broader and more dynamic in nature than is presented using the key points above (see Chapter 9).

Categories of vulnerability at the beginning of the research

In order to determine livelihoods change over the nine months, case study households were divided into three vulnerability categories. Classification was based on three key types of assets: financial, human and social. Physical and natural assets like housing and land were not considered because houses were basically made of similar structures and all households owned land in large quantities, making it difficult to differentiate between the better and worse off using these two types of assets. Specific factors used to classify households into vulnerability categories were:

- The number and types of financial assets owned, including ownership of saving accounts with financial institutions and livestock;
- The number of working members, type of work, regularity of income and income security;
- The major past events experienced, level of impact and ability to recover from negative impacts.

A summary of the types of assets owned by key case study households at the beginning of the research is presented in Table 5.2.

Table 5.2: Asset ownership at the beginning of the research

Household	HH size	Human assets	Financial assets	Social assets (Groups)	Other assets ²
RB/039	14	<ul style="list-style-type: none"> • HHH is a pastor, his wife a farmer. HHH has some years of primary education, but wife never been to school. • 1 son casual labourer in a construction site. 	2 goats	None	None
RA/072	9	<ul style="list-style-type: none"> • HHH is a tapper, wife does fishing sometimes- both never been to school. One son also a tapper and rest of children are in primary school. 	2 goats and 10 chickens	None	None
RC/065	10	<ul style="list-style-type: none"> • HHH works as a healer and wife farms. HHH went to school but did not complete primary school while the wife has never been to school. Healing is the main source of income. 	2 cows and goats	None	None
RC/021	11	<ul style="list-style-type: none"> • HHH works at tapper and wife farms. Both have no education. The rest are children in school. 	2 goats, 2 cows and chickens ³	None	Radio
RB/023	14	<ul style="list-style-type: none"> • HHH a farmer and wives farm. HHH completed primary school and joined secondary school but did not complete. Both wives have not been to school. • 2 daughters are house girls. They have never been to school • 2 sons are in secondary school while the rest of the children are in primary school. 	7 chickens and 2 cows	None	None
RA/059	6	<ul style="list-style-type: none"> • HHH has a casual job in town (irregular) wife farms. Both have some years of primary education. 	5 Chickens	None	None
RC/019	14	<ul style="list-style-type: none"> • HHH and 2 wives farmers. The HHH has completed secondary school, the elder wife has no education, while the 2nd wife has two years of primary education • 1 son casual job in town, he completed primary school. Main source of income is farming and charcoal burning 	Adults have account at the village bank; 2 cows and 4 goats	HHH and wives belong to farming group.	None

² The ownership of land and housing is not discussed because all households owned land and all houses were basically made of similar structures; mud walls and 'makuti' roofs, occasionally tin roofs among the least vulnerable households

³ People found it difficult to count the number of chickens since they were owned individually among household members and also difficult to keep record of the number of chicken one had because they usually reproduced and sold easily

Household	HH size	Human assets	Financial assets	Social assets (Groups)	Other assets
RC/026	8	<ul style="list-style-type: none"> 1st wife casual job in Kilifi sisal factory, 2nd wife farms. The HHH cannot do any work due to illness. HHH and wife have never been to school. The rest are children 	1 goat and 1 chicken	No group	None
RB/057	5	<ul style="list-style-type: none"> HHH and 2 sons are tappers. One has a casual job in town. Other adults farm. Nobody has ever been to school. 	5 cows and 4 goats	No group	Bicycle and radio
RC/044	19	<ul style="list-style-type: none"> HHH and three wives are farmers. 2 girls work as house girls (a daughter and a grand daughter). HHH has some years of primary education while the wives have never been to school. Farming is their main source of income. 	2 cows, 7 goats and chickens	None	None
RA/008	25	<ul style="list-style-type: none"> HHH and wives are farmers, no education at all. 1 son works as room attendant in hotel. 2 sons are mechanics in town and 2 girls are house girls, the rest are farmers. Six children are attending primary school, while the rest have not started school. 	10 goats and 2 chickens	No group	None
RD/084	9	<ul style="list-style-type: none"> HHH adult school teacher, he has college education Wife farmer, has few years of primary education not complete. 	20 goats and chickens. Has a salary account with teachers cooperative bank.	No group	Sewing machine, radio
RD/080		<ul style="list-style-type: none"> HHH primary school teacher and wife farmer. HHH educated to college level but wife has no education. The rest are children in school. 	3 goats and chickens. Saves at teachers cooperative bank.	No group	None
RA/033	14	<ul style="list-style-type: none"> HHH manager in security firm, wife farmer. HHH completed secondary school, while wife has some years of primary education. Two children are in college, while the rest are in primary school. 	5 goats, 26 cows, 30 chickens Has a savings account with post bank.	No group	Sewing machine, radio, rental house
RA/006	10	<ul style="list-style-type: none"> HHH retired gets pension and farms. He completed primary education. The wife has not been to school and helps in the farm. One child is in college and the rest are in school. 	Saves with village bank 19 cows, 20 goats, over 50 chickens	Wife in MGR	Radio

Past experiences: major shocks experienced before the research started and their contribution to household vulnerability

Most of the households had experienced a past event that had impacted negatively on their livelihoods. Understanding these past events is important because a household's economic situation and thus ATC is not only influenced by the current situation but also by events that took place in the past. Some households were already on a trajectory of decline when the study started because their livelihoods had been exposed to various shocks in the past. The main types of events reported to have impacted on livelihoods were:

- Illnesses and deaths;
- Job losses;
- Strain in social relationships leading to witchcraft;
- Loss of animals due to an epidemic;
- Drought.

Illnesses (malaria or other) and deaths were reported as the major types of stress that depleted livelihoods. Most of the households had incurred high illness costs in the past arising from hospitalisations. For some, illnesses had led to permanent disability among adults who previously were the main income earners, job losses either due to illness or because household members were required to take care of their sick relatives for most of the time. In addition, deaths and funerals impacted directly on assets because households spent a lot of money on funeral⁴ ceremonies. The majority of households that experienced death of a family member reported that it would take many years for them to recover from the financial impact. Closely related to illness costs and deaths were

⁴ In Giriama customs a dead person and ancestors are regarded with a lot of respect. People take it as their responsibility to send off the deceased in a good ceremony where people can have enough to eat. If this is not done, the spirit of the dead can come back to haunt the family. A funeral ceremony among the Giriama's is therefore an important occasion and families go a long way towards trying to ensure that they send off their relatives in dignity (Parkin 2000).

high debts that households accumulated in their attempts to cope with the costs, straining their social relationships and limiting their ability to borrow in the future.

Non-illness events were in most cases related to job losses and witchcraft. Households often blamed their poor socio-economic status on jealousy and witchcraft. In particular, households that had been wealthy in the past but had progressed towards poverty blamed their experiences on jealous neighbours who did not want them to prosper. Job losses of any kind and loss of animals were attributed to supernatural powers. These perceptions impacted on livelihoods because households spent money moving from one healer to another seeking protection or trying to take revenge on their enemies. In the process livelihoods were depleted and households progressed further towards poverty and vulnerability.

Table 5.3 shows the classification of case study households into three vulnerability categories. The livelihoods of four of these households (RB/023; RB/039; RC/065; RC/019) had been affected by high spending on malaria illness or deaths. Three of these households were classified as highly vulnerable but one (RC/019) was classified as vulnerable because they still had a moderate asset base that they could use to cope with shocks. In these households high spending on hospitalisation and funerals depleted household assets and led to high debts. As a result these households were highly vulnerable when the research started, limiting their ATC with additional stresses (including illness costs) over the case study period. Case studies discussing three of the households whose livelihoods were on trajectory of decline due to malaria are presented in detail in Boxes 5.1, 5.2 and 5.4.

Table 5.3: Vulnerability categories at the beginning of research

Highly vulnerable	Vulnerable	Least vulnerable
RB/039; RB/023	RC/019; RB/057	RD/080; RD/084
RC/065	RC/044; RC/026	RA/006; RA/033
RC/021; RA/072	RA/008; RA/059	

Highly vulnerable households

Generally highly vulnerable households (see Boxes 5.1 and 5.2 for examples) had the following characteristics:

- They had experienced a stressful event in the past and had not recovered at the point the research started (either due to malaria, other illnesses or non illness events). These events had depleted their asset base;
- They had accumulated high debts in their attempt to cope with past events limiting their ability to access credit in the future;
- None of the household members had a regular source of income. Income sources were insecure at most times of the year and the households survived on a hand to mouth basis. In other words they were 'struggling' to meet basic needs;
- They had limited social and financial assets and those who had them had limited control over them. For example those who had cows were rearing them for other people and could only benefit from the milk. In other words, they did not own the cows but they were 'given' by the owners to look after them but instead of being paid for this service, they could consume or sell part of the livestock products.

Box 5.1: Hospitalisations leave household highly indebted: the case of RB/023

RB/023 was highly vulnerable at the point the research started. They had accumulated debts which they attributed to malaria and reported that they were experiencing difficulties clearing the debts. This money was borrowed in 2001, when one of the children suffered from 'serious malaria'.

The HHH reported that the child had a high fever and was convulsing. They took the child to Kilifi district hospital where she was admitted in the KEMRI paediatric ward. The household incurred large expenses including transport, hospital charges, food items bought for the child and the carer (could not tell exact amount due to recall problems).

In order to meet these costs, the households sold two goats and borrowed 'heavily' from friends and neighbours. The HHH reported that they are no longer on good terms with their neighbours because he was unable to repay the debts. He still hopes that one day he will be able to pay back because he does appreciate the assistance he received but his reputation has made it difficult for him to borrow from them again.

Although the child recovered from the illness, the HHH said that it caused another problem (brain damage) that led to the paralysis of the child. Eventually in December 2003, the child died due to complications that the HHH believes arose from the initial malaria illness and the household incurred additional costs in the funeral that were financed from the sale of two goats.

Box 5.2: Malaria and related deaths deplete livelihoods: the case of RB/039

RB/039 was highly vulnerable at the beginning of the research. In addition to insecure incomes and high dependency ratio this household had experienced very stressful events in the years preceding the research. They had suffered from a number of malaria illnesses and deaths that impacted directly on their livelihoods.

It all started in the year 2000 when one child reportedly suffered from malaria. The child was taken to the local government dispensary for treatment. Unfortunately the child died on the same day, despite being treated. The HHH reported spending 'large' amounts of money (non quantifiable because of difficulties in recall) on the funeral ceremony.

The following year (2001) another child suffered from malaria, but died in the queue at the dispensary before they could get treatment. Again the household had to perform a funeral ceremony that consumed their resources. As if this was not enough suffering, the following year (2002) another child reportedly suffered from malaria combined with yellow fever. Because of the past experience at the dispensary the HHH could not take the child there because they were afraid that the child would die. They took the child to Kilifi district hospital where she was hospitalised. To raise the cash this household sold a goat. The continuous spending on treatment and deaths made this household highly vulnerable to other contingencies.

Vulnerable households

Vulnerable households (see Box 5.3 and 5.4 for examples) had the following characteristics:

- They had either reported or did not report any past events that impacted on livelihoods (illness or non illness);

- They had at least one household member with regular income (although not permanent jobs);
- They had a moderate asset base (at least all of them owned cows or goats).

Box 5.3: Illnesses and deaths deplete livelihoods: the case of RB/057

At the point the research started, the livelihood of RB/057 had declined tremendously due to illnesses and deaths. Within a span of three years, this household had lost three children due to 'strange' illness. Other infants (could not give number) had died under mysterious circumstances soon after birth.

The major illness that led to the decline was that of one child who died in 2002. The child started falling ill in 2001. She complained of stomach problems and was taken to the Kilifi district hospital where she was hospitalised for a week. A few days after leaving the hospital the child fell ill again and she was taken back to the district hospital where she was hospitalised a second time. But after a few days the child recorded no improvement and the household transferred her to Agakhan hospital (large private hospital) for specialised treatment.

The child recovered and was discharged but when she got home she suffered from a different problem. She was taken back to Agakhan but this time she succumbed to the illness. The household paid over KES 50,000 at the Agakhan hospital and spent almost a similar amount on the funeral. He sold seven cows to finance treatment and had to cancel his plans for investment in a shop and hotel business. He had already started constructing the building where these two businesses were to be housed but all the plans failed and the building still stands uncompleted to date. But luck was not on his side, in the same year more than twenty cows died of a strange disease. The household relied on these cows as the main source of income through milk sales. Because of the illness costs, the sale and death of the cows this household's economic situation was at a point of decline when the research started. However, the household still had assets that they could mobilise in case of illness and although they were declining, they were not as vulnerable as the households classified as highly vulnerable.

Box 5.4: Malaria and other illnesses lead to debt accumulation: the case of RC/019

The impact of malaria on the livelihoods of this household was less direct compared to the other cases, but this household was classified as vulnerable because the HHH suffers from diabetes that requires regular treatment. He attends the diabetic clinic every month at the Kilifi district hospital to have his blood sugar level checked and to collect his monthly dose of insulin.

In 2003 the HHH was hospitalised three times at the Kilifi district hospital because of his diabetic condition. To meet the costs of the first hospitalisation, he borrowed money from friends and relatives including the local politician. For the second hospitalisation he left the hospital bed 'illegally' before paying the bills and went to the village bank to take a loan of KES 2000. He went back to the hospital bed unnoticed and paid the bills. To meet the costs of the third hospitalisation, he had to borrow from friends and relatives since he had not yet managed to repay the loan from the village bank.

In the same year (2003), two infants (twins) were hospitalised at the Kilifi district hospital twice. The first time the children were suffering from 'malaria of the bones' and the second time their 'lungs were not good'. Again the HHH had to borrow money from friends and relatives. His only working son who assists the family suffered an accident at his place of work the same year and hurt his leg. He stopped working and came back to the village for treatment. He used all his savings to pay traditional healers. His leg still aches and sometimes he is unable to go to work, which translates into wage losses. By the time the research started this household had accumulated debts due to illness. The household was experiencing difficulties clearing the debts because the diabetic condition has incapacitated the HHH. They had not paid the loan from the village bank and at one point over the research period, the bank threatened to sell their land to recover the money. However this household still had some assets that it can use to cope with arising costs of illness.

Least vulnerable households

Households in this category were least vulnerable to illness and other livelihood shocks (see Box 5.5 for example). Common characteristics among the least vulnerable households were:

- They had at least one member in a permanent job (mainly the HHH) thus secure income over the long term;
- They had not reported any past events that had impacted negatively on livelihoods;
- They had savings with financial institutions and/or kept livestock as ambulatory banks.

Box 5.5: Permanent jobs and regular income enables asset accumulation: the cases of RD/084, RD/080, RA/006 and RA/033

Generally households in this vulnerability category had their livelihoods improving due to investments in education, construction and livestock. Three of the households had a HHH who were in permanent employment (two were teachers employed by the government RD/080 and RD/084) while one worked as a manager in a security firm (RA/033). The head of the remaining household (RA/006) had retired from a private company and had a monthly pension in addition to being the most successful farmer in the area (He employees people to fetch water from a distant river to water his crops when there is no rain). In addition to having regular incomes these households had not experienced any major illness or non-illness events and were able to meet illness costs without difficulties. The only factor that posed a threat to their livelihoods was the prolonged drought that affected the whole community.

5.4 Summary and conclusions

This chapter has presented the main livelihood features of the key case study households. Relying heavily on the conceptual framework developed in Chapter 3, the chapter addresses two main topics of interest:

- A portrayal of key case study households;
- An analysis of household vulnerability at the beginning of the research.

Description of key case study households: The discussion on characteristics of the key case study households whose data are presented in this chapter reveals that households function in a more complex way than can be captured in a survey. While households may come together to share meals, there exist small sub households that function independently when it comes to meeting other financial needs including financing the costs of illness. Such factors need to be taken into consideration while designing and conducting intensive longitudinal studies in similar settings.

Vulnerability status at the beginning of the research: The discussion on household vulnerability at the beginning of the research showed that households had limited asset endowments, a factor that is closely linked to the vulnerability and livelihood context presented in Chapter 4. Specifically the ownership of financial assets in the form of cash savings with either formal or informal institutions was only found among the least vulnerable households. An additional key factor that distinguished highly vulnerable and least vulnerable households was the nature of human assets. Households with stable and permanent incomes were less likely to report major past events that impacted on their livelihoods either because the event did not impact on them significantly or they were able to recover the loss through the adoption of less risky strategies.

The results show that past experiences influenced households' vulnerability position at the beginning of the research. The key factors that influenced vulnerability status at the beginning of the research were illnesses, deaths, debts and job losses. The relationship between malaria and vulnerability at the beginning of the research was clear for some

households who had either depleted their assets or incurred debts due to treatment (mainly hospitalisation) and/or deaths. For households that had not reported malaria related hospitalisations and deaths, the link between malaria and vulnerability was less clear. In general households that had reported major past illnesses (malaria or other) had depleted their assets and accumulated debts, which they had not cleared by the time the research started. As a result these households were highly vulnerable at the beginning of the research compared to those that had not faced any livelihood threats in the past.

CHAPTER SIX

REPORTED MALARIA, TREATMENT RESPONSES AND COST BURDENS

6.1 Introduction

This chapter presents data on levels of self-reported malaria, treatment seeking patterns and cost burdens. The chapter uses data from the two cross-sectional surveys conducted between the months of April to July 2003 (wet season) and October to December (dry season) but draws heavily on case study data to supplement the findings. The aim of the chapter is to give a broad overview of cost estimates and how they differ between seasons and over time. The information presented in this chapter addresses objectives one and two presented in Chapter one and Box A of the conceptual framework (Figure 3.1). The chapter is organised as follows:

- Section 6.2 analyses data on self reported illness¹ among the survey households and how it differed between seasons. It presents an overview of levels of reported illness and how these are distributed across households, age and gender. The section goes further to compare illness patterns reported in the survey with those reported among case study households;
- Section 6.3 describes the general patterns of treatment seeking behaviour among survey households. Data on treatment seeking behaviour among case study households is left for a later chapter (Chapter 7) that links treatment seeking behaviour with cost burdens;
- Section 6.4 estimates the economic costs of illness (direct and indirect costs) and shows how costs vary between socio-economic groups. The section goes further to show if case study households are 'typical' or 'atypical' in terms of cost burdens;
- Section 6.5 analyses the links between costs burdens and vulnerability categories at the beginning of the research.

¹ From here on the term malaria and illnesses are used interchangeably. All data on illness patterns and cost burdens refer to malaria episodes only.

6.2 Self-reported malaria among survey and case study households

The study collected data on illness episodes that occurred within the last two weeks (acute illness²) and hospitalisations that took place within the last year. Data on hospitalisation were collected in order to enable comparisons of cost burdens arising from other forms of care since most studies on the costs of malaria concentrate on outpatient care.

The results showed that the majority of reported illnesses occurred within the last two weeks with very few cases of hospitalisation. The proportion of households reporting at least one illness in both categories is shown in Table 6.1. Among households interviewed in the wet season 64.3% reported at least one illness episode as compared to 38.2% of those interviewed in the dry season. This is expected because malaria is more prevalent in the wet season. However some studies show that people are more reluctant to acknowledge illness in the wet season to avoid opportunity costs of time off from work (Sauerborn et al. 1996b). Most households did not report any hospitalisation³ in the year preceding the survey. This is not surprising because malaria is an acute illness and curable if treated promptly and effectively.

Table 6.1: Proportions of households reporting at least one illness

Season	Acute	Hospitalisation	All
Wet (n=294)	187 (63.6%)	12 (4.1%)	189 (64.3%)
Dry (n=285)	104 (36.5%)	15 (5.3%)	109 (38.2%)

Distribution of reported illnesses across households and socio-economic groups

Illness episodes were not spread evenly across households and a minority of households reported a high number of episodes. This is because households are diverse in terms of

² An illness was recorded as acute if it took place within the last 14 days regardless of whether it was ongoing or had started before the two-week period.

³ The time period between the two surveys was two and a half months. This meant that there was a possibility of recording hospitalisation cases already reported in the wet season survey because they fell within the recall period of one year. Thus the differences in hospitalisation do not reflect seasonal variations but overlap in recall.

socio-demographic composition and economic status. The number of reported episodes per household ranged from zero (no illness) to up to ten episodes. The distribution of acute illness episodes across households and expenditure quintiles is set out in Table 6.2.

Table 6.2: Distribution of self-reported acute illnesses across households

Number of episodes	Proportion of households that reported illnesses by expenditure quintiles					
	Wet season	Poorest	Very poor	Poor	Less poor	Least poor
1	13.1	9.7	12.5	11.4	8.5	55.2
2	6.3	6.8	4.0	4.0	3.4	24.4
3	2.3	3.4	2.8	3.4	1.7	13.6
>3	1.1	1.1	2.3	1.1	1.1	6.8
Total	22.8	21.0	21.6	19.9	14.7	100
Dry season						
	Poorest	Very poor	Poor	Less poor	Least poor	Total
1	14.1	12.9	14.1	8.2	9.4	58.8
2	3.5	4.7	4.7	7.1	5.9	25.9
3	2.4	1.2	2.4	1.2	1.2	8.2
>3	1.2	0	1.2	3.5	0	7.1
Total	21.2	18.8	23.5	20.0	16.5	100

Key findings presented in Table 6.2 are:

- A large proportion of households reported only one illness in the two weeks preceding the survey (55.2% in the wet season and 58.8% in the dry season);
- The poorest households reported more illness episodes than the least poor. In the wet season the largest proportion of ill households was recorded among the poorest households (22.8%) while in the wet season the poor recorded the highest proportion of ill households (23.5%);
- The least poor households recorded the lowest proportion of ill households in both seasons (14.7% in the wet and 16.5% in the dry season);

⁴ Does not include households whose data on expenditure and or households size was missing (17 in the wet season and 40 in the dry season). If it had been possible to include these households, the total number of households reporting at least one malaria episode would have been 187/294 and 104/285 in the wet and dry season respectively.

- The two poorest quintiles had a larger proportion of households reporting more than one illness.

The difference in the number of reported illness between seasons was highly significant ($P < 0.001$) supporting that the risk of malaria infection is higher in the wet than in the dry season. However the difference across expenditure quintiles was not statistically significant. There are various possible factors that can explain the latter pattern:

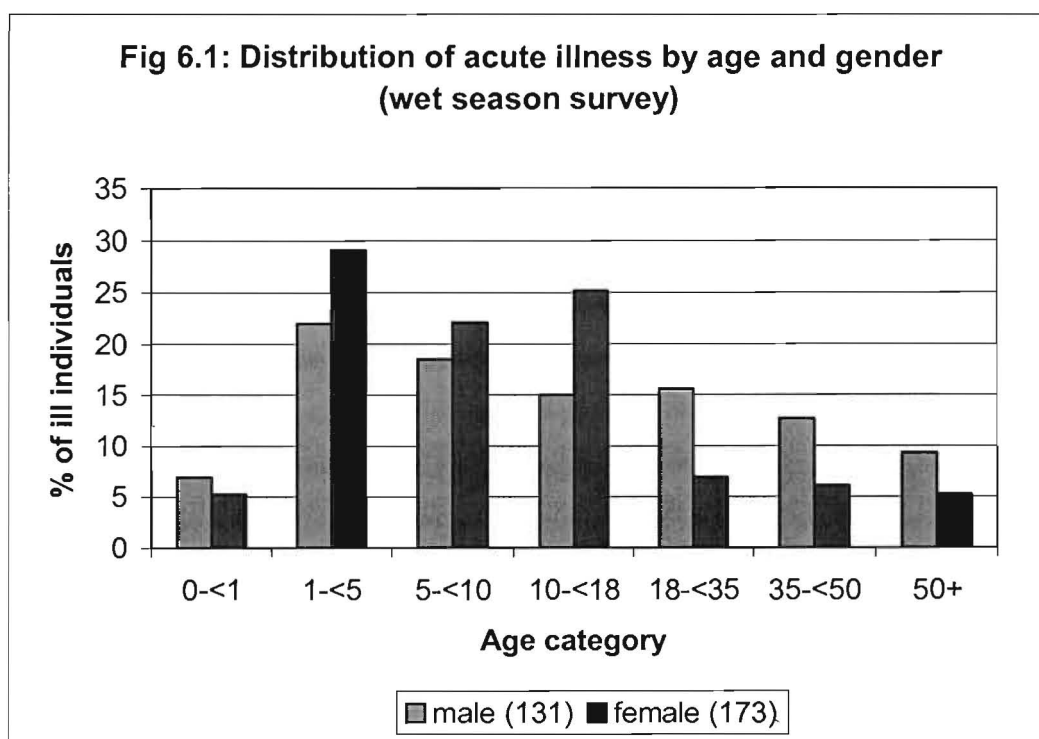
- First the nature of transmission is such that all households irrespective of their socio-economic status are exposed to the same risk of infection. However, the consequences in terms of cost burdens arising from this exposure is likely to be different for households with different socio-economic status;
- Although socio-economic status might indicate ability to use risk preventive measures (for example ITNs), results presented in Chapter 4 showed that the community is 'predominantly poor' when compared with other areas of rural Kenya. This means that even when households are classified into quintiles, their average per capita expenditure remains relatively low for all groups. In fact households in the highest quintile are just slightly above the national rural poverty line (see Section 4.2.2). There are likely to be affordability issues regarding the use of preventive measures among all socio-economic groups;
- Other studies have argued that the poorest households tend to under report illness because they 'cannot afford to be ill' and continue to 'struggle' on despite being ill. In contrast least poor households report illness more often because they can afford to take time off work and seek early and prompt treatment without incurring high-income losses (Sauerborn et al. 1996b). Based on this argument, there is a possibility that the poorest households underreported illness while the least poor over reported illness making the difference insignificant.

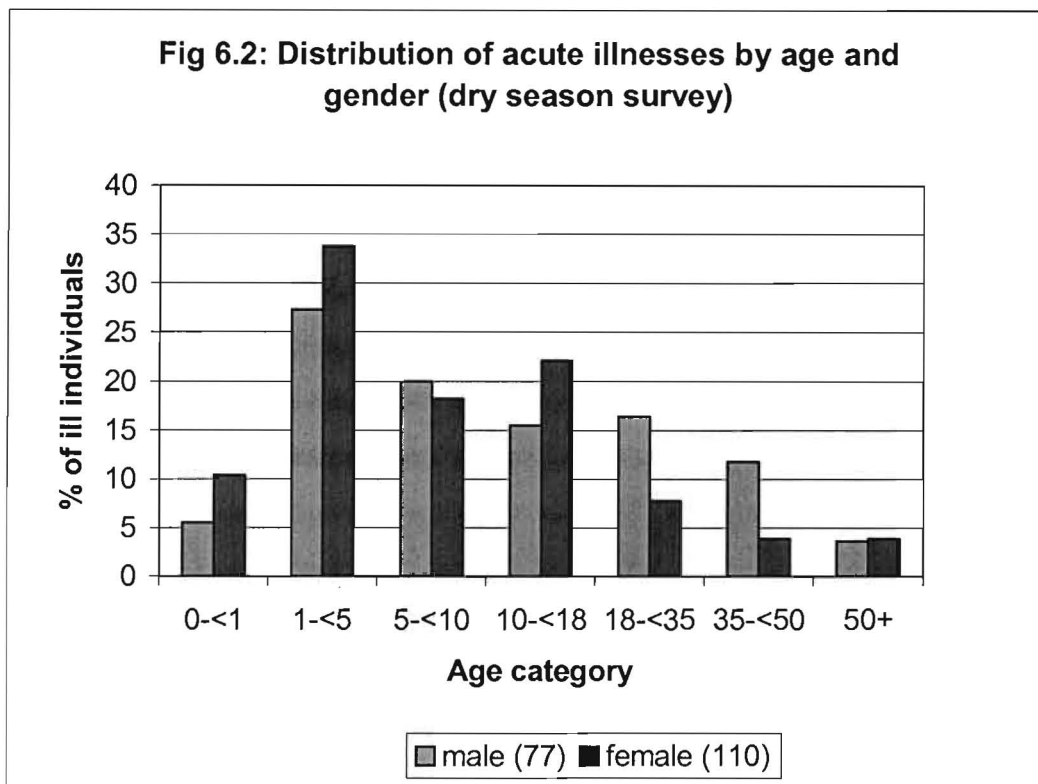
Distribution of self-reported illnesses across age and gender

The distribution of illnesses across age and gender is shown in Figures 6.1 and 6.2. The numbers of self-reported illnesses varied significantly by age but not by gender. Young children face a higher risk of infection because people start acquiring immunity from the

age of five. Immunity in adults is higher than that of the children except among pregnant women when immunity is reported to decrease.

As expected the highest level of self-reported malaria in both surveys was recorded among children under the age of five. The pattern was similar in both seasons: high cases among children and less illnesses episodes with increasing age. There were higher proportions of females reporting illness than males, because the population had more females but also because the highest proportion of female population lies within the risk group (see discussion on demographic structure and implications for malaria infection, Section 4.2.3).

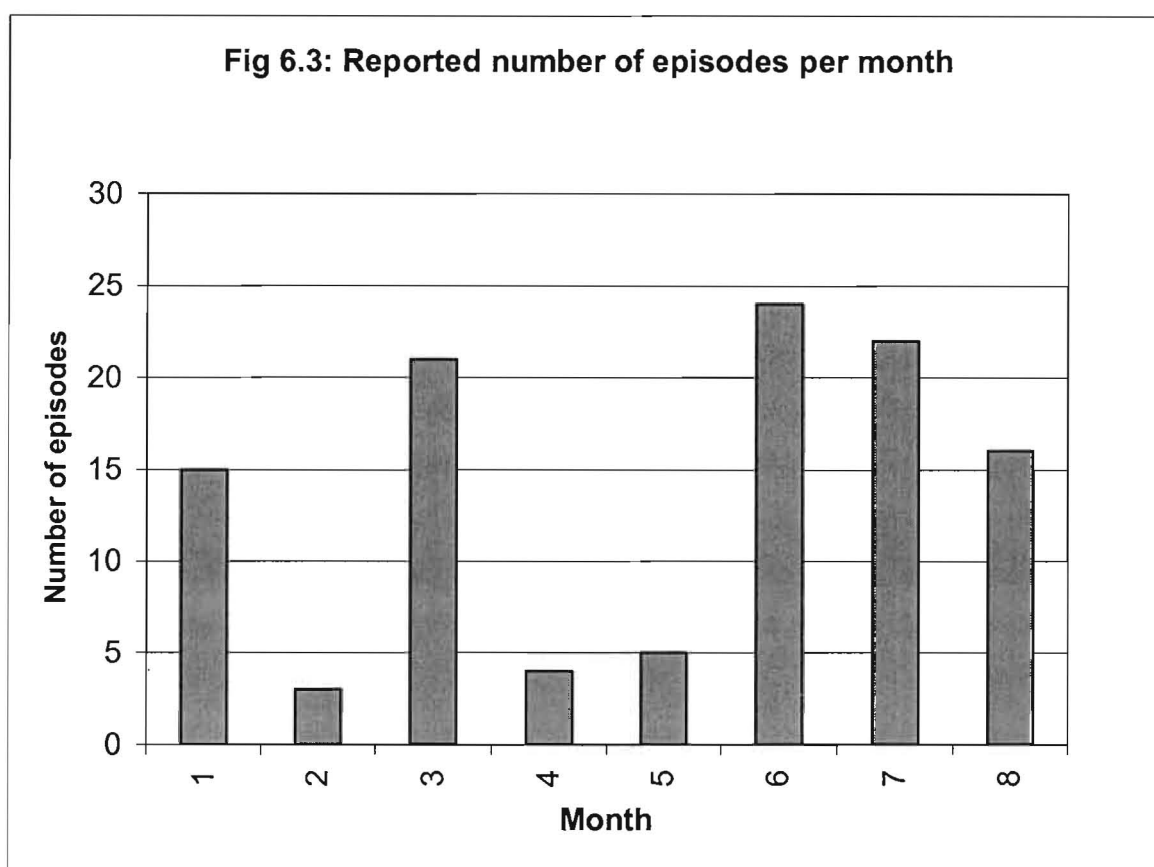




Illness patterns among the case study households

The case study collected data on illness episodes every two weeks. Information on illness was updated every subsequent visit (for example whether ill persons had recovered, what they had done to treat the illness) until the point when full recovery was reported. This section presents data on reported illnesses over a period of eight months⁵. The distribution of malaria episodes over eight months is presented in Figure 6.3.

⁵ The data on illness covered only eight months. Information on illnesses was not collected during the first month because this was a time to seek consent and understand the history of the households.



A key issue that arises from these findings is that malaria episodes vary from month to month. The highest number of episodes was reported in the sixth (24), seventh (22) and third months⁶ (21). The number of illness episodes reported in the second and fourth months was noticeably low. Various factors explain this pattern; illness episodes are likely to go up due to rains⁷ explaining the high number in the third month and households kept illness diaries in the last three months of the study, which would have improved recall.

The case study data revealed mixed patterns regarding self-reported illnesses among households. Some of the findings that were consistent with the survey were:

⁶ Data on illnesses was collected from mid January to mid September. The numbered months indicate 30 days. Not possible to name the actual months because visits spread between two months.

⁷ Although the rains are often not enough to sustain crops, normally there is little rain that creates breeding sites for mosquitoes making residents more susceptible to malaria during this period.

- Illness episodes were not equally distributed across households. Some households did not report any illness within the eight months, while some reported a high number of illness episodes (n=28);
- Households with young children reported illnesses more often than those comprising of adults. In particular two out of the fifteen households reported a high number of illness episodes due to their demographic structure (Boxes 6.1 and 6.2);
- Reported illnesses did not vary with vulnerability status. Both the highly and least vulnerable reported illnesses.

The number of illness episodes reported among the case study households are presented in Table 6.3. The table shows that the majority of households reported at least one illness episode per month. Illnesses per capita levels were low ranging from zero (RA/033) to two in RC/026 and RD/084. There were no noticeable differences in mean per capita episodes between vulnerability categories. This is because of factors as discussed above: (1) different perceptions of illness among the poorest and least poor; (2) households being exposed to the same risk of infection; (3) even the least poor can experience difficulties affording preventive measures (which would have lowered risk compared to the poorest) because they are still 'relatively poor'.

Table 6.3 Mean monthly and per capita illness episodes

Household	Illness episodes ⁸ over 8 months	Mean monthly episode	Per capita illness episodes over 8 months
RB/039	9	1	1
RB/023	8	1	1
RC/065	7	1	1
RC/021	3	0	0
RA/072	9	1	1
RB/057	5	1	1
RC/019	7	1	1
RC/044	7	1	0
RA/008	28	4	1
RC/026	10	1	2
RA/059	5	1	1
RD/080	5	1	1
RD/084	13	2	2
RA/006	3	0	1
RA/033	0	0	0

*Dark colour represents highly vulnerable households, the light coloured are the vulnerable and the non-shaded are the least vulnerable.

⁸ Mean illness episode numbers rounded off to the nearest whole number.

Box 6.1: Household life cycle patterns increase risk of infection: The case of RA/008

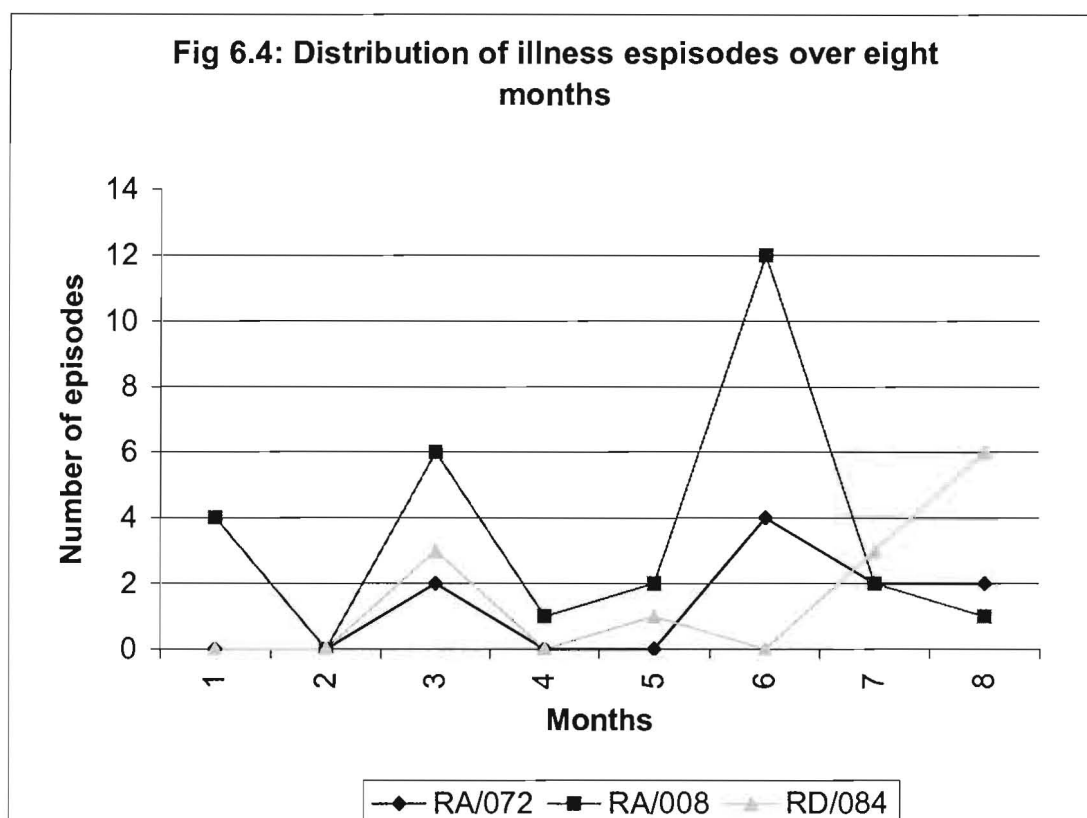
RA/008 was the largest household among all the key case study households. It comprised of five nuclear families: the homestead head (HSH), his wife and his four sons. The HSH and his wife are aged about 70 years. Their main source of income is farming but they mainly rely on their children for financial assistance. The four sons live in Mombasa town, in separate houses. They work as casual labourers in construction sites and have regular wages. All the sons are married and their wives live in the village together with the parents and their children. The household has a total of eighteen children. Six of them are aged below five years and four are between five to ten years. Because of the high number of children, this household reported a total of 28 illness episodes in eight months, 20 of which occurred among the children. The illness episodes were unequally distributed over the eight months ranging from as high as 12 in the fifth month to zero in month three. The distribution of illness episodes between eight months is shown in Figure 6.4.

Box 6.2: Low number of children reduces risk of infection: The case of RA/033

RA/033 is one of the relatively wealthy households in the area. The HHH works as a manager in a private security firm. He has a permanent job with regular income. Before he got this job, he worked as a policeman employed by the government. He retired from government employment four years before the study started. He was paid retirement benefits that he used to construct a rental house which provides him with additional income and took up the job with the security firm. He has one wife and twelve children; the youngest one is in secondary school and is fifteen years old. The wife and the children live in the village while the HHH lives in Mombasa town. He comes home every month to bring money for meeting their basic needs. Despite being exposed to the same risk of infection as the other households within the community, this household did not report any illness episode in the eight months and had not reported any in the two surveys. Although other factors might have contributed to the absence of illness in this household, clearly its demographic structure made them less vulnerable to malaria infection and related consequences.

episodes and per capita data presented in Table 6.3 are useful indicators of the overall burden over eight months, for most households reported illnesses were not equally distributed between months. This has potentially important implications for cost burdens and treatment seeking behaviour since arising costs are met at the point when the illness strikes, consuming a large proportion of households' budgets. Such information is unlikely to be captured in a cross-sectional survey because cost estimates are smoothed over a month or year, with an assumption that costs are equally distributed over time. This has the potential of underestimating cost burdens and ATC (more details of cost burdens are presented in Section 6.5).

Figure 6.4 shows how reported illness episodes were distributed over eight months for selected households with the highest number of illness episodes in each vulnerability category, to give an overview of how illness episodes were distributed and indicate how cost implications are likely to be distributed over time. The results show considerable fluctuations among all households but reveal an almost similar pattern of two peaks in months 3 and 6. For example RA/008 reported 12 episodes in the sixth month, 6 episodes in the third month and zero episodes in the second month. Clearly the cost burdens for this household will differ over months. A summary of the key factors arising from the discussion on illness patterns is presented in Box 6.3.



Box 6.3: Illness patterns: key factors relevant to vulnerability, costs burdens and ATC

- The poorest households reported more illnesses per household than the least poor;
- Households reported more illness episodes in the wet than in the dry season;
- Illness episodes were concentrated among children under the age of five. Households with young children were more vulnerable to infection and consequences arising from illness;
- Among the case study households, illness episodes were not equally distributed between months. This finding has important implications for cost burdens and coping strategies.

6.3 Treatment seeking behaviour and treatment seeking patterns

Chapter 4 presented information on the types of health care providers available in Ganze. This section presents findings on how survey households use these types of health care services for malaria treatment. Data on treatment seeking behaviour among case study households are left for Chapter 7 where the potential role of health care providers on cost burdens and livelihoods is analysed.

Overview of treatment actions identified in the surveys

The results on treatment seeking behaviour identified in the two surveys are presented in Tables 6.4 and 6.5. The findings reveal similar patterns in both seasons:

- Some of the illnesses reported were not treated (17.6% in the wet season and 15.0% in the dry season) and for the majority of illnesses, only one action was taken in both seasons. People failed to seek treatment mainly because they could not manage to raise cash and ignored illness in order to prevent costs from arising (see Chapter 8).
- Self-treatment was the most common type of action. Three types of self-treatment were identified in the survey; drugs from the shops (wet season= 47.9%; dry season= 43.9%), drugs already at home (wet season=5.4%; dry season=3.1%) and herbs (wet season=6.4% and dry season=9.9%). Self-treatment was taken as a first step because it is cheap (cost management) but people sought other types of care when illness persisted. Results from FGDs provided further information on self-treatment both as a first action and a cost management strategy (Box 6.4).

Self-treating using over the counter drugs has been identified as the first action to treat malaria in Kenya and other parts of SSA. Evidence from other studies in a similar setting shows that most fevers are first treated at home using drugs bought from shops before presenting the cases to the formal health facilities (Asenso-Okyere and Dzator 1999; Molyneux et al. 1999; Mwenesi et al. 1995; Nyamongo 2002; Snow et al. 1999).

Table 6.4: Treatment responses for all acute episodes (wet season)

Type of action	Action 1	Action 2	Action 3	Total
No treatment	63 (17.6%)	NA	NA	63 (15.4%)
Herbs	23 (6.4%)	3 (6.8%)	0 (0.0%)	26 (6.4%)
Drugs (home)	20 (5.6%)	2 (4.6%)	0 (0.0%)	22 (5.4%)
Drugs (shops)	187 (52.4%)	9 (20.5%)	0 (0.0%)	196 (47.9%)
Retired doctor	3 (0.8%)	1 (2.3%)	0 (0.0%)	4 (1.0%)
Healer	1 (0.3%)	2 (4.6%)	0 (0.0%)	3 (0.7%)
Dispensary	21 (5.9%)	6 (13.6%)	1 (12.5%)	28 (6.8%)
Private	21 (5.9%)	14 (31.8%)	4 (50.0%)	39 (9.5%)
Kilifi district	0 (0.0%)	2 (4.5%)	0(0.0%)	2 (0.5%)
Prayers	13 (3.6%)	3 (6.8%)	2 (25.0%)	18 (4.4%)
Other	5 (1.4%)	2 (4.6%)	1 (12.5%)	9 (2.2%)
Total	357 (100%)	44 (100%)	8 (100%)	409(100%)

Table 6.5: Treatment responses for all acute episodes (dry season)

Type of action	Action 1	Action 2	Total
None	26 (15.0)	NA	26 (13.6%)
Herbs	19 (11.0%)	0 (0.0%)	19 (9.9%)
Drugs (home)	6 (3.5%)	0 (0.0%)	6 (3.1%)
Drugs (shops)	78 (45.1)	6 (35.3%)	84 (43.9%)
Retired doctor	2 (1.2%)	1 (5.9%)	3 (1.6%)
Healer	2 (1.2%)	1 (5.9%)	3 (1.6%)
Dispensary	20 (11.6%)	5 (29.4%)	25 (13.1%)
Private	7 (4.1%)	3 (17.7%)	10 (5.2%)
Prayers	9 (5.2%)	0 (0.0%)	9 (4.7%)
Other	4 (2.3%)	1 (5.9%)	5 (2.6%)
Total	173 (100%)	17 (100%)	191 (100%)

- The use of formal health care facilities was noticeably low in both seasons. The limited use of the formal health care system raises issues of concern regarding access to health care services (see details in Chapter 7).
- The proportion of actions taken at the formal health facilities differed between seasons. For example only 6.8 % of actions were taken at the dispensary in the wet season as compared to 13.1% in the dry season. The reverse applied to private clinics: high use in the wet season (9.5%) and lower use in the dry season (5.2 %). It is possible that changes in perceptions of illness and cash availability between seasons are among the factors explaining the higher use of private clinics in the wet season. However, treatment seeking behaviour is influenced by various factors and it is difficult to attribute this pattern to a single factor (see Chapter 7).

Box 6.4: Self treatment as first action and cheapest malaria treatment

Results from FGDs revealed that self-treatment using drugs from the shops or herbs was taken as a first action while people ‘waited to see’ if they would recover and only went to a formal facility when the symptoms persisted. Self-treatment was also taken as a cost management strategy because of the low cost of drugs:

“You will see the symptoms of fever and buy him some drugs for first aid. We use such drugs knowing that if I give him, then that is enough. That is what we do. If he uses the drugs for two days and he is still that way, then if you have good thinking you take the child to hospital.” (Old woman, Tsangalaweni, 14/01/03)

“You will start by giving him shop drugs and if the fever is mild he will recover. There are drugs like rob which you can apply but when you notice that it has become serious you decide to go to the hospital.” (Old woman, Mwaeba, 21/01/03)

“It would be better because even if you give him shop drugs such as aspirin and still there is no improvement the only alternative is to take the child to hospital.” (Young woman, Mwaeba, 16/01/03)

A summary of key aspects of treatment seeking behaviour arising from the survey is presented in Table 6.6. The information shows that most of the actions taken to treat illness happened outside the home (80.9%) while 19.1% were treated without any interactions with the formal or informal health care system. Actions requiring self treatment were adopted within the first two days after the onset of symptoms while people waited longer before adopting other types of treatment, the longest period being 9 days before going to the district hospital. The long period between onset on illness and visit to the district hospital is expected because people will try to seek treatment from the closest facilities and will only go to the district hospital for severe episodes.

Table 6.6: Summary of treatment seeking behaviour among survey households

	Wet season (%)	Dry season (%)
No. Actions taken		
None	15.4	13.6
One	71.9	76.9
Two	10.8	8.9
Three	2.0	0.0
Actions taken		
Within HH:		
• Herbs	7.5	11.5
• Modern drugs already there	6.4	3.6
• Prayers	5.2	5.5
Outside HH:		
• Shop	56.7	50.9
• Private clinic	11.3	16
• Government dispensary	8.1	15.2
• Government hospital	0.6	0.0
• Healer	1.2	1.8
• Other	3.5	4.8
Day of contact	Mean	Mean
• Home treatment	2	1
• Shop	2	1
• Private clinic	4	3
• Government dispensary	4	2
• District hospital	9	NA
• Healer	3	2

6.4 Direct costs of illness

A major objective of the study is to improve the current understanding of the economic burden of malaria. In order to achieve this, it is essential to estimate the direct and indirect costs of malaria. Direct costs are all cash expenses incurred by households due to illness. This includes cash spending on non-medical items like transport, special foods, and informal payments among others.

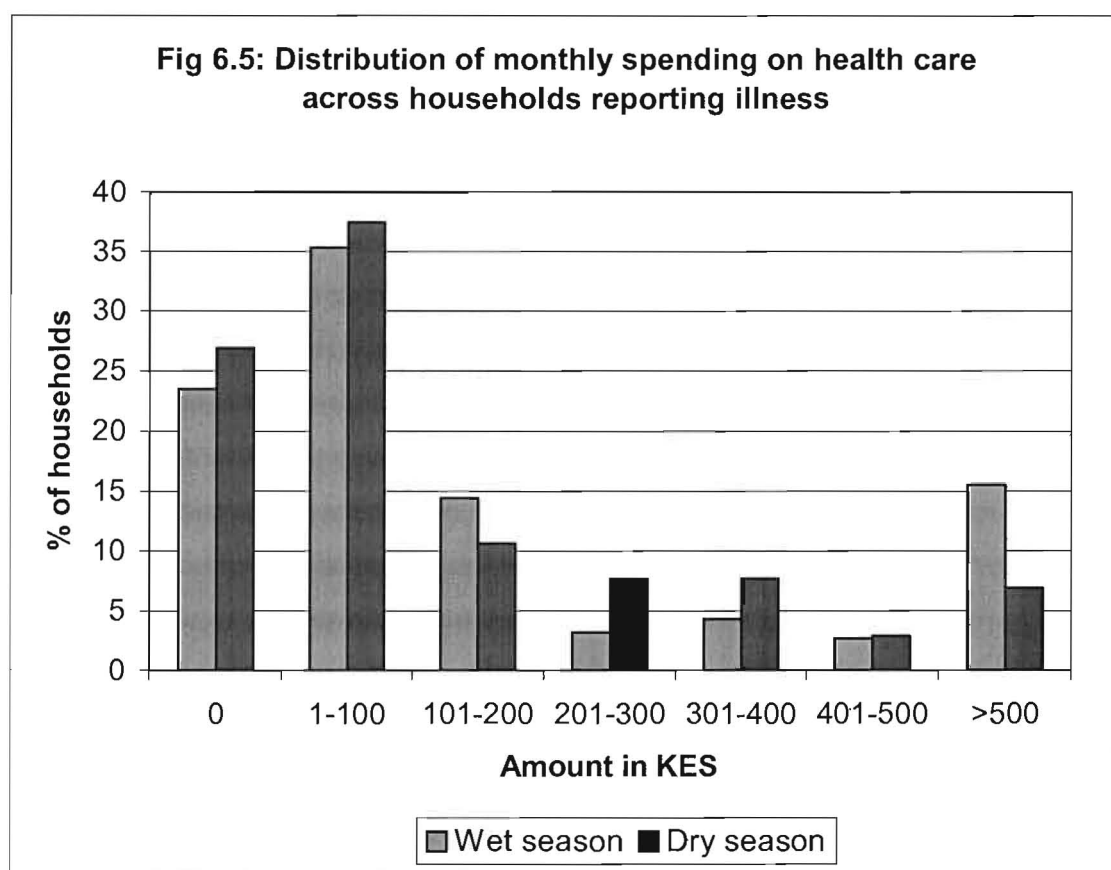
6.4.1 Mean and median cost burdens

Table 6.7 shows the mean and median spending for acute illnesses and hospitalisations. Hospitalisation costs are converted into monthly costs by dividing by twelve. Acute illness costs are converted into annual costs and the total burden divided by twelve to enable comparison. The results indicate that mean spending was higher for acute illnesses than hospitalisations in both seasons. Hospitalisation costs have been smoothed over the year by dividing reported costs by 12 months to arrive at a monthly estimate. However, as already mentioned, illness costs are likely to be incurred in one month or few weeks (a potential bias towards under-estimating costs). When hospitalisation costs are expressed in annual terms (not divided by 12), mean spending amounts to KES 778 in the wet season and KES 948 in the dry season.

Table 6.7: Mean monthly costs for households reporting illness in KES

Wet Season	Acute (n=187)	Hospitalisation (n=12)
Mean	232	65
Median	55	72
<hr/>		
Dry season	Acute (n=104)	Hospitalisation (n=15)
Mean	165	79
Median	40	72

Median spending in both acute episodes and hospitalisations were much lower than the mean because treatment costs were highly skewed to the right ranging from zero spending to high spending of KES 7638. This distribution of spending across households is presented in Figure 6.5.



The results show a similar pattern of spending in both seasons; the majority of household spending was concentrated at the lower side of the distribution between KES 1 and KES 200. There were noticeably high proportions of households that reported illness but incurred zero spending in both seasons. This is either because they reported illness but did not take any action or they took actions that did not require spending like herbs or drugs already at home. The proportion of households that spent above KES 500 was much lower in the dry season than in the wet season (15.5% of households in the wet season and 6.7% in the dry season) due to treatment seeking patterns already discussed in the previous sections.

6.4.2: Total financial spending by cost item

Table 6.8 breaks down the costs by the type of item. The highest proportion of total spending was spent on drugs for both acute episodes (83% in wet season and 81% in dry season) and hospitalisations. This again reflects on the treatment seeking patterns since for most illnesses, drugs were bought over the counter and for most households this was the only cost item.

Table 6.8: Proportion of total spending by cost items

Cost item	Acute illnesses		Hospitalisation	
	Wet season	Dry season	Wet season	Dry season
Consultation	0%	0%	13%	19%
Drugs	83%	81%	39%	15%
Special foods	8%	10%	10%	14%
Transport	5%	3%	31%	31%
Tests	5%	5%	6%	18%
Other	0.4%	0.3%	1%	2%

*Proportion includes only illnesses where members were able to break down the costs

Spending on other costs items was low:

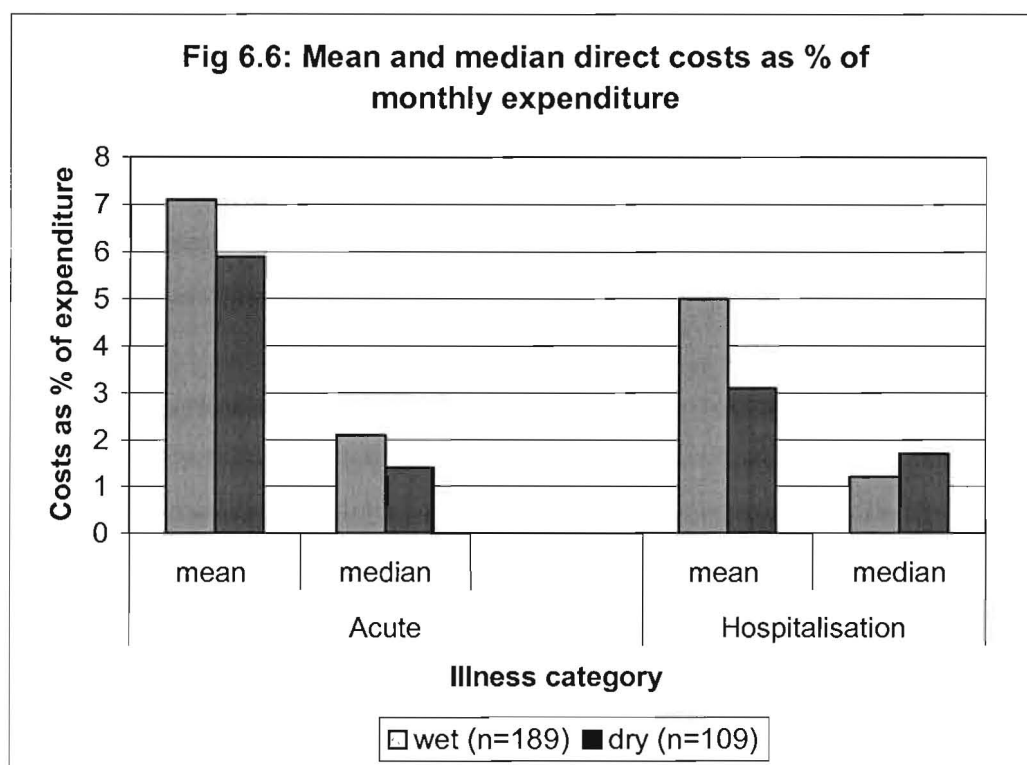
- Transport costs: the second highest for hospitalisation but relatively low for acute illnesses. There is no health facility offering inpatient services in the study area and households have to travel to the district hospital. For acute illnesses, transport costs were minimal because there are no transport services to Ganze trading center where health facilities are located and the small proportion reported was incurred among households who sought treatment in Kilifi town.
- There were no consultation costs for acute illnesses but there were for hospitalisations. This is because health care providers in the study area do not charge a consultation fee since people prefer to pay for what they can see (for example drugs) and do not understand the meaning of consultation. The situation is different

for hospitalisation where patients have to pay before they can get admission to the wards. This fee works both as consultation and registration.

- The proportion of spending on tests was low in both illness categories. This is a bit unusual for hospitalisations. Either tests were not conducted or charges were not properly itemized for people upon discharge, making it difficult for them to correctly report how much was spent on each cost item or there was a problem of recall.

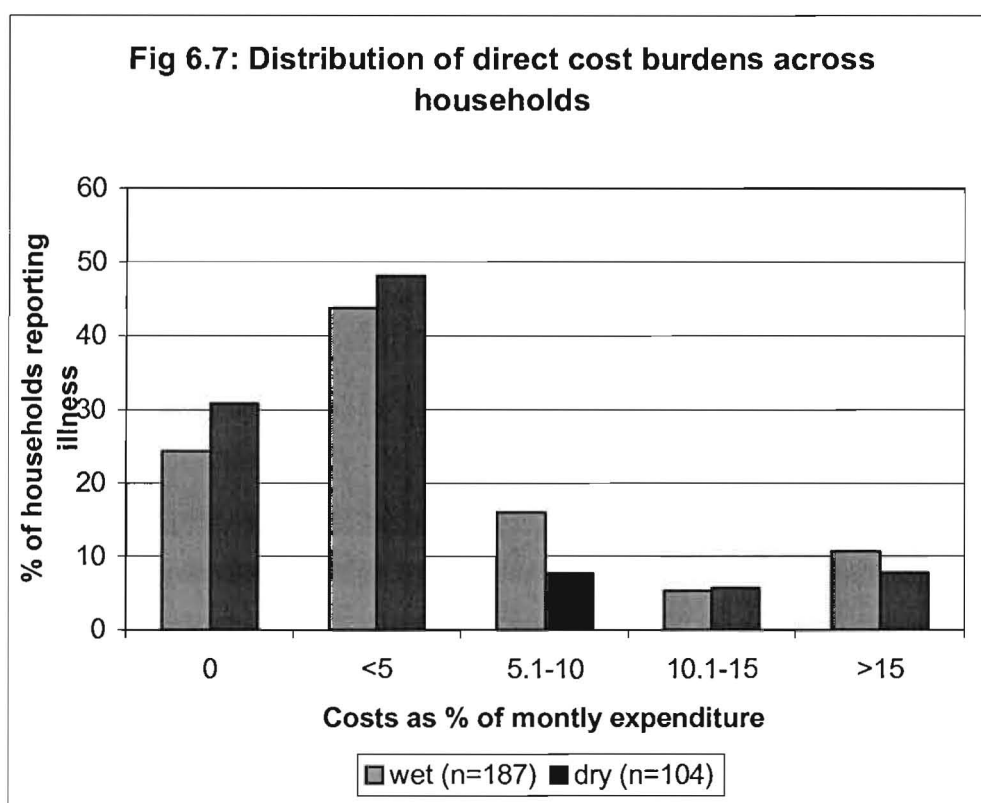
6.4.3 Direct costs as proportion of monthly expenditure

Costs were expressed as a proportion of household expenditure in order to show how illness cost fitted within household budgets. The results presented in Figure 6.6 show that mean direct costs for acute illnesses were higher than mean costs for hospitalisations. Mean and median cost burdens were higher in the wet season than in the dry season because illnesses reported were higher in the former. Median levels were much lower than the mean in both categories because data was uneven and positively skewed, with some households reporting illness and incurring zero costs, while others sought treatment from private providers thus facing high cost burdens.



The distribution of acute⁹ illness cost burdens across households is shown in Figure 6.7. The results show wide disparities with some households recording zero spending while others spent over 15% of their monthly expenditure. Two households spent over 100% of their monthly expenditure on illness.

⁹ Because the number of households reporting hospitalisation was low (n=14), the distribution of direct costs presented in Figure 6.7 and other costs data presented in the remaining sections of this Chapter refer to acute illnesses only.



When the distribution is measured in terms of inter quartile ranges the results indicate the following:

In the wet season:

- 25% of ill households faced a direct cost burden of less than 0.14% of monthly expenditure;
- 50% of ill households faced a direct cost burden of less than 2.1%;
- 75% of ill households incurred direct cost burden of less than 6.8%;
- 25% of ill households incurred direct costs burdens above 6.8%;
- 25% of ill households incurred costs burdens lying between 2.1% (median) and 6.8% (75th percentile).

In the dry season:

- More than 25% of ill households did not incur any direct cost burdens (cost burdens equal 0% of monthly expenditure);

- 50% of the households incurred cost burdens of less than 1.3 %;
- 75 % of ill households faced cost burdens of less than 5.3%;
- 25% of ill households incurred cost burdens above 5.3%.

In total only 25 % of ill households had incurred costs burdens above the mean burden in the wet season survey and only 23% of ill households in the dry season incurred cost burdens above the mean¹⁰.

Distribution of illness costs across expenditure quintiles

To capture the differences across socio-economic status, cost burdens were estimated for households in different expenditure quintiles. The distribution of mean direct costs¹¹ across expenditure quintiles is shown in Figure 6.8. The results show that poorest households spent the largest proportion of their expenditure on treatment (over 10% in both seasons) while least poor households spent the lowest proportions in both seasons (3.4% and 2.6%). The substantial differences between the mean and median cost burdens show that costs burdens were not equally distributed within quintiles. For example the distribution of cost burdens across the poorest households revealed the following:

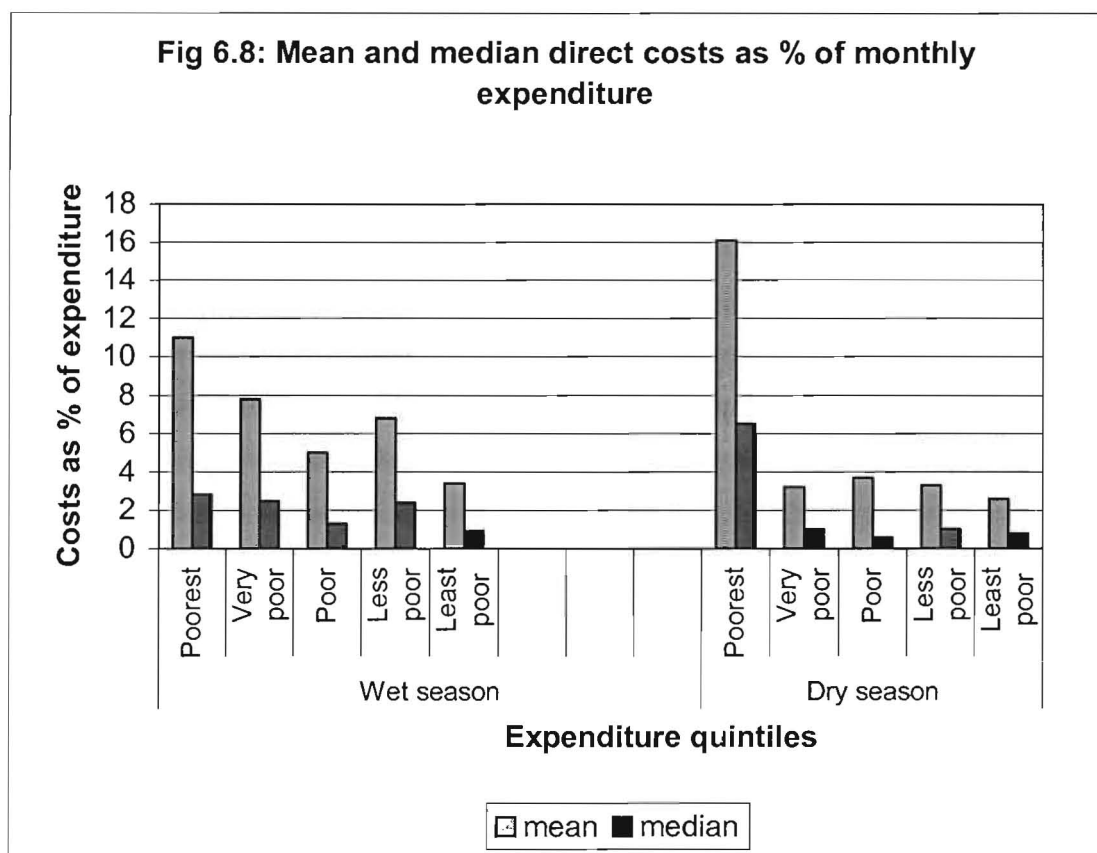
In the wet season:

- 25% of ill households in the poorest quintile incurred direct cost burdens of less than 2.5% of monthly expenditure;
- 50% of households incurred direct cost burdens of less than 2.8%;
- 75% of households incurred direct cost burdens below 8.8%;
- 25% faced direct cost burdens above 8.8%.

¹⁰ For a distribution of different levels of cost burdens across households, see Section 6.7.

¹¹ The costs are estimated on the basis of the assumption that illnesses reported in the last two weeks can be generalized over the month. Such an approach however, has the potential of over/underestimating cost burdens since probability of illnesses is not always the same through out the year.

Some households in the poorest quintile incurred costs burdens much higher than the mean. In fact four households in the poorest quintile incurred costs burdens above 50% of their expenditure, pushing the mean up to 11.0%.



In the dry season:

- 25% of ill households in the poorest quintile incurred direct cost burdens of less than 0.5 % of monthly expenditure;
- 50% of households incurred direct cost burdens of less than 6.5%;
- 75% incurred direct cost burdens of less than 16.3%;
- 25% incurred direct cost burdens more than 16.3%.

One household in the poorest quintile recorded very high costs burdens of 135% pushing the mean burden up to 16%. The estimated mean cost burden without this household was much lower at 5.4% of monthly expenditure.

6.5 Indirect costs: days lost due to illness

In addition to the direct costs, malaria causes opportunity costs to households. This occurs when ill individuals are unable to work and take time off their normal activities due to illness. In this study indirect costs include income, non-income and school days that were affected by a malaria episode. The study uses the human capital approach that only values loss of productive days. This method was chosen because it is less likely to lead to over-estimation of cost burdens compared to the wage rate method that attaches a monetary value to all time lost including leisure, overestimating the potential gains of labour. Moreover, the community under study is mainly agricultural and the potential substitution of labour affects whether or not the loss of time is translated into a loss of output (Goodman et al. 2000).

Based on this, indirect costs presented in this study are valued using average daily per capita expenditure, which was taken as a proxy of daily income. The use of average daily expenditure was chosen because it was not possible to estimate an average daily wage rate since the labour market is mainly agricultural and there are no clear guidelines as to what a person should be paid. Payment terms depend on an understanding between the person selling labour and the buyer. However, the average per capita daily expenditure estimated from the survey monthly estimates was very close to what an adult individual was likely to get paid for working in the agricultural farms for a day (see Table 4.1). This rate was estimated as KES 33 per day in the wet season and KES 30 in the dry season.

Non-income days are not valued in monetary terms because days lost did not affect income generating activities although it is acknowledged that failure to conduct other activities (for example household chores) may have some implications for households' daily lives. Such implications are difficult to measure in financial terms. Various issues arise about valuing days lost in monetary terms especially in the context of this study:

- Being an agricultural community, there is a possibility that healthy members do substitute for labour by conducting duties usually assigned to the sick person, and

income days lost due to illness might not translate to actual loss of income. However, it is difficult to distinguish between the proportion of work that healthy members do as part of substitution and what is part of their normal routine (Wangombe and Mwabu 1993).

- The discussion on livelihood context presented in Chapter 4 revealed that there are limited income generating activities in the study area, and access to cash income is a problem for the majority of the population. Even in the absence of illness, healthy persons might not use their healthy days to generate income because work opportunities are rare. Expressing lost days in terms of income lost might over estimate the actual loss due to illness.
- A standard average expenditure was applied across all households irrespective of their socio-economic status. It is possible that time lost to the poorest households is over-valued while that of the least poor households was undervalued. However, the mean value puts into consideration both the highest and lowest values, and therefore remains the best measure for estimating time lost in this study.

It is acknowledged that the loss of days due to illness might have implications for households' income and livelihoods especially when the illness strikes during the season of peak agricultural activities. This section therefore presents information on the potential income losses incurred by the sick and healthy household members due to illness in order to arrive at an estimate of the total costs of malaria. Nevertheless it is worth noting that valuing income days in this way, in this community is problematic and one should be aware of the issues raised above in interpreting these findings.

Ability to conduct income and non-income generating activities

Individuals reporting an illness were asked if they were able to conduct their income and non-income generating activities during the period of illness, and school children were asked if they were able to attend school. Similar questions were asked for the carers. The results presented in Table 6.9 show that in the wet season, 54.5% of ill individuals with income roles were unable to conduct their income generating activities, while 43.4% could not conduct their non-income roles. Of all the ill school going children, 50.8%

could not attend school during the period of illness. The proportion of individuals unable to conduct income roles in the dry season was higher than that reported in the wet season. A possible explanation is that the wet season is an important season for the rural communities, and households have 'less time' to be sick in order to minimise loss of income resulting from days off from agricultural activities (Sauerborn et al. 1996b).

Table 6.9: Ability to conduct activities during the illness period

Season	Able to carry out activities during illness? ¹²			
	Yes (fully)	Yes (partially)	No	Total
Wet season				
Income activities	27 (30.7%)	13 (14.8%)	48 (54.5%)	88 (100%)
Non-income activities	45 (42.5%)	15 (14.1%)	46 (43.4%)	106 (100%)
Attend school	37 (30.8%)	22 (18.3%)	61 (50.8%)	120 (100%)
Dry season				
Income activities	9 (25%)	6 (16.7%)	21 (58.3%)	36 (100%)
Non-income activities	8 (4.4%)	14 (36.8%)	16 (33.3%)	38 (100%)
Attend school	24 (37.5%)	8 (12.5%)	32 (50.0%)	64 (100%)

The results on the mean number of days lost per episode for individuals and carers revealed the following:

- Ill individuals lost a mean of 4 income days per episode in the wet season and 5 income days in the dry season;
- Ill individuals were unable to conduct their non-income generating activities for a mean of 4 days in the wet season and 5 days in the dry season;
- School going children could not attend school normally for 4 days during illness in both seasons;
- Mean days lost among carers were 2 income days and 4 non-income days for each malaria episode in both seasons.

¹² The question on income days was only asked to those individuals with an income-generating role in the household while that of school days was only asked to those children attending school. Thus the numbers do not reflect the total numbers of individuals reporting illness.

When days lost are valued into monetary terms the results reveal the following:

- Mean cost per month amounted to KES 145 in the wet season and KES 63 in the dry season. Mean cost per month was higher in the wet season despite recording lower mean days lost because average daily expenditure was higher in the wet than in the dry season;
- Mean wage cost burdens expressed as proportion of monthly expenditure was 5.4% in the wet season and 2.1% in the dry season;
- In both seasons median costs were zero meaning that at least 50% of all ill individuals did not report any loss of income due to illness.

The distribution of wage cost burdens across all households reporting illness showed that the majority of households did not incur any losses due to various factors discussed in the beginning of this section. The breakdown of the distribution showed that:

In the wet season:

- 27.9% of ill households reported wage costs greater than 0% of their monthly expenditure;
- 20.1% of ill households had costs above the mean burden of 5.4%;
- Four households had significantly high cost burdens of over 56%¹³.

In the dry season:

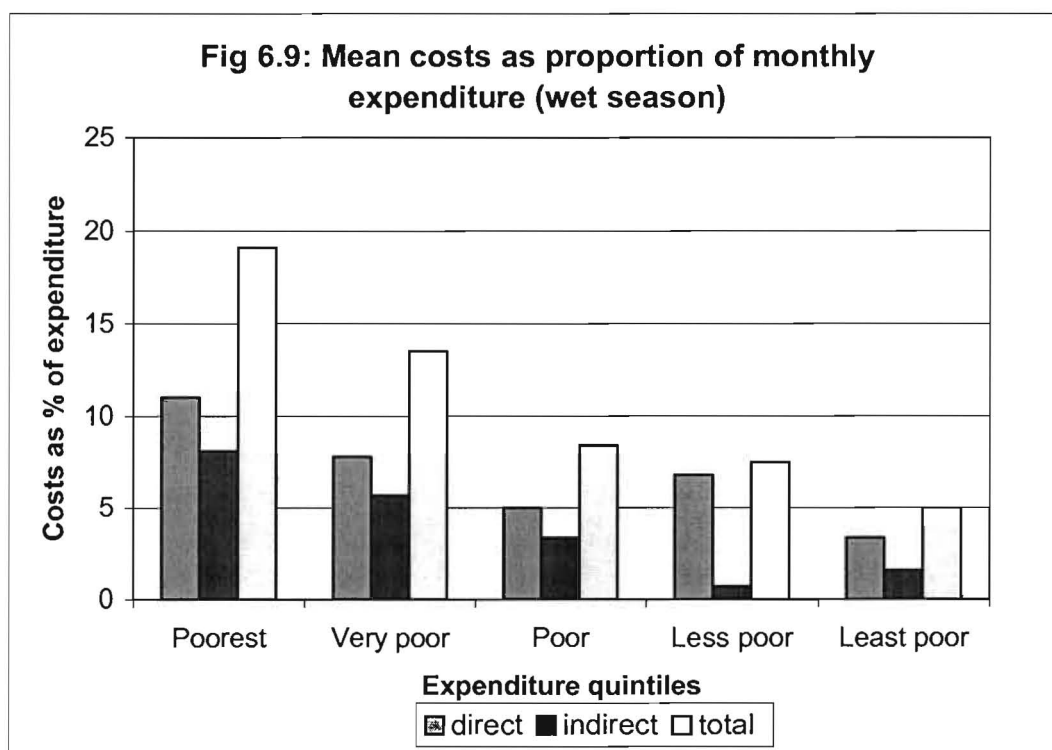
- 23.1 % of ill households reported wage costs greater than 0% of their monthly expenditure;
- Only 16.7% of ill households had costs above the mean burden of 2.1%.

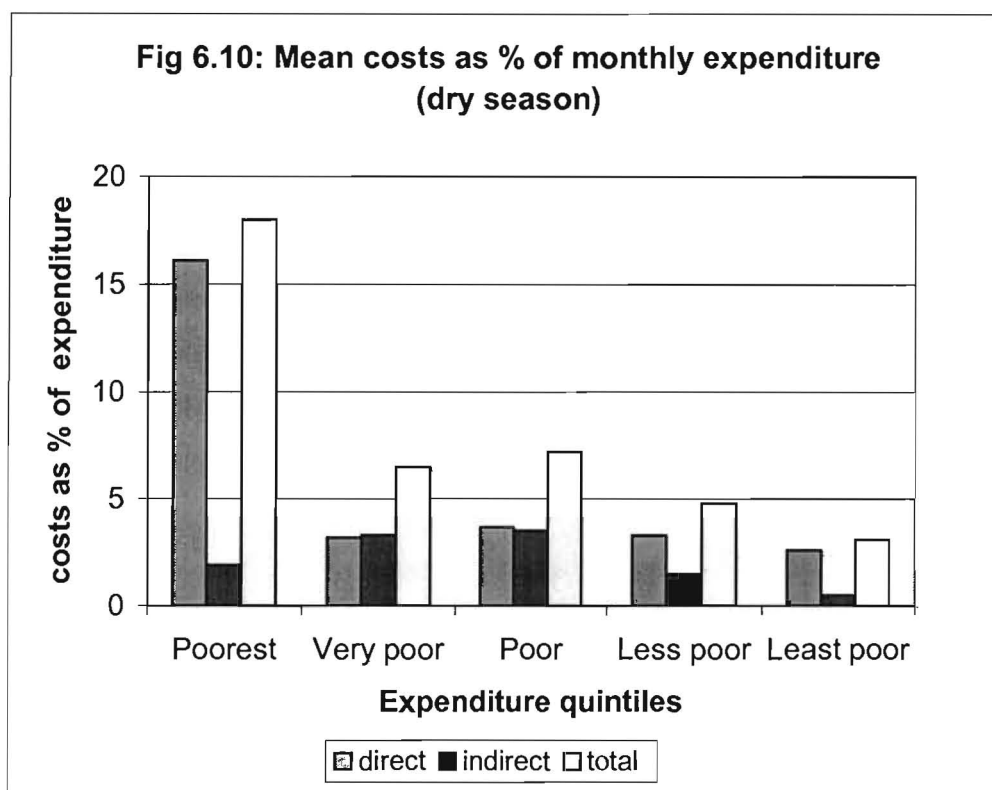
6.6 Total costs of illness

Direct and indirect costs are combined in order to arrive at an estimate of the total costs of illness. The results show high cost burdens for households in all expenditure quintiles.

¹³ These four households recorded illnesses among productive adults who could not conduct their income activities during illness.

The poorest quintile recorded the highest costs in all categories in both seasons (19.1% in the wet season and 18.0% in the dry season). Total cost burdens were higher in the wet season across all quintiles. It is interesting to note that households in the poorest quintile recorded high costs in both seasons (over 10%), while cost burdens among the other quintiles were much lower in the dry season. High cost burdens among the poorest quintile is not surprising considering the low level of expenditure reported in the survey and the high poverty levels in the study setting. Clearly even low levels of spending and income losses due to illness translate to high cost burdens when costs are expressed as proportion of expenditure.





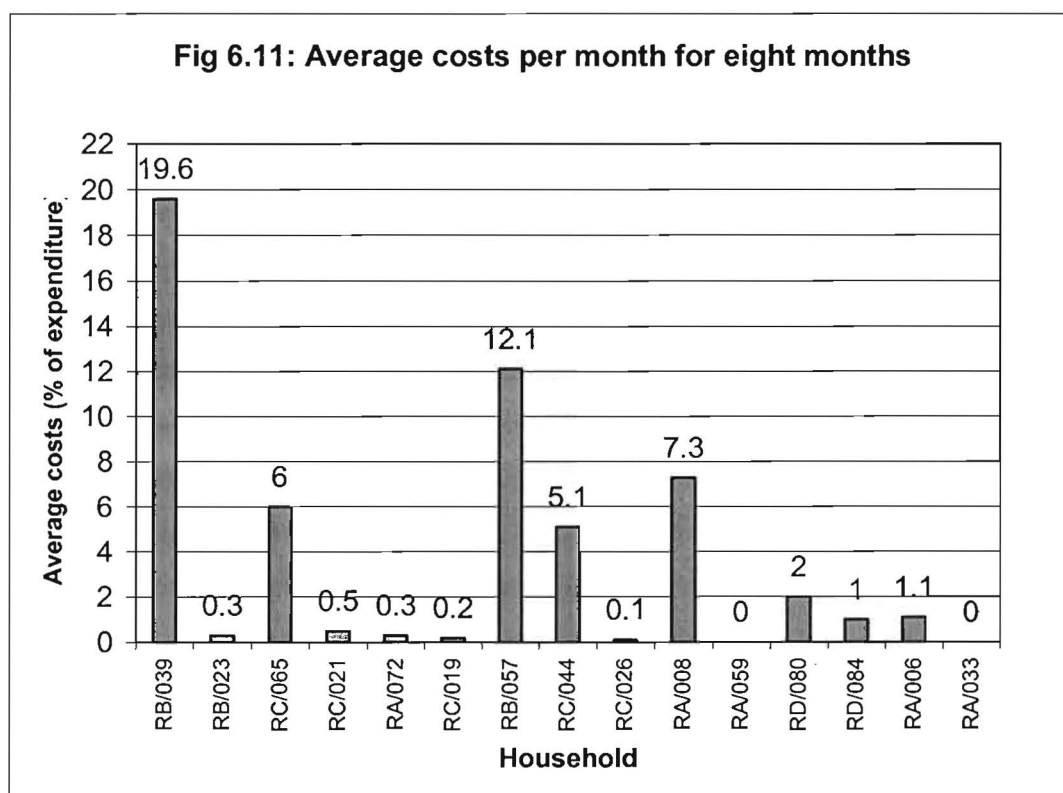
6.6.1 Illness costs among case study households

The case study collected data on direct and indirect costs similar to the survey. Unlike in the survey where income days lost are valued in monetary terms, the case study data only recorded loss of income if illness translated into actual income losses since the aim was to capture the implications of 'actual' illness costs for livelihoods. None of the case study households reported loss of income due to illness. Illness episodes were concentrated among children without income generating roles. The case study findings therefore only present data on direct costs of illness, which is equivalent to the total costs of illness since indirect costs were equal to zero. In fact, only in 19% of all the episodes reported among the key case study households did household members report that an illness affected their daily work and in all cases this referred to non-income generating activities.

Mean cost burdens

The mean and median spending estimated by the survey data are good indicators of financial costs at one point in time. The case study data enriches these findings due to its longitudinal design that makes it possible to capture cost burdens as they occur, increasing the possibility of gathering more accurate data than would be possible in a survey, and thus reducing the bias of under or overestimating cost burdens.

In general households incurred low cost burdens when costs were smoothed over eight months. Average costs are calculated by totalling up spending over eight months and dividing the total cost by eight in order to arrive at a monthly estimate. Figure 6.11 shows average cost burdens as proportion of monthly expenditure for key case study households. The majority of the households incurred average cost burdens below 5%. Only five households incurred average cost burdens above 5%; two of these households (RB/039 and RB/057) had noticeably high average cost burdens above 10%.



6.6.2 Typicality of case study households in terms of cost burdens

A key issue of concern is the typicality of case study households and their potential to speak broadly on the nature of cost burdens at a community level. This section compares the cost burdens reported by case study households with mean and median survey findings as presented in Section 6.4.

The results show that the majority of case study households had an average cost burden below the mean survey estimates when cost burdens were smoothed over eight months. This distribution was similar to that observed in the survey data; a large proportion of households incurred cost burdens below 5% and a small minority faced high cost burdens. Only three households incurred average costs above the mean costs reported in the wet season survey (RA/008; RB/057 and RB/039) while an additional two households had costs above the mean costs reported in the dry season survey (RC/044; RC/065). Overall seven households had average cost burdens above the median levels of both the wet and dry surveys.

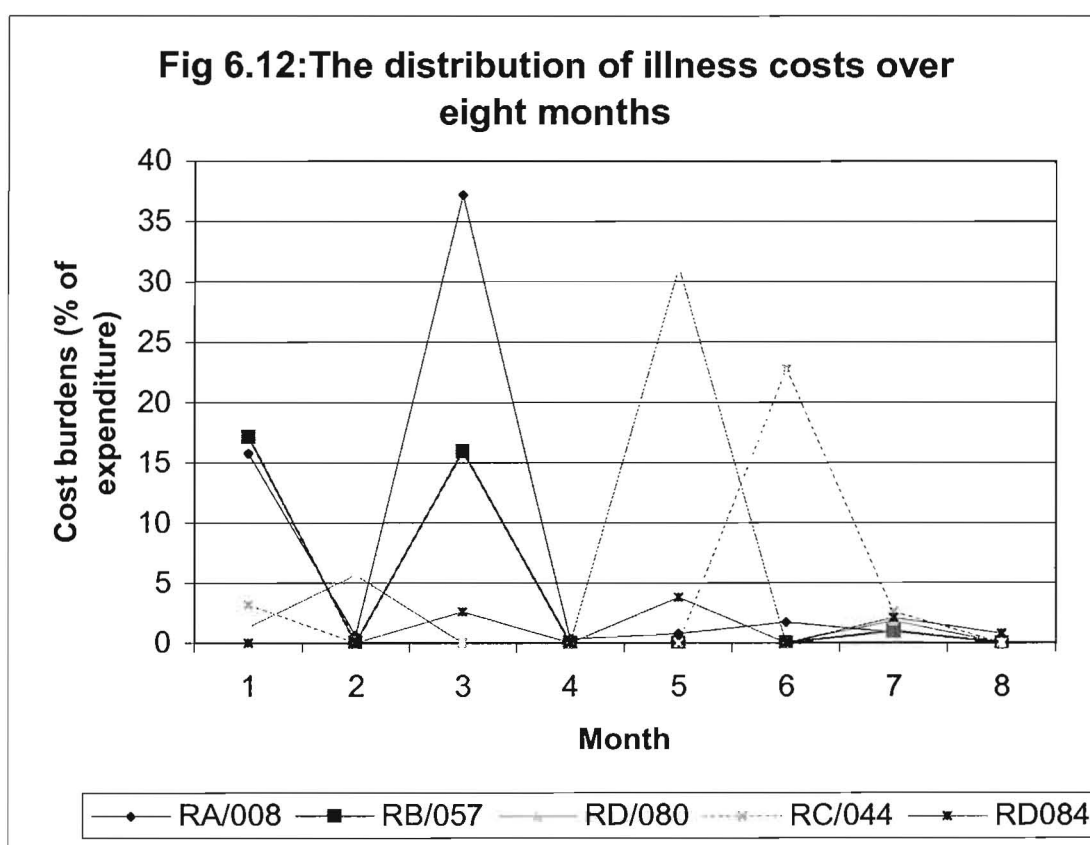
Illness costs are not smooth over time

The case study work revealed two types of additional information with important implications for cost burdens. These factors are considered in more detail below:

- Cost burdens were concentrated within a short period normally a week or two. Households incurred high cost burdens for two or three months and relatively low burdens for other months;
- Some illness costs are more complex and are not easily captured in household surveys.

Although households incurred low average direct cost burdens (similar to survey findings), when cost data is presented on a monthly basis a good number of households incurred costs above the mean survey findings in one or two months over the case study period. Overall eight out of the fifteen key case study households had cost burdens above mean and median survey levels for two months or more during the eight months,

while seven households had cost burdens over 10% of expenditure for at least one month over the case study period. Results showing the distribution of illness costs over eight months are shown in Figure 6.12. For example, RB/057 incurred high costs of 17.2% in the first month and 16% in the third month and relatively low cost burdens in the other months. Similarly RA/008 incurred a high cost burden of 15.8% in month one and 37% in month three while RD/080 incurred high costs of 31.2% in month five and low cost burdens in the other months. A case study describing a household that had very fluctuating cost burdens is presented in Box 6.5.



Box 6.5: 'Highly' fluctuating cost burdens: the case of RB/039

RB/039 is a large extended household comprising of fourteen members. The HHH and his wife rely on farming for their income. There are six young children; three aged under five and three aged between five and ten years. All the children are young, meaning they do not have any source of financial support from external sources. In the baseline surveys, this household fell in the poorest quintile and recorded high illness cost burdens of over 20%. During the eight months of the case study, RB/039 recorded nine illness episodes that occurred among the youngest children. Emily and Neema reported three illness episodes each over the eight months; Baraka reported two episodes; and Dama reported one episode. Because these illness episodes were concentrated in a few months, this household incurred high illness costs in three months of the study and relatively low costs burdens in five months:

- 3 episodes in month one, a cost burden of 136.7%;
- 2 episodes in month two, a cost burden of 23.8%;
- 1 episode in month four, a cost burden of 6.8%;
- 1 episode in month seven, a cost burden of 0.8%.

The cost burdens in the other four months were zero because two illness episodes were reported in the eighth month but were not treated (due to lack of cash) and no illness episodes reported in month three, five and six.

Since these costs were largely concentrated in three months, RB/039 had to adopt coping strategies to finance treatment costs, in addition to adopting strategies to meet their daily needs especially in month one and two (details of coping strategies are discussed in Chapter 8).

The 'unseen' costs of illness

Another key finding from the case study work was that households incurred additional cost burdens that were often higher than those that they reported in the survey or in structured interviews. These 'unseen' costs of illness were reported among households that sought treatment from healers or prayers from religious leaders for quick recovery. Due to the nature of case study work, especially the relationship developed between the researcher and households, it was possible to capture less obvious costs like payment in kind or gifts and sacrifices given to traditional healers in order to exorcise demons. This was a common practice for severe illnesses among children and adults. The rather 'unseen' costs were in all cases higher than actual charges as illustrated in Box 6.6.

Box 6.6: The 'unseen' yet significant costs of illness: the case of RA/035

RA/035 was not one of the 15 case study households whose data is presented in this chapter, but data on treatment seeking and cost burden was collected for six months. This was a polygamous household comprising of the HHH together with his five wives and twenty children. The HHH is a successful farmer who has used the art of crop diversification to ensure that his family has enough to eat throughout the year (he owns other farms outside the study setting where he harvests food from). The livelihood of this household compares to that of RA/008. Most of the children are young and reported seven episodes for the six months when data was collected. In one of the episodes described below, this household sought treatment from healers and incurred high cost burdens in that month:

The thought that Katana (child aged about ten) was sick again caused the HHH to panic because he had used some drugs from the shops but did not recover (he still had a high fever and was vomiting). The HHH decided to take him to the government dispensary because that is where he could be 'examined' to know the cause of the illness. They went to the government dispensary where he was treated but the condition did not improve (charges amounted to KES 150).

Box 6.6 continued

After a few days they decided to seek help from a traditional healer (diviner) to know what the problem was because they thought it was no longer a normal illness. The healer told them that their child had been bewitched by a neighbour who greeted him by hand and is so doing passed him the illness through supernatural powers (charged KES 20). He advised them to seek treatment from another healer (herbalist) who could administer some treatment to remove the witchcraft. The herbalist charged them KES 200 but they only paid KES 100 because that is 'what they had'. The rest was to be paid later.

But the fever did not go away after this treatment and the child could not play with the others. Two days later they decided to try another healer who is popular in the village. Here they were charged KES 100 plus two chickens (a red one and white one) worth KES 200 to be used in the treatment. In addition they were required to take a large cock (KES 150), two eggs (KES 10) to be delivered at a special place in the forest for the ancestors, and one packet of maize flour (KES 53) that was used to make a meal for the healer after the treatment exercise.

They only had money to buy the items and not enough to pay the treatment charges. The payment to the healer was postponed to another date (credit) because they have a good relationship and belong to the same clan. The child felt better but after a few days the fever recurred because the child spent the night at a wedding ceremony within the neighbourhood and he exposed himself to the cold (it is believed that exposure to cold causes malaria). This time they decided to try shop drugs (KES 15) and the fever cleared.

It is worth noting that although the healer charged a relatively small amount (KES 100), the costs of buying the items was four times higher than the charges implying an even higher cost burden for the household. Such costs are difficult to capture in a household survey unless it is carefully planned and designed; potentially underestimating cost burdens.

6.7 Illness cost burdens and 'catastrophic' spending

This section follows from the discussion on the proportion of expenditure that households spent on illness. It looks at different levels of spending and how they are distributed among expenditure quintiles and vulnerability categories in order to demonstrate if cost burdens are potentially catastrophic for livelihoods. The section uses the findings to answer the questions: are malaria costs burdens 'catastrophic'? What proportion of households incurred potentially 'catastrophic' cost burdens?

The concept of 'catastrophic' spending is complex to define and apply to households in a wider community. Various issues arise from the definition of what is likely to be catastrophic. Some of the concerns arising from the concept of catastrophic illness cost burdens are discussed in detail by Russell (2003) and include:

- There is no single identified cut-off point for catastrophic costs. The majority of studies have used a 10% cut off (Russell 2001; 2003; Waters et al. 2004) while others have used much higher levels of 30% (Xu 2003). Recently the WHO has introduced a 40% cut-off of non-food expenditure as indication of capacity to pay (WHO 2004). Yet whether costs are catastrophic or not depends on the context and the household in question.
- For poor households, even a small proportion of spending on illness can have detrimental impact on livelihoods, especially if the household cuts off spending on basic needs like food and education. In contrast high spending by wealthy households might not have significant impact on livelihoods because costs are likely to be financed from money allocated towards leisure activities. Clearly, the implications for health care spending will vary depending on households' socio-economic status, their asset base and ATC.
- Whether costs are catastrophic or not depends on the nature of illness in question. The impact of an illness that strikes once off might have different implications for livelihoods than those arising from recurring illnesses like malaria. In other words the concept of catastrophic costs is tracer specific.

6.7.1 Catastrophic spending among the survey households

Using the definition of 10% cut-off that is commonly found in the literature (Russell 2003; 2001; Waters et al. 2004), Table 6.9 shows the proportion of households that incurred potentially catastrophic total cost burdens. The results indicate that:

- The majority of households spent less than 5% of their monthly income on treatment (56.2% in the wet season and 66.3% in the dry season);
- The proportion of households incurring potentially catastrophic costs was higher in the wet season (30.7%) than in the dry season (24.4%);
- Most of the households that incurred potentially catastrophic costs fell within the two poorest quintiles in both seasons (53.8% of households with costs above 10% in the wet season and 61.9% in the dry season).

Table 6.10: Distribution of total costs across expenditure quintiles

Quintile	Cost burden as % of monthly expenditure				Total
	0-<5%	5-<10%	10-<20%	>=20%	
Wet season					
1	17	7	5	11	40
2	14	4	3	9	30
3	23	6	3	6	38
4	24	2	5	4	35
5	17	3	4	2	26
Total ¹⁴	95 (56.2%)	22 (13.1%)	20 (11.8%)	32 (18.9%)	169 (100%)
Dry season					
1	7	1	5	4	17
2	13	0	2	2	17
3	13	1	4	2	20
4	13	3	0	1	17
5	11	3	0	1	15
Total	57 (66.3%)	8 (9.3%)	11 (12.8%)	10 (11.6%)	86

These results suggest that the livelihoods of 30.7% (n=52) of households reporting illness in the wet season were vulnerable and likely to be impoverished due to

¹⁴ Does not include households whose data on expenditure and or household size was missing. Total number of households that reported illness=187 in wet season and 104 in dry season.

consequences arising from high costs of illness. In the dry season, 24.4% of ill households had their livelihoods at risk of impoverishment. The livelihoods of the remaining households may have been less vulnerable or free from any detrimental impact arising from illness cost burdens. Whether this is the case or not is an issue that cannot be addressed using the survey data. However, the case study data contributes to these findings by looking at how cost burdens varied between vulnerability groups and argues that implications of cost burdens will largely vary from case to case.

6.7.2 Overview of the links between cost burdens and vulnerability

This section explores the main links between cost burdens and vulnerability. It contributes to the above debate on 'catastrophic' burdens by analysing the differences in cost burdens by vulnerability category and argues that whether costs are catastrophic or not will highly depend on household vulnerability status before the illness. This is because a household vulnerability and ATC determines whether implications of illness costs are significant for livelihoods. A discussion on whether cost burdens did actually lead to livelihood impoverishment is left for Chapter 9 which presents a detailed overview of the role of illness cost burdens in livelihood change over eight months. A summary of level of illness costs incurred by households in different vulnerability categories is set out in Table 6.11.

Table 6.11: Average monthly cost burdens across vulnerability categories

Highly vulnerable		Vulnerable		Least vulnerable	
Household	Cost burden	Household	Cost burden	Household	Cost burden
RB/039	19.6%	RC/019	0.2%	RD/080	2%
RB/023	0.3%	RB/057	12.1%	RD/084	1%
RC/065	6%	RC/044	5.1%	RA/006	1.1%
RC/021	0.5%	RC/026	0.1%	RA/033	0%
RA/072	0.3%	RA/008	7.3%		
		RA/059	0%		
Average monthly cost burdens per household in each vulnerability category					
5.4%		4.1%		1.0%	

In general, highly vulnerable households incurred the highest average cost burdens of 5.4%, while least vulnerable households incurred the lowest average cost burdens of 1.0%. This implies that while all case study households were exposed to the same risk of infection the highly vulnerable households suffered the heaviest consequences arising from illness. However, care should be taken when generalizing findings among groups of households because cost burdens and their impact varied from case to case. When cost burdens are assessed on a case-by-case basis, there is no clear relationship between vulnerability category and cost burdens. For example three highly vulnerable households incurred low cost burdens below 1.0% because:

- Treatment seeking behaviour was a key factor influencing cost burdens for all households (Chapter 7);
- Average cost burdens smoothed out costs over eight months, but the majority of households experienced lumpy cost burdens in two or three months over the case study period that triggered risky coping strategies (Chapter 8);
- Household asset base, in particular financial and social assets influenced the level of cost burdens (Chapter 8).

Reflecting on these findings, one might argue that a standard cut-off point is not applicable across households and communities. Whether costs are catastrophic or not

will depend on many factors interacting at the household level, the broader community and institutional level. In a setting where access to work opportunities and cash income is limited, even low levels of spending on illness might have significant implications for livelihoods. Moreover low levels of spending might not necessarily indicate lower levels of need but cost prevention strategies or a sign of desperation that can have more significant impact in the future. Although it is not possible to capture indicators of 'despair' using the data presented in this chapter, this discussion forms the foundation for a more detailed analysis on the factors that mediated livelihood impact with respect to treatment seeking behaviour (Chapter 7), asset endowments and coping strategies (Chapter 8) and the broader context of livelihoods and vulnerability (Chapter 9).

6.8 Summary and conclusions

This chapter has presented a broad overview of data on illness patterns and cost burdens both at a community level (survey data) and at a detailed household level (case study). The chapter has provided a foundation for the more detailed analysis on the role of different factors in mitigating costs burdens and protecting livelihoods (Chapters 7-9). The data presented contributed towards achieving objectives one and two by:

- Estimating the direct and indirect costs of illness (Sections 6.4 and 6.5);
- Establishing the link between vulnerability and cost burdens (Section 6.6);
- Identifying factors that make households vulnerable to illness costs (all sections).

Key data presented in this chapter are: (1) levels of self-reported malaria; (2) treatment seeking patterns; (3) illness costs and vulnerability. This section summarises the key findings arising from these topics.

Self-reported malaria: The proportion of households reporting illness was higher in the wet season than in the dry season. This difference was highly significant. Illnesses were not equally distributed among households (survey) and between months (case study). Malaria was reported more among children than adults. Case study households with young children reported more episodes than those without. Such a pattern is expected in Ganze because the nature of transmission is such that children face a higher risk of

infection, implying that households in the early stages of their lifecycles are likely to experience higher cost burdens than those at later stages with lower number of children (Boxes 6.1 and 6.2).

Malaria was reported more among households in the poorest quintiles although differences across quintiles were not statistically significant. One conclusion that might arise from these findings is that all households are equally vulnerable to malaria infection. However, these results are difficult to interpret because health seeking behaviour and illness perceptions are influenced by complex factors. Some of the possibilities discussed in Section 6.2 argue that under reporting might have occurred in the poorest quintiles especially among households not seeking care. It has been argued that poor households tend to ignore illness as a way of preventing costs and might only report an illness that they perceived as severe (Sauerborn et al. 1996a). Underreporting might have occurred since the survey households are all relatively poor as compared to households in other parts of rural Kenya and even the least poor households are likely to experience difficulties in affording preventive measures that can reduce their risk of infection. Although reported malaria did not vary significantly by expenditure quintiles in this study, the findings are likely to be different among a population that is not 'predominantly' poor.

Treatment seeking patterns: Self-treatment (using drugs from the shops) was the most common source of treatment for acute malaria among both the survey and case study households. Self-treatment is often the first action adopted in response to malaria in many developing countries. The treatment seeking patterns revealed similar patterns between seasons although the use of public dispensary was higher in the dry than in the wet season, a possible indicator of changes in preference of different providers in times of economic difficulties.

Illness cost burdens: The distribution of illness cost burdens (direct and indirect) was highly skewed with a minority of households incurring significantly high cost burdens even within quintiles. The skewness of the data pushed mean costs levels up above the

median. Mean and median cost burdens were significantly higher in the wet season than in the dry season.

Monthly spending on acute illnesses was higher than hospitalisations. Hospitalisation costs may have been lower because the costs were smoothed over an year. However, results from the case study showed that households often incur costs within a 'short' period usually a few days or weeks thus posing significant constraints on budgets. Smoothing hospitalisation costs over 12 months in order to arrive at a monthly estimate has a potential of under-estimating costs and their implications.

Poor households spent significantly larger proportions of their expenditure on illness than the least poor. Mean monthly costs among the poorest households were over 15% in both seasons but much lower for households in other quintiles. For instance, the least poor households incurred cost burdens of only 5% in the wet season and 3% in the dry season.

The case study work revealed that cost burdens are more complex and sometimes difficult to capture in a survey. The case study identified the 'unseen' costs of illness that households incurred in their attempt to seek treatment from healers and religious leaders (see Box 6.6). Given that such costs can be much higher than charges and travel costs, failure to capture them can lead to major underestimates of illness cost burdens.

Catastrophic spending and vulnerability: Using a 10% catastrophic cut-off, the survey data showed that a significant proportion of households were likely to experience livelihood depletion due to high costs of illness (30.7% in the wet season and 24.4% in dry season). The case study went further to provide an overview of the link between illness costs and vulnerability at the onset of research in order to feed back on whether a 10% cut-off is potentially catastrophic. The results showed a clear relationship between cost burdens and vulnerability. On average, highly vulnerable households incurred the highest cost burdens than the least vulnerable. However, the case study cost data varied from case to case. Although broad categories are useful for making generalisations, they

risk masking complex differences between households within the same vulnerability category. The section therefore argued that whether costs are catastrophic or not will depend on many factors that are not presented in this chapter but of which vulnerability is one. Evaluating whether costs are catastrophic or not requires a detailed understanding of the broader context of livelihood change by bringing together the different elements that constrained or facilitated livelihoods development and the role of coping strategies in preventing or mitigating livelihood decline. This information is discussed in detail in Chapters 7 to 9.

CHAPTER SEVEN

HEALTH CARE PROVIDERS AND THEIR IMPACT ON COST BURDENS

7.1 Introduction

This chapter looks at how treatment seeking behaviour and the use of different health care providers influenced cost burdens and in so doing impacted directly or indirectly on livelihoods. The chapter mainly uses findings from the case study households but draws upon data from FGDs where necessary to show how this information compares with what was reported at the community level. The aim of the chapter is to examine how households' perceptions on technical and inter-personal characteristics of health care provision may act as a threat to access and affordability (and in so doing push or prevent households from progressing towards poverty). The chapter focuses on the three main types of health care providers in the study setting namely: shops, private clinics and the dispensary.

Referring to the conceptual framework presented in Chapter 3, this chapter addresses issues at the health system level (Box C) and how this information affects treatment seeking behaviour and cost burdens at the household level (Box A). The chapter is divided into two main sections each addressing a key issue relevant to meeting the second and third objectives:

- Section 7.2 presents an overview of treatment seeking behaviour among the case study households and how it differed across vulnerability categories;
- Section 7.3 begins to consider the strengths and limitations of the different health care providers in terms of how they impacted directly or indirectly on livelihoods.

7.2 Overview of treatment seeking behaviour among case study households

Chapter 6 (Section 6.3) provided an overview of treatment seeking patterns among the survey households. In general, treatment seeking behaviour among case study

households followed similar patterns to those reported in the survey. The results did not show major differences in treatment seeking patterns across vulnerability categories although treatment seeking behaviour differed from case-to case, was often complex and influenced by many factors. The main features of treatment seeking behaviour among case study households are summarised in Table 7.1. Key points to note are:

- Shops were the main source of treatment for all households irrespective of their vulnerability category. If an illness persisted after self-treatment, households would often turn to a provider (public, private or healer) for professional treatment;
- Private clinics were preferred to the dispensary across all households. However, the least vulnerable households used private clinics more consistently;
- The dispensary was less preferred and was mainly used by the vulnerable and highly vulnerable households. Only one least vulnerable household sought treatment from the dispensary (see Box 7.6).

Table 7.1: Main features of treatment seeking behaviour among case study households

Provider/Action	Key factors relevant to vulnerability and cost burdens
No treatment	<ul style="list-style-type: none"> • Only households in the highly vulnerable category failed to treat an illness due to cash shortages.
Number of actions	<ul style="list-style-type: none"> • The majority of individuals adopted only one action to treat an illness episode.
Self treatment: Shop drugs	<ul style="list-style-type: none"> • Self treatment using drugs from the shops was the most common first action. Shops were used by all households irrespective of the vulnerability category. • Least vulnerable households that used drugs from shops did not take another action in response to the same illness, while highly vulnerable households often adopted a second action.
Self treatment: Herbs	<ul style="list-style-type: none"> • Herbs were mainly used among the highly vulnerable. On few occasions, vulnerable households used herbs. None of the least vulnerable households reported using herbs.
Healers	<ul style="list-style-type: none"> • Healers were often used for persisting illnesses and were more common among vulnerable households.
Dispensary	<ul style="list-style-type: none"> • Highly vulnerable households sought treatment from the dispensary more than households in other categories; suggesting good benefit incidence because government subsidies for health care are reaching the poor. • The least vulnerable households did not use the dispensary except on one occasion when one household in this category sought treatment from the dispensary as a second action (first action used the private clinic)
Private	<ul style="list-style-type: none"> • The least vulnerable households used the private clinics in most cases when an illness occurred. • Highly vulnerable households used the private clinics as a last alternative when other responses failed and the illness became serious.

Although treatment seeking behaviour among case study households followed a similar pattern to that of the survey, the case study data was enriching and identified two additional factors that were not captured in the survey and which contribute heavily towards understanding cost burdens and their implications.

- A striking difference between the case study findings and that of the survey is the use of healers. The case study revealed that people sought treatment from healers, mainly as a second action when attempts to treat the illness using bio-medical practices had failed. It is not unusual for households to withhold information about their visits to the healers. As already mentioned in Section 4.3, the use of healers in Ganze is conducted in secrecy due to religious factors that associate the practice with 'evil'.
- Treatment seeking behaviour was often more complex to understand and it required conducting detailed qualitative interviews. Spending significant time in households and visiting them as illnesses unfolded revealed the highly complex nature of treatment seeking; a level of complexity that was not and cannot be captured in a survey (see Box 7.1 for example).

Box 7.1: Complexity of treatment seeking behaviour: the case of RA/008

RA/008 reported two cases of malaria in the month of August 2004 (a son to the HSH and the mother). The mother was the first to fall ill. The son's wife saw the situation her mother in law was in and thought she must be suffering; she was ill, shivering and her body was hot (she had a high fever). She decided to buy her mother in law some drugs from the shop (paracetamol and other pain killers) because she knew her mother in law had malaria and thought that she did not have money to go to hospital. She spent KES 17 on three different types of drugs. Later in the day, the sick person (mother in law) also sent for some drugs because she was not getting any better (could not tell the names but spent KES 40), which she took together with the ones that the daughter in law had already bought. All drugs were taken on the same day. Later that evening the son (husband to the woman who already bought drugs for the mother) bought her more drugs (*falcidin*) but since she had already taken the drugs bought by herself and the daughter in law; she refused to take the *falcidin* because she was afraid of overdosing herself.

That evening the son who had bought drugs for his mother fell ill. For the first action he took some drugs (*falcidin*) that he had previously bought for his mother because he thought he had malaria. Although he was still ill by the time he was buying these drugs, he decided to buy drugs for the mother because she was shivering a lot and he did not have enough money to buy drugs for both of them. Two days later, he was still unwell and his parents advised him to seek treatment from a healer because he was not getting better and had developed rashes, which was an indication that the illness was not just an ordinary fever. He went to the healer but things got worse, he did not sleep for the whole night after receiving treatment; the fever worsened. The next day he woke up still unwell and decided to go to the dispensary because he heard that treatment was free (no more user fees, he was only required to pay KES 10 for consultation.) and he thought that the doctors would do some tests to find out what was wrong with him. He would have gone to the private clinic but he did not have money and he had a debt at the clinic (his two children had received treatment the previous month and he had not yet paid the debt). So he went to the dispensary and found that it was true (no fees). Although he waited the whole day he was given some drugs and he recovered.

Choosing between different health care providers

Although there were no noticeable differences in treatment seeking behaviour across vulnerability categories, the findings from the case study revealed that reasons for choosing one provider over another clearly differed by households' vulnerability. People had different reasons for choosing one provider over the other but a general factor that applied across all types of providers was the availability of money within the household. Other reasons influencing provider choice varied between providers and vulnerability categories. Specific reasons given for choosing between the private clinics and the dispensary were:

- Credit from private providers;
- Quality of treatment;
- Past experiences (good or bad);
- Severity of illness;
- Relationships between providers and households.

A summary on how these factors influenced choice of providers among the case study households and which are relevant to cost burdens and livelihood change is presented in Box 7.2. These factors form the foundation for the next section that begins to consider the role of health care providers in aggravating cost burdens and potentially impacting directly or indirectly on livelihoods.

Box 7.2: Choosing different health care providers: Key factors relevant to cost burdens and livelihood change

- While highly vulnerable and vulnerable households opted to use shop drugs because of lack of money, the least vulnerable households used shops because an illness episode was not serious enough to require professional treatment.
- Perceived poor quality of care and lack of drugs at the dispensary was a key factor that prevented households from seeking treatment from the dispensary in all vulnerability categories.
- Perceived good quality services at the private clinics was a key factor that promoted households to use them despite their charges being higher than other providers.
- The credit system operated by private providers was a major factor that attracted the vulnerable and least vulnerable households.

7.3 Health care service delivery and its role in protecting the poor and vulnerable

Health care providers can influence household vulnerability through their ability to facilitate or hinder asset accumulation. Although it is expected that cost burdens will vary between different health care providers, results from the case study data revealed that the type of treatment sought had important implications for coping strategies, household budgets and thus had the potential to influence livelihoods. In general, the low costs incurred at the shops enabled households to access 'some care' without posing large financial strains on daily budgets. The low costs could easily be financed through cash that was readily available for most of the households. In contrast higher costs incurred at the government dispensary and private clinics required households to adopt coping strategies. The role of the three main types of health care providers in the area is examined in more detail here to show how their delivery and management had the potential to enable or disable livelihood development.

7.3.1 Shops: a key resource for the poor and the least poor

Studies on treatment seeking patterns for malaria in the study district and in other parts of Africa have shown that households use shops as a first action towards treatment of self reported malaria (see Section 4.3.2 for a description of shops). Similar findings were recorded in this study for both surveys and the case study work (Chapter 6). Shops are often preferred because they are cheap and convenient to households due to proximity. In response to this, the Kenyan government, through the Division of Malaria Control launched a national programme that trains shopkeepers on how to administer AMs to people presenting themselves with fever. This programme was shown to be effective in reducing inappropriate use of AMs in the study district (Marsh et al. 1999). In addition to being the most common source of treatment, the case study work revealed that shops played a major role in managing cost burdens and also formed part of social networks that assisted households to meet illness costs and other basic needs (a more detailed discussion of shops as social networks is presented in Chapter 8).

All households benefited from this important resource because they could easily buy drugs without adopting any cost management strategy. This was particularly evident among poor and vulnerable households, and those with young children who suffered recurring episodes over the eight months. For least vulnerable households, shops were an important resource because they could buy drugs to treat mild illnesses or when they wanted an alternative source of treatment because they had accumulated high debts with the private providers and did not have ready cash to pay at the dispensary. Considering the contextual factors and households' income levels presented in Chapter 4, the low cost of shop drugs enabled households to have some extra cash to purchase food and other basic needs, which would otherwise have been impossible had they sought treatment from the formal sector. The shops thus acted as important safety nets for both the poor and the least poor because:

- They could easily afford the cost of drugs and thus did not have to adopt risky payment strategies. In the absence of shops, most of the poor and vulnerable households would have not have taken any action towards illness due to

affordability factors or would have had to adopt coping strategies that impacted negatively on their asset base;

- Because households already had relationships with specific shopkeepers through their daily purchase for food items they could easily get drugs on credit in the few cases when they suffered cash shortages;
- For mild illnesses, the use of the formal sector would require large amounts of money which in most cases was above the budget for the highly and vulnerable households;
- Since most shops are located within close proximity to the households and business hours are flexible, households could easily access them even at night when the private clinics and government dispensary were closed.

Although the shops mitigated or prevented livelihoods from decline, this important resource suffered from two major limitations:

- Shops could only be used for mild or less severe illnesses. For severe episodes households had to turn to other providers and this would mean paying twice. Only on very few occasions did households adopt two actions to treat an illness (either because they did not have additional money or they recovered) but nevertheless this is an important limitation of shops as a resource in this community;
- Shops suffered from lack of quality control and potential dangers of self-treating using the wrong drugs or incorrect dosage. However these factors were not raised as a concern in either the FGDs or among the case study households visited over the eight months. But the fact that quality was not an issue of concern for households does not necessarily mean that this sector does well in terms of providing households with good quality drugs and advice on how to administer them. Perhaps the issue of quality did not arise because the shops were the 'only' health care providers available for the majority of households due to affordability barriers.

Nevertheless the shops protected livelihoods either directly or indirectly for both the poor and least poor as illustrated by the case studies in Boxes 7.3-7.5.

Box 7.3: Shops reduce cost burdens and enable asset accumulation: The case of RA/008

RA/008 was a vulnerable household, a large extended family with a high dependency ratio comprising mainly of children under the age of five (see Table 5.1 for details). This household reported the highest mean number of illness episodes per month.

In the first month, four children aged below five years suffered 'serious malaria'. The parents decided to take them to a private clinic because the illnesses were serious and none of them had money in the house. Because they were well known to the private provider and always sought treatment from this clinic whenever an illness got serious, they could easily receive treatment on credit. They all took the children to the private clinic (different days in the month) where they were treated and each charged KES 200, adding up to total of KES 800. This money was paid at the end of the month when the men (father to the children) came home to bring their monthly remittance. Due to the high charges at the private clinic, RA/008 reported a high cost burden of 15.2% of expenditure in that month.

In the third month, the HHH and a working son fell ill; the son reported a high fever which he suspected to be malaria while the mother said that the bones were aching and she thought she was suffering from 'malaria of the bones'. The son sought treatment at the same private clinic for similar reasons; the illness was serious and they could get treated on credit. For this treatment he incurred a cost of KES 1450. He borrowed KES 1000 from his brother which he used to pay the provider (KES 950) and left a debt of 500 that he was to pay later. Later this household sold a goat to clear the debt at the clinic.

The HHH decided to seek treatment from another private clinic (different from the one the household was used to) because it was a new clinic in the area and he heard that the doctor was offering good treatment and many drugs. He was treated and charged KES 650, which he already had because the previous day he had sold two trees at KES 1000. During this month the household incurred high cost burdens of 37.2% of expenditure; the highest reported cost burdens over the research period.

Box 7.3 Continued

In month five and six, RA/008 recorded the highest number of 12 illness episodes over the case study period. In these two months, they decided to use the shops for various reasons; the main ones being lack of adequate cash to go to the formal providers and they did not want to accumulate more debts with the private clinics.

During these two months the household spent a relatively low amount of money on treatment ranging from KES 4 to KES 48 for various trips made to the shops. If they were to take the children to the private clinic this time, each visit would have cost them about KES 200, which would have translated to KES 2400. Since the drugs from the shops were cheap, RA/008 could manage to pay for the drugs cash except on one occasion when they took the drugs on credit because the child's father was away and the mother only had enough money to buy flour for that day. During those two months, this household incurred low cost burdens of 0.8% in month five and 1.7% in month six despite the high number of illnesses. The low level of costs protected this household from accumulated debts, which was mainly the case when they sought treatment from private providers (see Figure 6.12).

During these two months, RA/008 had a few savings that they used to buy a small radio and a bicycle. This was not likely to be possible had they incurred high cost burdens in these months and accumulated debts at the private clinic.

Box 7.4: Shops: the 'only' health care resource available for RC/026

RC/026 is one of the households that recorded a large decline in their livelihoods and by the end of the research this household could qualify to be classified as the most poor and vulnerable among the 15 key case studies (see Chapter 9).

Over the eight months of case study work, RC/026 recorded a total of ten illness episodes but only managed to use the health sector for one episode that became serious and could not be ignored. The other nine episodes were treated using herbs or were left unattended until they recovered (*during one of our visits to this household we found one of the school going children ill in bed. He had been ill for three days*). The mother said that he was suffering from fever and it was getting serious, so he had not gone to school for two days. She had tried to borrow some drugs from other relatives within the homestead (as they normally did in case of serious illness) but they did not have. So she decided to wait for the illness to go away but it did not and she had to come up with a solution. On the day of the interview, the mother decided to borrow KES 5 from a relative so that she could buy some drugs. She went to the shop and wanted to buy *falcidin* but she was told that it cost was KES 8, which she did not have. She told the shopkeeper that the child was serious and he agreed to give her the drugs with the KES 5 but she would take the balance once she got it.

She commented, "*I would have taken the child to the dispensary but I did not have the required KES 10...if I got the KES 10, I would still take him to the hospital because he is still unwell, but I do not have money, even a single shilling.*" In this situation the shop was the only alternative for RC/026 and because the child recovered after taking the drugs, the shops prevented this household from incurring additional costs that would have possibly arisen had they continued to ignore the illness or had they gone to the formal health sector.

Even the more wealthy households with young children benefited from this important resource indirectly by reducing cost burdens and releasing cash for use on other needs like food or to buy a few assets for those with less strained budgets. The case of RD/084 illustrates how this wealthy household used the shops for mild illnesses making resources available for other things including a few 'luxuries'.

Box 7.5: The least vulnerable benefit indirectly from the shops: The case of RD/084

RD/084 was one of the few 'wealthy' households in the area. This household was classified as least vulnerable and recorded the highest livelihood development because the HHH, who is employed by the government received a salary increase of 80% that enabled the household to accumulate assets (see Chapter 9).

The livelihood of RD/084 was enabled to some extent by the shops. Normally the HHH bought *Falcidin* for the children and *Fansidar* for himself and his wife to treat less serious illnesses. But for serious illnesses they used a private clinic that belonged to a relative. This household reported 13 illnesses over the eight months. In the third month, they went to the shops three times to buy drugs for the HHH and the children. For these three visits to the shops, they spent KES 250 and incurred a cost burden of 2.6% of expenditure. They paid for the drugs using cash because the illness took place the first week of the month when the HHH had just received his monthly salary. In the fifth month, one of the children fell ill. Because of his condition he decided to take him to the private doctor. He was treated but did not recover and later had to go to the dispensary (see Box 7.6). They incurred a cost burden of KES 200 at the private provider and KES 100 at the dispensary. At the private clinic he was treated on credit because it was a 'bad' time in the month. In that month cost burdens amounted to 3.8% of expenditure.

Box 7.5: continued

In the seventh month, the household visited the private clinic twice. The newborn child was ill and they thought she was too young to take drugs from the shops. During this month they incurred a cost burden of 2.1% but the actual cost was higher than that because he did not pay the whole amount charged at the private provider. In the eighth month they visited the shops twice and incurred a cost burden of KES 45, amounting to 0.8% of the monthly expenditure.

During one of the interviews the HHH commented “...it is good now I can buy drugs from the shops [because he has extra money after salary increase]. Before I used to go to the private clinic every time we got ill...The private doctor would treat us on credit and I would pay at the end of the month...now I do not do that unless it is very necessary...I buy drugs from the shop and I do not pay that much money. Things would be hard for me now with the baby and the construction of the new house.”

7.3.2 The government dispensary: its potential and limitations

In the Kenyan health care system, a dispensary is the lowest tier in the hierarchy of service provision. Because of its relatively low charges compared to other government facilities, a dispensary is supposed to make basic health care accessible to the poor, by reducing access barriers and ensuring that people can get treatment for basic ailments at a lower costs instead of presenting themselves at higher levels of care where they pay more for treatment. In other words, a dispensary is supposed to be a resource that benefits the poor and protects them from high costs of illness by providing services at a cheaper price.

However, the results from the case study showed that the dispensary did not necessarily protect the poor from high cost burdens. Households used the dispensary less often than the private clinics. Although households preferred to use private clinics, the availability of formal health care services at a cheaper price was important because there was an

alternative option to seek treatment once an illness persisted. On a few occasions some households used the dispensary when everything else had failed and the results were successful (RD/084 and RA/008), implying that the dispensary has the potential to protect households. A case study illustrating the potential of the dispensary in protecting households from high cost burdens is illustrated in Box 7.6.

Box 7.6: The potential of the government dispensary: the case of RD/084

Despite being 'a small rich family' RD/084 at one point gave up on private clinics and attempted seeking treatment from the dispensary for an illness that had persisted despite being treated at a private clinic.

During the fourth month of the study, one of the children (Jumaa) was reported to be suffering from malaria. His mother decided to take the child for treatment at a private clinic because the private provider is her uncle and that is where they usually go when an illness is serious.

At the private clinic, the child was treated but after two days his condition had not improved (charged KES 200 which they were to pay later-credit). On realising that the child was not improving despite taking the drugs given at the private clinic, the HHH decided to take the child to the dispensary. He took with him the drugs that had been issued at the private clinic because he had noticed that they did not contain any AMs and he knew that his child was suffering from malaria (the child had a high fever).

He was angry that the private doctor (who is his wife's uncle) could fail to give the child AMs despite the high fever. At the dispensary, he gave the drugs to the nurse and asked him to confirm if the drugs he had been issued at the private clinic contained any AMs. The nurse confirmed that there were no AMs. He treated the child and gave him anti-malaria tablets and one injection. The next day the child was fine and he was happy that the dispensary had offered the 'right' treatment for his child.

Except for RD/084 and RA/008, all other experiences reported by case study households about the dispensary gave an indication of a health facility that excluded people or made them exclude themselves by making them feel poor and helpless. As a result the dispensary failed to offer protection to either the poor or the least vulnerable and contributed to high cost burdens by driving people towards private providers often at a higher cost. Even when the charges (user fees) were eliminated and services at the dispensary provided for free, households preferred to go to the private clinics. The weaknesses in the dispensary undermined the potential of the removal of fees to provide a safety net for the poor and vulnerable. Inter-related deficiencies in the dispensary are listed below and each is subsequently discussed in more detail:

- Rude staff who do not have the interests of patients at heart;
- Low trust in technical quality of care;
- Doctors who do not spend time with the patients;
- People wait too long (overcrowding);
- Shortage of clinical staff.

Rude staff

A common factor that arose from all FGDs and in-depth discussions with case study households is that the staff at the dispensary are rude. They use abusive language, teasing clients about their 'bad appearance, dirty clothes' and poverty. This led many people in the community to exclude themselves from seeking treatment at the dispensary; sometimes preferring to stay at home and suffer the consequences of illness rather than face the rude staff.

"I do not go to the dispensary because the staff there abuse people...they use abusive language when they attend to patients...that is why I will go to the private. Although it is expensive the doctor there is good." (RC/021)

"I have not been to the dispensary for long because I am saved (religious)...but even if I was not saved I would not go there. Those people there are rude...they tell people "mdazolea bule sana ninwi" [meaning you people like free things]. You think this

treatment is free like the relief food you got the other day?" (RA/039-not key case study household)

"I go there not because I want to, but because I have nowhere else to go...the nurse abuses people and tells them that they go to the hospital when they are not sick and they do not put on good clothes...they say that we are dirty and we will infect them with our diseases and they refuse to serve people and tell them to go to the private clinics....The other day I went there with my child and I was not treated. I had to buy drugs from the shops because the temperature had risen...and so we slept hungry." (RC/044)

In addition, people reported that the staff do not have patients' interest at heart, as indicated by late opening in the morning, inappropriately long tea and lunch breaks, and prioritisation of such breaks over patients' well-being.

"Last month a patient suffering from homa [fever] died because the dispensary nurse could not attend to him because he was going for lunch... if the community members were asked to vote, none of them [staff] would survive because people do not like them." (RB/057)

"When you go there you stay from morning till evening without any treatment because the staff come late (10.00 am). This makes people leave the dispensary and go to the private clinic, because even if you are sick and you go there you do not get any treatment at dispensary." (RB/045)

The relationship between the staff and households was so poor that at one point over the case study period, the community had the dispensary closed. They felt that the main staff member at the dispensary was exploiting them:

"She opens late and then goes for lunch very early, leaving people waiting for her till evening. In fact this behaviour made the district officer order the closing down of the

dispensary yesterday, while he looks for other doctors to work there...I heard that people who went there today were turned down until this problem is solved.” (RC/021)

Because of the rude staff, even some highly vulnerable households could not use the government dispensary irrespective of the low cost. This led to high cost burdens that would have been lower had they sort treatment from the dispensary (for example RB/039 and RC/065). Most of the case study households had similar concerns and the FGDs raised similar issues:

“Although the public is cheap, instead of treating the sick person, they are the ones who mistreat people...you have given her the book by hand, she will instead throw it to you as if you are a dog and you leave.” (Young women, Malomani, 24/01/03)

The rudeness of health personnel and its impact on people’s self esteem is best illustrated by a case of a man who shared his experience with the dispensary system during one of the FGDs conducted in February 2003. This case is presented in Box 7.7.

Box 7.7 Rudeness of health personnel: a respondent’s frustrating experience

“Recently, my wife went to the clinic and I had sent some money home but they bought food and here she was sick (pregnancy related problems). She had to go to the hospital. On arrival at the hospital the doctor wrote a bit and asked if she had KES 80 and because she did not have, she could not get treatment. She had bought flour...she was asked how many children do you have? She answered nine and the one she was carrying was the 10th. The doctor told her that ‘you giriana women are very stupid. How can you agree to be made pregnant all those times? Now see how weak you are?’ ...In the end she decided to go back home. When I came home, she told me what had happened and even though I had the money to pay for the hospital bills, she refused to go because of what she had gone through there. I had to look for herbs and that same day the ‘water’ started coming out. She gave birth after three days. That is why I have said before that the doctors also contribute to our problems, making a small thing look huge. Someone can even commit suicide when you are abused because you have nothing to pay. God came to our rescue because the doctor is not God.”

Low levels of trust in perceived 'technical' quality of care

Another key factor that prevented people from using the dispensary is the quality of care. There was wide spread perceptions that the drugs given at the dispensary are not good, are less effective and no tests were done to establish the cause of illness. People reported that one would be issued with drugs not knowing what they were suffering from. In some cases, there were concerns that patients were issued with the wrong dosage because the doctor did not know what drugs to give them:

"The same half [referring to a tablet] can be given to the old person or one in full, it depends on the doctor. There is nothing much the sick person can do and that is why she has gone to the hospital." (Young woman, Vilwakwe, 23/01/03)

"They listen to you explain what you feel and they decide according to their understanding what drugs to give you-aspirin." (Old woman, Vilwakwe, 23/01/03)

"Yes, one is issued with the medicine without knowing what one is suffering from. It is just the same like going to the healers who also give medicine without the knowledge of the particular disease one is suffering from." (Young man, Malomani, 24/01/03)

For these reasons, all case study households preferred to use the private clinics or the shops. The dispensary was always seen as a last resort used when households were desperate either because they had tried everything else and it had failed or they could not go anywhere else because of cash limitations. The low trust in the quality of services provided at the dispensary and how it affected treatment costs and livelihoods among the vulnerable households is illustrated using one of the many cases in Box 7.8.

Box 7.8: The weakness of the dispensary inflicts high costs: The case of RB/039

RB/039 had very bad experiences with the dispensary in the past (before the study started). One of the children had been treated there and later died on the same day, while another one had died while on the queue (see Box 5.2). Due to this past experience RB/039 tried to avoid the dispensary as much as possible and only used it when they had exhausted all possibilities. Over the case study work, three children (all aged under five) in this highly vulnerable household suffered from malaria. In the first month, one of them was treated at home using shop drugs that cost KES 10; one was not treated because the illness was not serious; while the third one was treated at many providers because *“the illness was serious and the child was almost dying.”*

For the first action, the HHH took the child to the dispensary, but when he got there he found many people waiting and when his turn came he was told that the child was serious, there were no drugs and he had to go the Kilifi district hospital or the private clinic. He chose the district hospital because the child was serious and it was getting late.

The child was hospitalised for one week and the household spent KES 1200 including transport and food. The charges at the district hospital amounted to KES 500. In order to meet these costs, the household sold some maize (owns a farm outside the study area and had harvested enough maize in the year 2003). But the child was discharged before gaining full recovery and although her health had improved greatly, the HHH decided to take her to a private clinic for further treatment *“to avoid losing her like the others”*. Here the child was treated and recovered. The total cost of treatment amounted to KES 1600 which they financed through credit and the sale of a goat.

Because of their past experiences at the government dispensary (waited but ended up not getting treatment) this household opted to seek treatment from private providers for the remaining months over the case study work because: *“It is fast and one has time to do other things. At the dispensary you wait all day and go away without treatment and then your child dies.”*

Box 7.8 continued

This household used the private clinic four times over the case study period due to the weaknesses of the dispensary and only went back to the dispensary when the district officer intervened following claims by the community that the staff at the dispensary were not attending to the patients but found that things were still the same. Due to continuous use of private clinics, RB/039 recorded the highest average cost burden of 19.7% with very high costs in some months exceeding 100% (month three). If the dispensary did not suffer from the many deficiencies, this household would have incurred lower cost burdens as evident from their various attempts to check if things had improved at the dispensary.

People wait too long at the dispensary

Long queues together with few numbers of staff were other factors that prevented households from seeking treatment from the dispensary. There were long queues and people had to wait the whole day only to go home without treatment. A closely related factor is that the dispensary suffered from lack of staff, which made the waiting times much longer. The dispensary only had one nurse who served all patients regardless of their needs. The long queues often led to delay in getting treatment, risking the danger of illnesses becoming more serious and causing potentially higher cost burdens and drove people towards other sources of treatment. Sometimes households felt that the problem was not with the nurse alone. There were many people to attend to and the nurse could not manage to see them all in one day:

“Sometimes you can go there for two consecutive days and you end up going home without treatment. The place is over crowded and the nurse is slow.” (RC/044)

“To get treatment is very hard, there are many people and the nurses are few. They can not attend to all patients who go in a day.” (RC/019)

For these reasons, households sought treatment from elsewhere incurring additional cost burdens that triggered coping strategies as illustrated by the case of RC/063 (Box 7.9).

Box 7.9: Long queues lead to higher cost burdens: The case of RC/063

RC/063 was not a key case study household, but was an average household that had one income earner with a regular income (not permanent). Their livelihood situation compared to that of RC/019. Two children got ill at one time; the mother said they suffered from “*homa ya malaria*” meaning malaria related fever. She took them to the dispensary but when she got there, the queue was long and they had to go home without treatment. The next day, she woke up very early with the hope that she would be among the first ones to see the doctor, but she found that many people got there before her. She went home without treatment a second day. That night one of the children got worse.

The following morning she woke up early and instead of going to the dispensary, she went to Kilifi district hospital because she knew there she would get treatment even if it was late in the night and the husband works in Kilifi town so there was a place to sleep. Both the children were hospitalised for one week and the household paid KES 500 for each one of them (a total of KES 1000) and incurred a transport cost of KES 160. The husband borrowed this money from his colleagues at work and that month they incurred a cost burden of 20% of expenditure. But this household felt that the situation at the dispensary was unavoidable because there was only one nurse serving the people... “*The same nurse is the one to attend to patients, pregnant mothers, children, dress the wounds, give injections, do everything.*”

Because of the high cost burden incurred in that month, this household did not manage to clear their debts at the shop (they normally took food stuff on credit and paid at the end of the month when the husband got his wages) and they had to limit what they could take the following month until they had cleared the accumulated debt.

Doctors do not spend time with the patient

Closely related to long waiting times was the fact that the doctor spent too little time with the patients. People wanted to have time to talk to the doctor, to tell them about their problems and to be told what their health problem was. This service was not available from the dispensary mainly because there were too many people to be attended to or the staff were being rude and did not want to spend time with the patients:

At the dispensary, the nurse might not touch your child...they just ask how the child is feeling instead of them looking at the child. How can I know what kind of fever my child is suffering from when I do not know anything?" (Young woman, Vilwakwe, 23/01/03)

"In fact people doubt the drugs at the dispensary because they are not effective as compared to the private clinics. In the private clinic you take the drugs and he tells you to go the following day. When you go he has to test you. When people take drugs and they are told they are improving they have faith in that provider" (Young man, Mwaeba, 29/01/04).

Because of the shortcomings in the dispensary, the majority of households viewed the private clinic as the only source of formal treatment in the area and preferred to pay more for better quality, good services and doctors who attend to people well.

7.3.3 Private clinics: Good quality, credit facilities and flexible payment terms attract households

Although private clinics are expensive as compared to other types of treatment, households preferred to use them. They incurred high cost burdens but other factors outweighed these costs. The reasons that attracted households to private clinics include:

- Private clinics offered credit with flexible payment terms;
- In some occasions they can receive treatment in kind;
- There was high trust in the perceived quality of care;
- The doctors were good and treated people nicely;

- It was fast.

Some of these factors are discussed in more detail below.

Private clinics offered credit and flexible payment terms

A key factor that attracted households to the private clinics is that they could get treatment on credit and pay later when they could afford to squeeze the costs within their budgets. For large sums of money, payment was spread over time depending on the agreement between the doctor and the patient. Since these doctors come from the community, they knew households well in terms of their socio-economic status and ability to repay debts. But not all households benefited from this service. The poorest households were excluded because they were regarded as too 'poor' to pay. In extreme circumstances (for serious illness) the private clinics would give credit to the poor, but again this depended on the strength of the household's social networks that would guarantee payment if the poor households failed to pay (Chapter 8).

"We could not afford to go to the dispensary [because a large proportion of HHH salary goes towards loan repayment], instead we go to the private and get treatment on credit although it is expensive but because he will treat us without the money we do not mind paying the large amount...at the dispensary they want you to pay there but at the clinic they will wait until my husband gets his salary." (RD/080)

"If the condition of the child is not pleasing, he admits the child [clinic has two beds for serious cases] till he gets better then. But the child will not be denied treatment. If you talk to him well he gives you credit provided you have promised to pay him, he has no problem. I hear that he has no wasi wasi [worries] at all provided that he knows you and you promise to pay him, then he will treat your child, not only children, even adults." (Old woman, Tsangalaweni, 14/01/03)

In general nine out of the fifteen key case study households were treated on credit by private providers at least once over the eight months of case study work. This included

all the least vulnerable households that reported illness (RD/080, RA/006, RD/084), three vulnerable households (RA/008, RC/044, RB/057) and three highly vulnerable households (RB/039, RC/065 and RC/021).

Payment in kind

Closely related to credit is the fact that households could pay the doctor in kind. The results from FGDs revealed that people used livestock as a form of payment. Paying in kind makes it easier for people when they do not have money and cannot readily sell their asset because of a limited market or bad pricing for the animals. Although this payment strategy was reported in the FGDs none of the case study households reported having paid in kind over the eight months.

“In fact there is one person whose child was treated in the nearby clinic [private] and that person took a chicken to him and it happens in most cases when people are unable to pay for treatment cost then chickens are taken to him instead of cash.” (Young man, Tsangalaweni, 14/01/03)

“He does not refuse even chickens. He is going to sell the chicken at his own price that we do not know. So if you do not have money he will just take the chickens depending on the amount of money you owe him.” (Old man, Mwaeba, 16/01/04)

Higher trust in the perceived quality of services

A key factor that attracted case study households and the wider community towards the private clinics was the perception that the care received was of good quality, although on one occasion a household expressed concern about the quality of drugs given to his child at the private clinic (Box 7.6). People preferred to pay more for better quality than going to the dispensary first only to end up going to the private clinic later when the illness persisted. In addition, people wanted to know what they were suffering from and this was not possible at the dispensary.

“I do not go to the dispensary because the drugs there are not good. At the private clinic you get many drugs and they are good. You recover quickly... you are told to go back for other injections on the following day.... If I go to the dispensary I end up going to the private clinic anyway, so I do not go” (RB/045-not key case study household).

“In fact a private hospital was brought near us, where they even admit patients depending on the amount of money even if it is night time, they are being asked and told that your child has a certain type of fever, if it is malaria or what, they are told and given the injections. And people are happy about it...they go there.” (Old woman, Tsangalaweni, 14/01/03)

“When you go to the government hospital you are just being given drugs without being examined. But in the private you pay more but you get cured as early as possible. At the government you pay less but you are just given the drugs, you do not know what you are suffering from. “ (Young woman, Mwaeba, 16/01/04)

Although the private clinics assisted people in spreading payments, households that did use them consistently incurred the highest average cost burdens over eight months (RB/039, RB/057 and RA/008). This shows that this strategy might not be an alternative for the very poor but in a setting where the public health care system suffers from many limitations, these clinics remain the only option for many households regardless of their vulnerability status. The high costs incurred at the private clinics (despite the credit and flexible payments) still impacted negatively on livelihoods (see Chapters 8 and 9).

7.4 Summary and conclusions

This chapter has presented results on the various reasons why households use different kinds of providers and the potential implications this has on the level of costs incurred. The chapter has concentrated on three main types of providers operating in the study area: shops, government dispensary and the private clinics. The information presented

contributes towards understanding the factors that make households vulnerable (objective two). The chapter has looked at two main topics:

- Treatment seeking behaviour among case study households;
- The way health care providers potentially impact on livelihoods through their strengths and limitations.

Treatment seeking behaviour: The use of shops remained the most common source of treatment for both the highly and the least vulnerable. Formal health care services, especially private clinics were mainly used by the least vulnerable. Most of the highly vulnerable households used the private clinics as a last resort when all their attempts to treat illness through other options had failed.

Health care providers: The results have illustrated the potential role of the different providers in enabling or disabling livelihoods. Shops are a key resource that enabled livelihoods development among the poor and the least poor. The discussion has also revealed that this important resource suffers from limitations around ensuring that quality is maintained in the drugs sold and in the dosage taken by the patients. Taking the correct dosage is important in order to avoid increasing drug resistance that has been recorded in most parts of Africa including Kenya (White 1999; Foster 1995). The Kenyan government is working hard towards reducing drug resistance by ensuring that shopkeepers are equipped with the correct knowledge about drug dosage. The findings from this study have shown that the shops play a big role in this remote rural setting and that there is need to consider additional ways to strengthen this important resource.

With respect to service delivery at the dispensary, the findings have shown that its success is outweighed by the weakness. Only on two occasions over the eight months did households talk about success at the dispensary although there was a keenness to benefit from the potential protection as illustrated in Boxes 7.6 and 7.8. Nevertheless, this government resource has failed to protect this poor community from high costs of illness. In particular, the weaknesses of the dispensary potentially impacted on livelihoods through debts accumulation and depleting assets (for households driven to

private providers). Although in the fifth month of the study user fees were eliminated, this facility still failed to provide protection because of low trust in the perceived quality of care, rude staff, long queues among other limitations. This is not a unique case of the Ganze dispensary. In general, Kenyans have low trust in government institutions because of their past records over many years. If the health sector wants people to benefit from their services, the starting point might be to rebuild the trust in public health facilities that has been non-existence for a long time by offering good quality services and ensuring that the staffs value patients' interests.

The discussion on health service provision at the private level has shown that private clinics have innovative charging strategies that attract people towards their services. These strategies have made health care accessible to the less vulnerable households. The results have also shown that households still incur high cost burdens as a result of high charges at private clinics. The difference is that when costs are spread over time, the cost burden is less likely to trigger risky coping strategies. There is a limit as to how much a household can accumulate and sometimes debts can exclude households from seeking treatment. The trust in the quality of services, short waiting times, availability of drugs and staff who talked nicely far outweighed the costs and households preferred paying more for these essential services that were lacking from the public sector.

The high cost burdens incurred at private clinics still impacted negatively on livelihoods and although credit was a short-term strategy, the long-term implications can be detrimental (Chapters 8 and 9): In addition to these positive factors about private clinics, it is worth bearing in mind that these clinics operate on a strictly business basis. As much as the staff are good to people, they do want to maintain their clients and make profits. In a situation where the health care market suffers from asymmetry of information and the client fully trusts the provider to do what is best for him, these clinics require some sort of quality control to ensure that they operate in the best interests of the community.

CHAPTER EIGHT

COPING WITH THE COSTS OF MALARIA

8.1 Introduction

Chapter 6 analysed cost burdens and treatment seeking behaviour. Chapter 7 established the role of health care providers on cost burdens and the potential implications for livelihoods. This chapter takes the analysis further by looking at how households cope with the costs of malaria. Coping strategies are analysed at this stage in order to establish their role in managing cost burdens and the potential implications for livelihoods. Although coping strategies are important for managing costs in the short-term they can have negative implications for livelihoods and increase households' vulnerability in future.

The information presented in this chapter establishes the factors that enable coping behaviour and how adopted strategies differ between vulnerability categories with the aim of identifying potential areas of resilience that can be strengthened to enable households finance the costs of illness using non-erosive strategies (see Chapter 2). The findings address objective three but also contribute broadly towards understanding the factors that make households vulnerable to illness costs (objective two) by looking at access to different types of coping strategies. The chapter is divided into four main sections:

- Section 8.2 presents an overview of the type of coping strategies identified in the two household surveys;
- Section 8.3 describes the type of coping strategies identified among case study households and how they differ between vulnerability categories;
- Section 8.4 highlights the various factors that determine household coping behaviour focusing on the role of assets;
- Section 8.5 discusses cost prevention strategies and establishes the link between coping strategies and illness cost burdens.

8.2 Overview of coping strategies identified in the survey

A major objective of the study is to explore the range of coping strategies employed by households in order to meet the costs of malaria. Coping strategies can be divided into two groups: those that aim to cope with financial costs and those that aim to cope with time costs (Sauerborn et al. 1996a).

8.2.1 Strategies to cope with financial costs

Coping strategies can aim to prevent costs from arising or manage costs when they arise. Strategies that prevent costs from arising (cost prevention strategies) are possible indicators of 'struggling' while cost management strategies may indicate ATC. Often households prefer to manage costs through adopting less costly treatment strategies rather than prevent costs from arising altogether (Russell 2001; Sauerborn et al. 1996a). This section presents information on cost management strategies. Cost prevention strategies are discussed in Section 8.4.

Cost management strategies

Households manage costs through mobilising resources to raise cash to pay for treatment. It is important to point out at this stage that coping does not necessarily imply looking for cash but also adopting treatment strategies that are manageable within the available resources. In that case treatment seeking behaviour is in itself a coping strategy and it can be used either to manage or prevent costs from arising (see Box 6.4).

Cash savings

Individuals that sought treatment were asked where they got money to pay for treatment and whether it was readily available within the house. Of the 146 households that took actions requiring cash payment in the wet season survey, only 49.3% had ready cash. In the dry season, 55.3% of households did not have cash readily available. The cash used for payment was usually in the form of small savings that had been put aside to meet daily requirements and the use of this money was often reported as dissaving. Although cash savings was an important strategy,

households reported that they had to adjust their spending on other basic needs (mainly food and other items like soap and paraffin) in order to use the available cash to pay for treatment.

Households that did not have enough cash to pay for treatment were asked what they did to raise money for treatment. Table 8.1 summarises the different types of strategies adopted by these households in their attempt to meet treatment costs.

Table 8.1: Households strategies to finance costs of illness

Strategy	Wet season (n=74)	Dry season (n=42)
Borrow from:		
• Relatives	10.8%	14.3%
• Friends/neighbours	39.2%	55.0%
Total	50.0%	69.0%
Gifts from:		
• Relatives	31.1%	11.9%
• Friends/neighbours	8.1%	4.8%
Total	39.2%	16.7%
Sell labour	28.3%	9.5%
Sell assets	8.1%	16.7%
Treatment on credit	10.8%	14.3%
Other	18.9%	28.6%

*Total adds up to >100% because some households adopted more than one strategy.

The results show that in both seasons, borrowing was the main type of coping strategy. People borrowed more from friends while gifts were received more from relatives. Results from FGDs revealed that it was easy to get small cash loans from friends but for larger amounts relatives were preferred. Most of the households spent 'small' amounts in absolute terms, which they could easily borrow from a friend or a neighbour¹. Usually friends would expect to be paid back, but relatives could give

¹ The distinction between a friend and neighbour was often not clear. A good neighbour was taken as a good friend and vice versa.

small amounts as gifts without any expectations of repayment. However, payment to relatives was made indirectly some time in the future through reciprocity.

Other types of coping strategies adopted included sale of labour on the farms; more common in the wet season than in the dry season for reasons discussed in a later section of this chapter. Other types of strategies reported but which were less common included sale of assets and treatment on credit from private providers.

8.2.2 Strategies to cope with time costs

Individuals were asked whether they were able to conduct their income generating activities during the period of illness. The proportion that reported loss of income days were asked if their work had been affected during illness and whether or not household members did anything to avoid potential income losses. The results presented in Table 8.2 show that only 15 households adopted a time loss management strategy in the wet season and only nine in the dry season.

Table 8.2: Ability to adopt a time management strategy

Season	Was anything done to recover activities lost due to illness?		
	Yes	No	Total
Wet	15	44	60
Dry	9	18	27

* Question asked to those individuals that were unable to conduct their income roles fully.

In the wet season the range and distribution of strategies adopted by these households were:

- 4 households received help from relatives and friends;
- 2 hired people to conduct their normal income generating activities;
- 4 worked longer hours than they would in the absence of illness;
- 2 cultivated less portion of land;
- 3 households substituted for labour using other household members who did not normally conduct those activities.

A similar pattern was observed in the dry season although the number of households adopting a time management strategy in each category was much lower.

A note on time management strategies

It was discussed in Chapter 4 that households experienced difficulties finding work due to the drought. Since farming is the main source of income for the majority of households (Figure 4.4), adopting a time management strategy might not have been necessary for most households during such periods of rain shortages. The results on time management strategies suffer from this limitation and might have been different had there been adequate rains requiring people to work on their farms and/or sell labour to generate income.

8.3 Overview of coping strategies among the case study households

The main types of coping strategies identified in the case study were similar to those identified in the survey. However, the case study data is useful because it helps to conceptualise the various factors influencing the choice and adaptation of different coping strategies. Of major importance is that the case study data improves understanding on factors that enabled or limited households' possible options and the complexity of coping behaviour. There were however interesting issues around coping strategies that were identified in the case studies but which were not captured in the surveys.

Additional information on treatment seeking patterns among case study households revealed that households borrowed drugs from neighbours other than cash because people often had some 'left over' drugs from a previous visit to a health facility or the shops. There was a culture of borrowing a few tablets from neighbours or friends to assist in mild ailments or as 'first aid' before the patient was taken to the hospital. These drugs were reported to be of significant help when one could not manage to get cash from a friend or neighbour. And since the ultimate goal was to get treatment, borrowing drugs served a similar purpose. Borrowing drugs was a common coping

strategy among highly vulnerable households, perhaps because it was easier for them to borrow drugs than money due to limitations of their creditworthiness (for example RC/026 and RA/072).

Another coping strategy identified among case study households was sharing of drugs between siblings. For instance, if two children in one household fell ill at the same time, depending on the financial situation in the household, the mother would take one of them to the hospital (usually the more serious one or younger one) and use the same drugs on the other siblings. In that case a dose that was meant for one child ended up treating sometimes as many as three children. This was particularly common among large households with many young children that reported a high number of illness episodes in a span of a week or two (for example RA/008 and RD/084).

These two types of coping strategies managed cost levels and reduced the symptoms in the short-term but they have potentially important implications. For example such strategies can lead to inadequate use of drugs, and although illness symptoms disappear they are likely to recur since the dosage taken is not enough to clear the parasites. If the symptoms persist and patients later present themselves to a health facility, a parasite test can reveal negative results; influencing perceptions of illness causes (from natural to supernatural), nature of treatment strategy adopted by households (from bio-medical to healers) and the types of drugs administered by health providers and ultimately cost burdens (Muela et al. 1998).

8.3.1 Strategies used to raise cash

The discussion on coping strategies identified among case study households and the sequence is presented below. It should be noted however that generalising the sequence oversimplifies the dynamics of coping between and within households. The main types of cost management strategies reported were:

- Cash savings;
- Credit from private providers or shopkeepers;

- Borrowing from relatives;
- Borrowing from friends;
- Gifts from relatives;
- Selling livestock.

In general the options available and the order of preference was similar to the following discussion but as already mentioned coping strategies were more complex than can be illustrated using a simple sequence (see Box 8.1). A simple generalisation shows that when an illness occurred the obvious first step was to use cash savings if cash was readily available. Cash savings was the first option for small amounts of money to buy shop drugs, but once an illness required treatment in the formal sector, all households regardless of their vulnerability category adopted another coping strategy.

First when faced with cash shortages the most common thing to do was to ask for credit from the private provider or shopkeepers. Asking for credit from the provider was preferred because it was more of a business relationship and it was less prone to ill talk.

If credit from a provider was not a viable option, for large amounts of money the next alternative was to borrow from a relative. Relatives were preferred because there exist strong blood ties in this community and a relative is taken like a close brother who should be assisted in case of a problem, whether in terms of a loan or a gift.

The next source of money was borrowing from a friend or a neighbour. It was easy to borrow from a neighbour because of proximity and in addition to borrowing cash neighbours borrowed all sorts of things from each other including flour, salt, and fire. A culture of borrowing already existed as part of day-to-day lives. However, neighbours could only be used for small amounts mainly to buy drugs from the shops. For larger amounts required to pay at a health facility relatives were preferred.

Finally, sale of assets (goats and chickens) was the last option for all households. Assets were rarely sold to pay for treatment at the point of illness but were sold later to clear a debt incurred at either a provider or a relative.

All these strategies were accompanied by other day-to-day strategies to finance consumption of basic needs because money used to pay for treatment often left a gap in the households' budget. The additional strategies involved adjusting spending on food items (including doing without a meal for a day in order to clear a debt or pay for treatment) or taking food items on credit from the shopkeepers.

Box 8.1: The complexity of coping behaviour: the case of RD/054

RD/054 was not one of the 15 key case study households but data on illness was collected for six months. In the course of the six months one child got ill with high fever, and the mother decided to take him to a retired doctor who practices at home because she did not have money and the dispensary was closed (it was late in the night). The doctor examined the child and told her that she was suffering from malaria, he charged her KES 10, which she did not have but promised to pay later. He prescribed some drugs, which the mother was supposed to buy from the local shops (*betaquine*). Since she did not have money, she decided to ask the shopkeeper to give her the drugs on credit (the price of the drugs was KES 28). On the third day the fever recurred but because she did not have money to go to hospital or buy drugs, she decided to wait and see if the illness would persist and then come up with a solution. As she waited to see what would happen, she decided to give the child some drugs that another sibling had been given at the dispensary a few days before the other one fell ill. The child had recovered and since this other one was ill and she did not have money, she decided to discontinue giving the drugs to the recovered child and instead use them to treat the sick one. There were two tablets remaining, (a small red one and a white one that looks like panadol), which she gave to the sick child to try and see if they would help reduce the fever. *“There is nothing else I can do. I will wait to see if the drugs will help the child but I cannot take the child to the hospital because I do not have money...last night we slept without food.”*

Two days later, the fever recurred and she thought that she required to do something to treat the illness. Her first attempt was to borrow money (KES 20) from her husband's friend to buy other drugs because her husband was away (works as a tapper away from home) but he did not have. Later that evening she went to a neighbour to try her luck, but the neighbour was not in. She found a child (son to the neighbour) who had done some casual job that day and when she told him the problem, he gave her the only money he had earned that day. She used this money (KES 20) to buy drugs for the sick child.

8.3.2 Coping strategies by vulnerability categories

Table 8.3 shows the types of strategies adopted by six households, two from each vulnerability category. These six households represent the typicality of coping behaviour within the different categories. In general all types of households regardless of their vulnerability categories adopted cost management strategies at one point over the eight months.

Coping strategies were similar between households in different vulnerability categories but the frequency and the degree of access to these strategies differed. Least vulnerable households could access treatment on credit from the private providers with ease while the highly vulnerable had limited chances of credit because their income sources were fragile and unpredictable. This was with the exception of one highly vulnerable household (RB/039) that received treatment on credit because the private provider was their relative. Other times when highly vulnerable households could receive credit was when a more creditworthy person acted as a guarantor for them in case they failed to clear the debt.

In contrast borrowing from relatives and friends was a common strategy among the vulnerable and highly vulnerable households. Least vulnerable households rarely borrowed from friends or relatives because they had other sources of credit. The sale of assets was used more among the highly vulnerable and vulnerable households and rarely for the least vulnerable households.

Although various voluntary groups were reported to exist in the baseline surveys (Chapter 4), none of the case study households acquired money to pay for treatment from these groups. The reasons for this, as discussed in Chapter 4, are that group membership was seasonal and only one group (FFS) was functioning during the year of the case study. Other groups collapsed or were suspended because it was difficult to access cash income (due to drought, food insecurity and lack of work opportunities). A discussion of the coping options accessible to households in different vulnerability categories is presented in more detail in the next section.

Table 8.3: Overview of the types of coping strategies by month and cost burdens

HH	Monthly cost burden (% of expenditure)	Coping strategies
RB/039	Month 1: 137% Month 2: 23.8% Month 4: 6.8% Month 7: 0.8% Month 8: 0.0%	<ul style="list-style-type: none"> Given money by son, Sold one bag of maize (50 kilograms), Credit from private provider two times and sold a goat Credit from private provider two times, sold a goat Credit from private provider, gift by brother Borrowed from friend Ignored two episodes due to lack of cash
RB/023	Month 6: 0.0% Month 7: 1.2% Month 8: 1.0%	<ul style="list-style-type: none"> Two episodes not treated due to lack of cash Cash savings, given by daughter who came visiting but failed to complete injections because money not enough. Borrowed from a neighbour and a friend to her husband
RA/008	Month1: 15.8% Month 3: 37.2% Month 4: 0.3% Month 5: 0.8% Month 6: 1.7% Month 8: 0.1%	<ul style="list-style-type: none"> Credit from private providers five times, gift from a relative (once) Credit from private provider (twice), sold a goat, borrowed from a relative and friend, credit from shop Cash savings Sold local brew overnight in a funeral ceremony Cash savings, bought drugs for one child and divided among two Cash savings
RC/044	Month 1: 3.2% Month 6: 22.8% Month 7: 2.6%	<ul style="list-style-type: none"> Sold two chickens Borrowed from relative, credit from private provider Sent wife to sell charcoal in neighbouring town
RD/084	Month 3: 2.6% Month 5: 3.8% Month 7: 2.1% Month 8: 0.8%	<ul style="list-style-type: none"> Credit from private provider two times Credit from private provider once Cash savings Cash saving
RD/080	Month 1: 1.3% Month 2: 5.7% Month 5: 31.2% Month 7: 1.8%	<ul style="list-style-type: none"> Sold a chicken Credit from private provider Cash savings and credit from private provider Cash savings and credit from private provider

8.4 Access to different coping strategies: the role of assets in coping behaviour

The review of the literature presented in Chapter 2 showed that assets play a key role in coping behaviour because they act as buffers against vulnerability. Building on

this, an assessment of asset ownership presented in Chapter 5 highlighted that highly vulnerable households had limited assets. Most of them had depleted their assets in the past due to illness or other contingencies. In contrast vulnerable and least vulnerable households had a moderate asset base that they could mobilise to cope with illness cost burdens. This section looks at how case study households mobilised their assets to cope with the costs of malaria. Results from the survey and FGDs are drawn upon where necessary to illustrate coping strategies at a broader level and to supplement the findings from the case study.

8.4.1 Financial assets

Financial assets used to cope with illness costs include savings (in house or with financial institutions), livestock and in few occasions food stores (for households that owned farms elsewhere). The main types of assets sold were chickens and goats.

The sale of livestock to finance illness costs among case study households was limited. Financial assets were mostly sold to finance non-illness related events like education and food. Overall five case study households sold livestock or food stores to pay for treatment costs over the eight months. Two of these households were highly vulnerable (RB/039; RC/065), two were vulnerable (RC/044; RA/008) and one was least vulnerable (RD/080).

There are various factors that explain why sale of assets was not a common coping strategy among the case study households and the community at large. First ownership of assets was limited especially among the highly vulnerable who reported the highest number of illnesses (usually one or two goats, a number of chickens and occasionally cows that they reared for wealthy people, see Table 5.2). The vulnerable and least vulnerable owned more assets, reported fewer illnesses and had other coping options available to them.

“Yes you can sell chickens, you can sell goats...now you do not have chickens, you do not have goats, what do you sell?” (RC/019)

On the other hand, the sale of assets highly depended on the urgency of the matter and the degree of liquidity. A serious illness episode was an urgent need that required immediate cash to avoid delay in treatment. Selling an asset required time. In particular goats were difficult to sell because they were expensive. Chickens were easy to sell, but fetched a low price (about KES 100), which was sometimes not enough to pay a private provider. Due to cash shortages and the community being exposed to a similar shock (drought), the market for such assets was very limited and goods fetched a lower price than they would normally do especially when people knew that one was selling in order to pay for treatment.

Consequently, households preferred to adopt quicker options and sell assets later when they had already financed treatment from other sources:

“One can sell chickens...one can even sell a goat but this is difficult because first you are sick, who will hawk the goat, there will be nobody to buy.... That is why you will be forced to borrow. It is the easiest.” (Young woman, Vilwakwe-23/01/04)

“You follow someone with your chicken believing that he is a bit okay [has some money], when you reach there he says that he does not have any money to buy the chicken, what does one do? You now go back with your hen.” (Young woman, Vilwakwe, 23/1/04)

“People would even sell goats at KES 500...or even 400 because they have problems and they need money for food.” (Young man, Mwaeba, 29/01/03)

Due to the reasons discussed above (limited market and difficulties in getting work due to drought), the sale of assets was not an affordable strategy for both the highly and the least vulnerable.

Only two households reported using cash savings from a financial institution to pay for treatment. These two were least vulnerable and at least one member owned an account with a bank (RA/006 and RD/080). People understood the importance of

saving, as insurance against shocks, but this was not common among all categories of households because incomes were insecure and food insecurity was high. Even those who had accounts with the village bank only had the minimum required balance to sustain the account:

“What can I save and I have no job?” (RC/019)

“I do not save because money is not enough, earnings are little and expenses are many, food, illnesses, education...there are illnesses every month and they require money, what will you save?” (RD/044-not key case study household)

“Somebody who saves is somebody who has... how can I sleep hungry and be saving money? I cannot save something I do not have.” (RB/014-not key case study household)

“What can I save? When I get money it is for food...even if I want to sell the chickens to start small savings nobody will buy them, even these ducks and chickens are not helpful...nobody will buy them.” (RA/039-not key case study household)

8.4.2 Human assets

The sale of labour in agricultural farms as a coping strategy was mainly reported in the wet season because people were busy in the farms weeding and planting². Casual jobs during the wet season are easy to get and access to cash income is higher than in the dry season. Over the case study period, access to work was limited as the weather deteriorated and the farms got dry. This strategy was no longer an option and was only reported in one household. Even attempts to diversify income sources in order to raise additional money to finance daily requirements and/or cost of treatment was constrained by a limited market in the area:

² Although there was drought and hunger, there was always little rain during the expected wet season but these rains were not enough to sustain crops. People therefore had to prepare their farms as usual hoping that the rains would be adequate for that season.

“In order to cultivate in someone’s shamba [farm] it must rain but if it doesn’t then you cannot get the kipande [portion to dig]...the other option is to burn charcoal. You must have the strength to cut the trees so that you can burn the charcoal...Even if you have the strength to burn the charcoal, someone has to come and buy it. If it is not bought then you will not get any help out of it.” (Young woman, Mwaeba, 16/10/03)

“You cannot wait until somebody comes to buy your charcoal...the sick person should get to the hospital and you have to run up and down looking for ways to get the money.”(Young woman, Mwaeba, 16/10/03)

Because of these factors (income insecurity and limited markets), the easiest option for many households was to borrow. Social assets were therefore very important sources of support for meeting illness costs and other basic needs in this community. A summary of key factors regarding financial and human assets that are relevant to vulnerability and coping are presented in Box 8.2.

Box 8.2: Financial and human assets: factors relevant to vulnerability and coping

- Cash savings in the house were used for small amounts of money, usually to buy drugs from the shops. Highly vulnerable households still required another cost management strategy to pay for shop drugs.
- Only two households used cash savings from a financial institution to pay for treatment. This strategy was only available for least vulnerable households.
- Sale of livestock to pay for treatment was limited and was mainly used among the highly and vulnerable households.
- Ownership of livestock was a possible cushion against treatment costs, but other factors like market constraints prevented people from using them.
- Sale of labour was a common strategy in the wet season for survey households. With the shortage of rains, this strategy was not an option for case study households.

8.4.3 Social assets

Access to social assets in the form of social networks was a key factor that influenced household coping behaviour. Among the case study and survey households, social networks were the main sources of financial and non-financial support. Case study households and the community at large kept bonding ties through families, friends and neighbours that they could call upon for small amounts of money to finance treatment costs or help around the house during illness (see Section 2.4 for discussion of social networks).

There were various types of networks that households mobilised to finance treatment costs directly and indirectly over the eight months. These include:

- Friends and neighbours;
- Relatives;
- Shops and shopkeepers;
- Credit from private health care providers.

Factors determining access to different social networks

Although there were various ways of using social networks to pay for treatment, not all households could access the different sources of support. Whether these types of networks were accessible and affordable to households depended on various factors. These include; trust that repayment will be made in time, wealth or socio-economic status of the household, income security and ability to reciprocate assistance some time in the future. These factors varied between the different sources of support, but wealth was a key factor that applied across all types of networks.

Wealthy households with regular incomes and material assets could access credit easily from different networks. Wealth was an indication of creditworthiness and ability to pay debt without difficulties. Households that had members with regular income or received regular remittance from their children working in towns had better access to credit than those with insecure incomes:

“People who easily get credit are the ones who are employed. Even if you earn a little but on a monthly basis, it is easy to get credit or take a bill [goods on credit] from the shop because they know that you will get the money and pay by end of the month.” (RA/006)

“I get things on credit from a shopkeeper in Ganze. He is my relative, a father in law to my daughter and he has been of great help. I can take everything flour, drugs and even money...but sometimes he doubts me because none of my children is working. Last month I went there to borrow KES 400 to take my grandchild to the hospital, he gave it to me but he said.... ‘Where are you going to find money to pay me and your children are not working?’ Now my two daughters are working at the water project [Plan International was installing tapped water in the area]. They earn KES 100 in a day and are paid at the end of every week...We can take anything we want from the shops without complains because the shopkeeper knows we have a source of income.” (RB/014-not key case study household)

“Some people think that when they assist you, you will not be able to pay back, so they refuse to give...they will tell you they do not have even when you know very well that they have.” (RB/023)

Friends and neighbours

Friends and neighbours were a key source of support among highly and vulnerable households. For most households, the network size of friends providing financial assistance was small, usually about 3 to 5 friends. However, the network size for non-financial support was large, up to 10 friends who could offer assistance like looking after children or fetching water when one was ill.

Among highly vulnerable households, friends and neighbours were used for small cash loans because networks were horizontal in nature. That is, they all had friends within similar socio-economic or wealth status. Since these households together with their friends were struggling to make ends meet, the amount of financial help that could be accessed through their networks was limited. The greatest amount of a loan from friends and neighbours reported among the highly and vulnerable households was KES 100.

“Life is hard these days. I am always faced with problems because I have to keep borrowing everything from friends and relatives to make ends meet...But right now we have no tegemeo [nothing to rely on] if we find ourselves with financial hardships, everybody is facing the same problems...there is nobody to borrow from...yesterday I went to a neighbour to borrow flour to cook porridge for the children, but she did not have, they had also slept hungry.” (RC/021)

“I have three good neighbours, they are my friends and we talk about everything. I see them every day in church, but their support is low because they do not have. We only help with small things...a few shillings to buy salt or flour.” (RA/059)

Some of the highly vulnerable households did not want to borrow from neighbours because their relationship was not good or they believed that the neighbours did not want to help even with the little that they had:

“Others do not want to be borrowed even if they do not have...so you do not borrow.” (RA/072)

Among the case study households, only one household (RB/075) made claims from vertical networks, which included a long time friend that the HHH met when he was working in town more than ten years back. This friend helped this household with large amounts of money to pay for treatment and meet other daily requirements. In addition, this household looked after a large herd of cows that belonged to the ‘rich’ friend and they benefited from milk sales and occasionally were given a few calves when the cows reproduced. Because of this network, this household was able to access treatment from the private clinics. Over the case study work, this household got a loan of KES 4000 from this friend that had no definite repayment period.

In contrast, least vulnerable households had friends who were in similar wealth status and also had permanent jobs who could give them cash loans if they needed it. However, the least vulnerable did not use friends over the eight months because they had other sources of credit (for example financial institutions and the shops) but they reported that they could easily get money from their friends if need be. The highest amount reported among least vulnerable households was KES 5000.

Borrowing was limited to a few friends, and close people who could be trusted and who belonged to that network of borrowing:

“If you take a packet of flour or money from your friend, then you have to pay back after some time, that is why next time you will be given.” (RA/072)

Highly vulnerable households excluded themselves from borrowing networks because of fear that they might not manage to pay back. Friends and neighbours did

not want to lend money to highly vulnerable households due to their low wealth status:

"I have no friend who can assist me...I go to my sister who is married in Malomani because I have no job... even if they assist me how will I pay back? So even if I go to borrow they say [neighbours] they do not have. So I stopped asking." (RA/072)

Relatives

All households irrespective of their vulnerability category used relatives for support. Land in Ganze is owned communally by clans; people have their close relatives living within a few metres and they see each other daily in their homes, at the market or at the water place. Borrowing from close relatives was preferred because they were less likely to expect repayment and even when they did payment terms were flexible. However, most relatives living within the area were in a similar wealth status and the amount accessible through the networks of relatives was limited. Some of the highly vulnerable households had limited relatives to ask for support from because their socio-economic status was similar, limiting the chances of any financial support:

"I have not gone to him [closest relative] for financial assistance because he is in the same situation...he is old and sick like me." (RA/072)

For larger amounts of money, relatives working in town were more likely to help because they were in a better socio-economic situation. But in case of illness, close neighbours were used because of proximity and were paid back when the relatives working in town remitted money. In some cases support from relatives among highly vulnerable households was exhausted either due to unpaid debts or because of limited reciprocity from one side, which made them, feel 'embarrassed' of asking for help. One highly vulnerable household (RC/026) reported that they could no longer go to their relatives for support because they had gone there so many times without being able to pay back. Although their relatives understood that they did not have any source of money, the wife in this household felt that she was asking for too much

and instead decided to suffer in silence and only went to them when she had exhausted all her opportunities (See Box 7.4).

Because the degree of support offered through friends, neighbours and relatives was limited and there were other significant costs of borrowing (ill talk and inability to pay back) households preferred using other sources of support that made access to cash easier and which were less prone to ill talk. These networks include shops and/or shopkeepers and credit from private providers.

The shops and shopkeepers as social networks

Shops are important social resources in terms of financing health care and other basic needs. Shopkeepers are key people in Ganze; most of them are wealthy compared to the majority of households in the setting. The ability to get credit from the shops was determined by wealth (discussed above) and regularity of purchase, that is, a regular customer. In some cases, the relationship between the shopkeeper and the households existed even outside the business (some of them were either relatives or friends) because most of them come from that community.

Shops offered different types of support that assisted directly or indirectly towards financing the costs of treatment:

- *They acted as banks:* For small amounts of money, people preferred to save with the shopkeeper than to keep the money at home. Households could ‘withdraw’ money from the shopkeeper either cash (to finance other needs) or use it to pay for goods. These savings did not earn interest but it was a good way to ensure that households had little cash available in case of an emergency. Saving in the shops was preferred because it was difficult to keep money in the house with the food insecurity and frequent borrowing from neighbours and friends. Among the case study households, four had used the shop as a bank at one point over the eight months.
- *Shops acted as a means of controlling households’ resources:* Among households with children and relatives giving regular remittances, most of them preferred to deal directly with the shopkeeper rather than give the money to their

families especially where family members 'mishandled' money. This was common among households with men who took control of all resources and drunk even the money remitted by the working children to buy food for their siblings. Another reason why this arrangement was common was to control the types and amount of goods taken on credit. To avoid such circumstances and ensure that women and children had some food to eat, working relatives made an arrangement with the shopkeeper to be issuing goods to the households up to a certain limit. At the end of the month, the working relative would go directly to the shopkeeper to clear the debt, and in some cases make prior payment for items to be taken in the coming month. Nearly all the vulnerable households with members working outside the area used this kind of arrangement.

- *Shops issued foodstuff and other goods on credit:* Households who did not work under the above arrangement still benefited from taking goods on credit. There were two different types of arrangements depending on households' wealth. Among the least vulnerable households, credit was available throughout the month. These households took all their items on credit from the shop (including drugs, clothes, and household items) and received a bill at the end of the month. There was no limit of how much they could get on credit because the shopkeeper knew that all had a member with a permanent job. Generally all least vulnerable households were highly creditworthy and used this service to purchase items including drugs to treat mild illnesses over the eight months. The vulnerable households still used this service but not with as much flexibility as the least vulnerable. Since they had a member with a regular income (although not permanent) these households could take goods on credit but to a certain limit in the month. Once the amount owed reached a certain amount, the shopkeeper would stop issuing goods until they repayment was made. The limit was not standard and depended on the shopkeepers' understanding of households' ability to pay debts based on their income levels and past experiences. In contrast highly vulnerable households only used this service for small amounts of money enough to buy drugs or a few packets of flour. None of the highly vulnerable households was allowed to accumulate debts at the shops except in one case when the HHH in RB/039 got a temporary job with a water project for two months. During these

months RB/039 was able to access credit from the shop, but the service was withdrawn immediately the contract ended.

- *Shops provided loans in cash:* In addition to giving goods on credit, shops also gave loans in cash. The loans were available without any interest but could only be accessed by the more wealthy households or those households that had a 'personal' relationship with the shopkeeper through close family ties. In that case, the transaction ceased to be a business one to one of family and relatives. Three households over the eight months were able to get cash loans from the shop. One of them was a key case study household (RD/080) but the two who used this service regularly were not key case study households.

Although some of these mechanisms did not provide support directly to meeting the costs of malaria, being able to access them was important especially for those households that used private providers. Often payment to a private provider consumed a large proportion of monthly expenditure and households used the shops in that month to finance other needs as they waited for their monthly wages.

Credit from private providers

Private providers acted as social networks by offering services on credit and allowing for payment by instalments. Key factors that determined access to credit from private providers were wealth, trust and being a regular 'customer' even in the absence of financial stress.

Trust between the households and the provider was developed over time through regular visits to the clinic for treatment and past repayment experiences. People who paid their debts at the agreed time were trustworthy, had a good reputation and did not experience difficulties getting credit. Failing to pay debts on time was like cheating; those who could not manage to pay on time were expected to present themselves to the provider, to be honest about their problems and to request an alternative payment arrangement. This happened on rare occasions because being able to get credit from the provider was an important asset for most households. People therefore felt obliged to clear their debts when they could possibly do in order

to protect their relationship with the provider and ensure that access to credit in the future was maintained. Untrustworthy people could not get credit from health providers regardless of how serious their illness was:

“What is bad is not to go to the doctor on the agreed date. Even if you do not have anything just go and explain to him and he will understand you but if you say after all I got better, why bother myself? You will be in trouble the next time.” (Old woman, Tsangalaweni, 14/01/03)

“You are even unable to walk but still you are reminded that ‘let that debt cure you.’ It is because you did not pay even a single cent after you recovered.” (Old man, Vilwakwe, 16/01/03)

Households sometimes exhausted this network, through debt accumulation that led to self exclusion or a feeling that they were asking for too much support:

“I could not take the child to the hospital because yesterday I was there with another sick child and got treatment on credit. I can not ask again today.” (RB/039)

Providers gave credit to those households that they knew well, had established a personal relationship with and they always went to seek treatment from them even in the absence of financial stress. Households that went to private clinics only when faced with financial difficulties but went to the public dispensary when they had cash were denied access because they were seen as having “selfish needs” and only went there when they were in problems.

Credit from the private providers was also preferred because it was fast; households would get treatment for their sick member and later look for money to pay the provider using other types of strategies:

“One of my children suffered from malaria recently... we usually ask for credit out of desperation. Then we look for work to do even if it is weeding to get the money

and pay the debt. You see, I am trying to remove thorns from my hands which I got recently while cultivating to raise money to clear a debt incurred due to my child's malaria illness." (Old woman, Tsangalaweni, 31/01/03)

A summary of key factors arising from access to social networks that are important for vulnerability, cost burdens and coping is presented in Box 8.3.

Box 8.3: Social assets and coping behaviour: key factors

- The types of social networks accessible differed by vulnerability categories.
- Wealth or socio-economic status were key factors influencing access to different social networks.
- Networks for financial support were limited to a few friends and neighbours.
- Highly vulnerable households could only access small amounts of money from their networks because the network members were in a similar wealth status.
- Friends were used for small amounts of money while relatives were used for larger amounts.
- Borrowing and lending between friends and relatives was done on the basis of reciprocity.
- Trust and reputation to pay back were key issues influencing ability to get credit from private providers and shops.
- Shops offered different types of support to pay for treatment directly and indirectly.

8.5 Cost prevention: a basic survival strategy

Sections 8.3 and 8.4 have shown how households manage illness costs. However, not always do households succeed in their attempts to raise money for treatment. Some illnesses reported in the survey and case study households were not treated. Households that reported an illness but did not seek treatment were asked why they failed to seek treatment. In both surveys, lack of cash was the main reason that hindered individuals from seeking treatment (60.3% in the wet season and 64.0% in

the dry season). Other reasons given were illness was not serious (27.0% in wet season and 20.0% in the dry season) and drugs not effective (7.9% in the wet season and 1.0% in the dry season).

For most of the illness episodes reported among the highly vulnerable households, attempts to raise money for treatment could not be made because they had limited choices of strategies and even when they had, these strategies were already exhausted through past claims. The case study data revealed that failure to seek treatment due to cash shortage was more than just a cost prevention strategy. In most cases, failure to seek treatment among the highly vulnerable households was a sign of despair because there was no hope of raising even small amounts of money to buy shop drugs. Preventing costs rather than managing them was therefore a basic survival strategy among the poor and vulnerable (for example RA/072 and RC/026).

Table 8.4 shows the number of illness episodes that were reported and not treated over the case study period. In all except one illness episode, households reported that the illness was serious enough to worry them but they could not seek treatment because they did not have any money and they did not see any possibilities of raising the cash. Six households gave lack of cash as a factor that prevented them from seeking treatment for at least one illness episode.

Table 8.4: Number of illness episodes not treated over the eight months

Household	RA/072	RC/026	RB/039	RB/023	RC/044	RC/019	RC/065
Episodes	6	6	2	1	2	3	2

The results show that ignoring illness and preventing costs from arising was more common among highly vulnerable households (RA/072, RC/026, RB/039 and RB/023). For example in RC/026 only two illness episodes were treated over the eight months, one using herbs and the other using drugs from the shops that were bought after three days when the illness became serious (see Box 7.4) while in RA/072 only two illnesses were treated using drugs from the shops and this cash had to be borrowed from relatives. On a few occasions, vulnerable households also

reported ignoring illnesses due to cash shortages but the least vulnerable households managed costs rather than prevented them.

8.6 Coping strategies and cost burdens

There was no clear relationship between cost burdens and coping strategies. Households adopted different coping strategies for different amounts of money (see Table 8.3). But when the other dimensions of treatment seeking are incorporated into the analysis (type of treatment and vulnerability category) the link between coping strategies and cost burdens becomes clear. For example, the cost of self-treatment using shop drugs was low and easily financed through cash savings. This happened among all categories of households although highly vulnerable households sometimes adopted another coping strategy to buy drugs. In contrast, a visit to a formal health provider required a higher amount of money and all households irrespective of their vulnerability category adopted a cost management strategy.

Among highly vulnerable households, ignoring illness was more common than managing them because they were too poor to afford treatment. This explains why despite reporting the highest number of illnesses, most highly vulnerable households incurred very low cost burdens below 1.0% (Table 6.11). When the treatment seeking patterns are linked to cost burdens and coping strategies, it becomes clear why the highly vulnerable households incurred low cost burdens. Thus the low level of spending among the highly vulnerable households does not necessarily indicate lower levels of need but rather prevention of costs or desperation because they cannot possibly afford to be sick.

Although cost prevention strategies keep financial costs low, these strategies can have negative implications for households. WHO recommends that prompt and effective treatment for all cases of malaria be issued within 24 hours of the onset of illness (Amexo et al. 2004). Among children in particular, if left untreated malaria can progress fast from a mild case to a severe one requiring hospitalisation. In such situations the cost prevention strategy ceases to prevent costs but rather leads to

higher cost burdens with potentially more serious implications that can eventually lead to death.

8.7 Summary and conclusions

This chapter has analysed the different types of strategies adopted by households to cope with the costs of malaria. The chapter has looked at four main sub topics:

- Coping strategies among the survey households;
- Coping strategies among the case study households;
- Factors influencing access to the different types of strategies;
- Cost prevention as a basic survival strategy.

Coping strategies identified among the survey households: A good proportion of all households interviewed in the surveys did not have cash readily available to pay for treatment (50.7% in the wet season and 55.3% in the dry season). Borrowing from friends and neighbours was the main source of cash in both surveys. People borrowed more often from friends and neighbours than they did from relatives. In contrast gifts were received more often from friends than relatives. Lack of cash was the main factor that hindered people from seeking treatment.

Coping strategies among the case study households: In general coping strategies reported among the case study households were similar with those reported in the surveys. The case study provided two additional types of strategies: borrowing drugs from neighbours and sharing drugs among siblings. The case study data also showed that coping behaviour was more complex than what a simple sequence can demonstrate.

The use of cash savings was common for small amounts of money enough to buy drugs from the shops. For the highly vulnerable, even small amounts required them to adopt another coping strategy. For large amounts of money to pay at a health provider, all households regardless of their vulnerability category adopted another

coping strategy. The types of options available and the amount accessible differed between vulnerability categories.

Financial and human assets played a limited role towards raising cash to pay for treatment. In particular the sale of assets was not preferred because the market was limited and the degree of liquidity for larger assets (like goats) was low. As a result households preferred to use other options like borrowing and sell the livestock later in order to fetch a good price. The sale of labour was a common strategy in the wet season. However lack of rains and therefore lack of work opportunities limited households' ability to use this asset to raise money for treatment.

Social assets in the form of social networks were the main source of cash for all households regardless of their vulnerability category. Not all households had access to most of the networks and access was determined by various factors. The key factors that determined access to support across all types of networks were wealth and trust that repayment would occur. Other factors differed from one type of network to another. Key factors that arose from the different types of networks were:

- Networks of friends and neighbours were horizontal in nature. Highly vulnerable households could only access small amounts of money from their friends because they were in a similar or worse off situation. Least vulnerable households used friends rarely but had access to larger amounts if the need arose;
- Relatives were used for large amounts of money and were the main sources of support for the highly vulnerable. However in some cases, relatives had a similar wealth status and the support available from them for the highly vulnerable was limited;
- Credit from private providers was an option for the least vulnerable and vulnerable households. Highly vulnerable households rarely used this service because their jobs and income were insecure;
- Shops are a main type of support for both the highly and least vulnerable. The kind of support available from the shops differed across vulnerability groups. While highly vulnerable households had limited access to these services, the least vulnerable households accumulated credit for one whole month.

These findings have shown that in most cases households do not have cash readily available to pay for treatment. They do adopt coping strategies which assist them to access treatment and are therefore effective in the short term. These strategies have potential implications for households. For example, borrowing can lead to high debts and a strain in social relationships limiting the options available to households. In addition since borrowing is often reciprocal, highly vulnerable households are often excluded or exclude themselves from these networks (for example RC/026 and RA/072). The sale of livestock also has implications, especially when the livestock are not accumulating. For example in one household (RB/039) the sale of two goats to pay for treatment over the eight months exhausted their livestock and left them without assets to cushion themselves from other shocks. If not sustainable, coping strategies can be erosive and push households further towards poverty (see Chapter 9).

The credit system from the shops and private providers worked well in this setting. Although mainly used by the least vulnerable, these two resources play a key role in improving access to health care. Perhaps the dispensary can learn from this innovative charging strategy to design its own system that can benefit the poor and vulnerable households and in so doing protect livelihoods from impoverishment.

CHAPTER NINE

THE DYNAMIC NATURE OF VULNERABILITY AND LIVELIHOOD CHANGE

9.1 Introduction

The results presented in Chapters 6 to 8 have focused primarily on treatment seeking behaviour, cost burdens and how they differ between vulnerability categories established at the beginning of the research. This chapter takes the analysis further by looking at livelihood change over eight months. It compares household livelihoods at the end of the research with their situation at the beginning and establishes the role of malaria cost burdens and coping strategies on recorded changes.

The chapter therefore addresses objective two in detail and finalises the presentation of results by bringing together the different aspects of vulnerability and how they interact impacting directly or indirectly on livelihoods. The chapter is divided into three main sections:

- Section 9.2 presents an overview of the categories of livelihood change, discussing in detail how a judgement was made on whether there had been any change;
- Section 9.3 summarises case study illness costs and coping strategies over eight months. It establishes the link between illness costs, coping strategies and livelihood change;
- Section 9.4 analyses the different factors that impacted on livelihoods over the research period.

9.2 Livelihood change over the case study period

This section analyses livelihood change over the case study period. It classifies households into three categories of change and sets out the main reasons for

depleted, stable and improving livelihoods. This is essential in order to understand the role played by illness cost burdens and coping strategies on livelihoods.

9.2.1 Categories of livelihood change

Information on the nature of livelihood change was collected in the last month of the case study. Households were asked to explain any changes in asset ownership and how their current livelihoods compared with the situation at the beginning of the research. In addition to the formal visit, updates were made on asset composition over the eight months informally as the research team became part and parcel of households' lives through social informal discussions. Table 9.1 shows the results of households' own categorisation of livelihood situation at the end of the research.

Table 9.1: Household own assessment of livelihood change

Declining households (Increased vulnerability)	Stable households (Stable vulnerability)	Improving households (Declining vulnerability)
RC/021; RC/065	RA/006; RD/080	RC/019
RB/023; RB/039	RA/008; RC/044	RD/084
RA/072; RA/059; RC/026	RA/033; RB/057	

The results show that the largest proportion of households (7/15) reported being in a worse off situation at the end of research. Only two households reported improvement in their livelihood. Of those that reported declining livelihoods, six were highly vulnerable at the beginning of research while one was vulnerable (Table 5.3). Households that remained stable were mainly least vulnerable (4/6) and vulnerable households (2/6).

In addition to the self-assessment, the researcher analysed the changes in asset composition within the eight months period and classified households into similar categories of livelihood change. The procedure for judging changes was based on similar assets used to classify vulnerability at the beginning of research:

- Financial assets: expenditure or income levels and sale of livestock;

- Human assets: number of working members, types of jobs and income security;
- Social assets: debts arising due to borrowing from social networks and loans from financial institutions.

The results from the researcher's categorisation were similar to the households' own assessment except in five households. Three of these households (RA/006, RA/008, RA/033) classified themselves as stable but the researcher categorised them as improving because they managed to acquire additional assets. One household classified themselves as declining (RA/059), but was classified as stable because it did not record any changes in assets over the eight months. RC/019 classified themselves as improving but the researcher classified it as stable because they recorded an increase in the number of working members (and thus income) but other factors prevented them from improving.

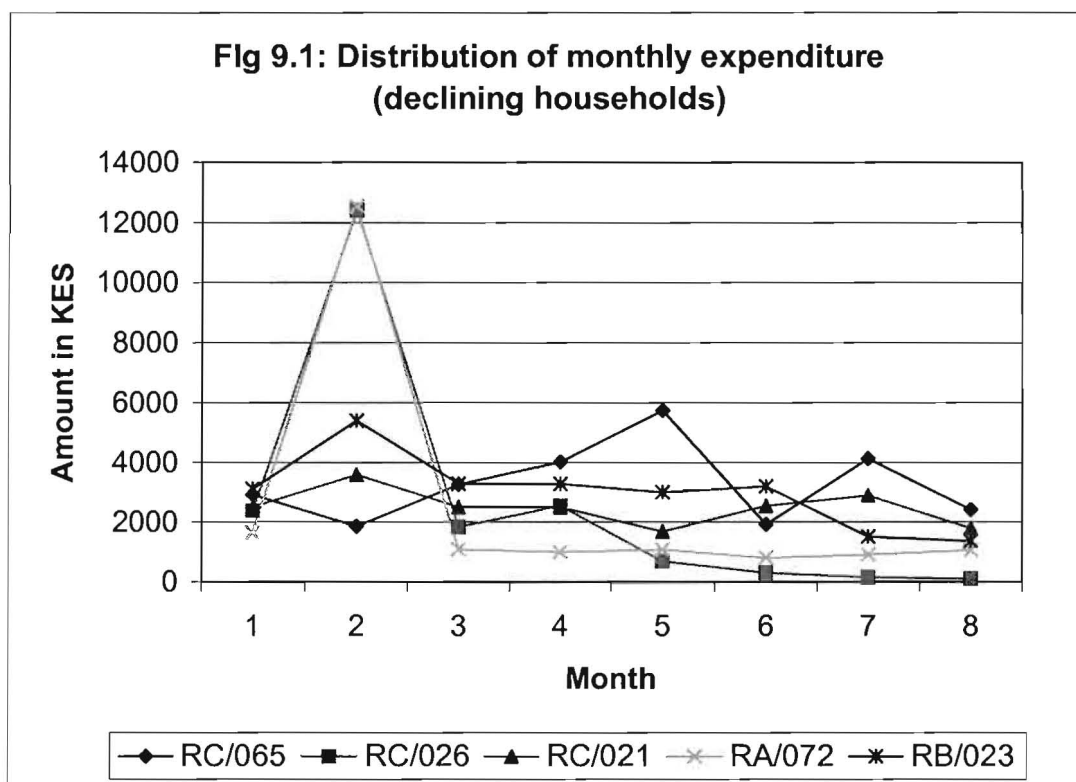
Households that had improved but classified themselves as stable reported that things remained the same, the rains had not come yet and they continued to experience food shortages. Although these households never experienced difficulties in affording food over the case study period, they felt strongly that drought limited their chances of livelihood improvement. To them their livelihoods would only improve if there were adequate rains because they would then manage to save and use the money for investment in livestock or other assets.

The results presented in the remaining part of this chapter are based on the researcher's categorisation. Although the households probably understood their livelihood situation better, the researcher's classification is more appropriate because it considers in detail how the different assets changed over the eighth months, while the households were likely to make judgments based on what mattered to them. The case of RC/019 is a typical example of why the households' classification will differ from that of the researcher (see Box 9.3).

Declining households

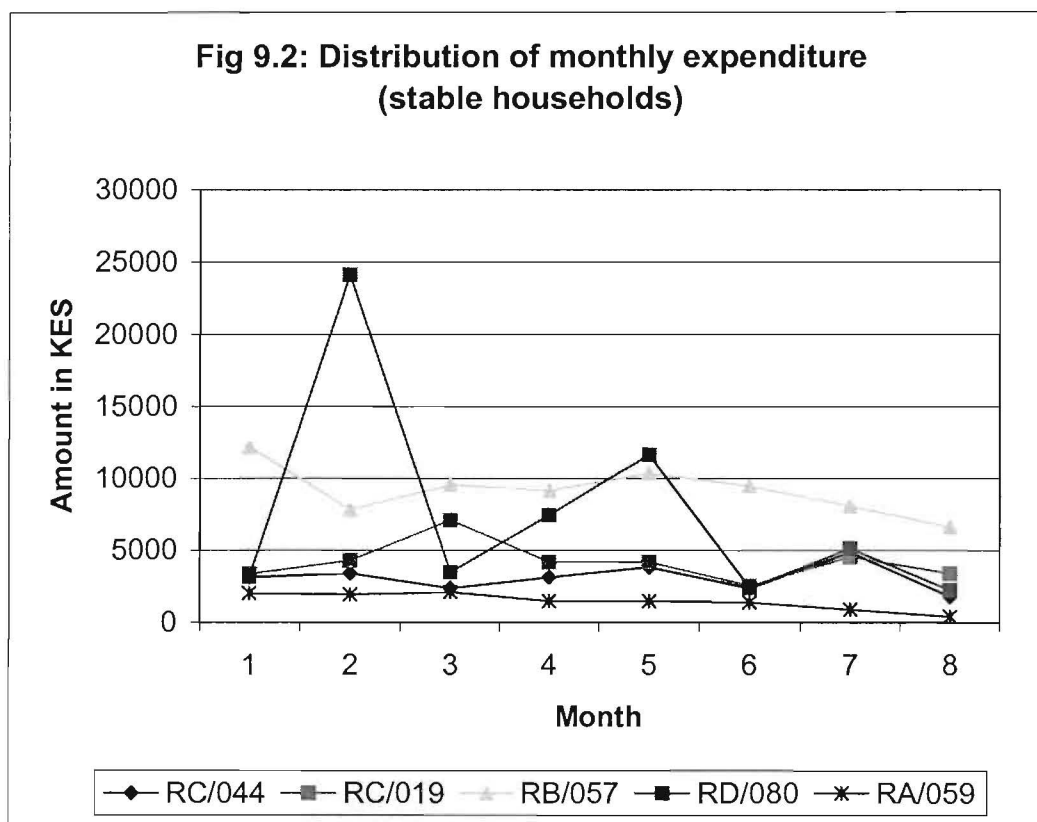
Declining households had various characteristics in common: They had depleted their assets due to illness and/or hunger and were unable to use their labour to generate income. These households had no member with regular income and they relied on subsistence farming and selling labour on farms or other casual jobs. In the course of the case study work, these households were left without any source of income since most of the casual jobs depended on rains. Even those that relied on other casual jobs in the area had stopped doing so because jobs got scarce as all households struggled to meet food requirements. Households that had livestock had sold part or all of them over the research period to finance illnesses or food shortages.

As a result their expenditure levels remained low and continued to decline towards the last months of the research as indicated in Figure 9.1, except in the second month when two households recorded high expenditure because of different factors. In RC/026 the first wife had taken a loan from her employer to pay school fees for her child who was joining secondary school. This loan led to livelihood decline as it became difficult to repay (Box 9.7), while in RA/072 the son sold two goats in order to pay for dowry. Overall three of the declined households had accumulated large debts by the time the research ended (RB/039, RB/023 and RC/026).



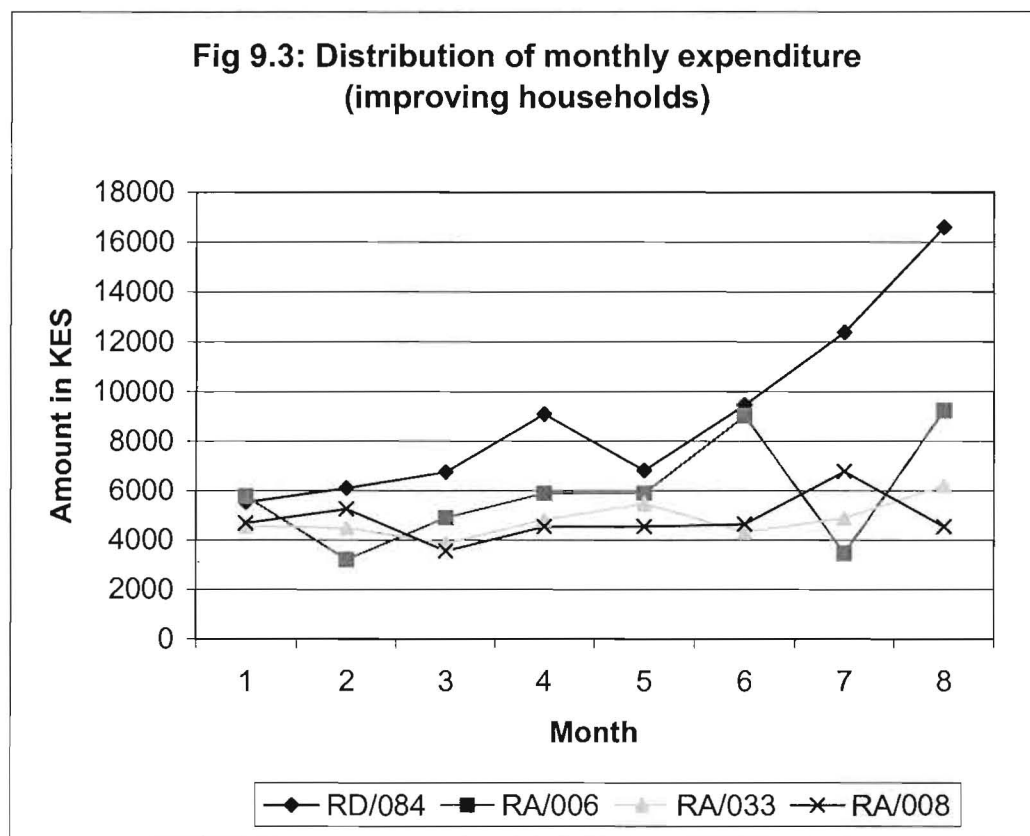
Households that remained stable

Stable households had no changes in their asset composition and even when assets were sold, this change was often compensated with improvements in other dimensions of livelihood. For example in RC/044 one of the main income earners stopped working, leading to reduced income but this was compensated by a dowry payment that ensured continuity of income for some time and additional livestock. In RC/019 there was an increase in the number of workers but these changes had no significant impact on livelihood because the HHH took advantage of the wife's absence and mismanaged the money remitted from the income earners (Box 9.3). These households recorded less fluctuating expenditure except for RD/080 that reported high expenditure in two months when they took loans to pay school fees for children in secondary school (Figure 9.2).



Households that improved

Only four households recorded an improvement in their livelihood. These improvements were mainly due to changes in income levels resulting from new household members getting permanent jobs (RA/033 and RA/006) and a large salary increase of 80% in RD/084. In addition, these households were able to accumulate financial and other assets either through reproduction (for livestock) and purchase (for material of assets). For example in RA/008 the household bought four cows, a bicycle and a radio, RD/084 started constructing a better house because the one they were living in 'was not good', while RA/006 bought a mobile phone so that they can be communicating with their children living in town. These changes were clearly reflected in their expenditure levels as presented in Figure 9.3.



9.3 Overview of links between cost burdens, coping strategies and livelihood change

This section establishes the link between illness cost burdens and livelihood change. The results on cost burdens and category of change presented in Table 9.2 show no direct link between cost burdens and livelihood change. Some households with high cost burdens declined (RB/039 and RC/065), while some remained stable (RA/008 and RB/057). Similarly some households with low cost burdens declined, some remained stable while others improved.

Table 9.2: Average monthly cost burdens and livelihood change

Declined		Stable		Improved	
Household	Cost burden	Household	Cost burden	Household	Cost burden
RB/039	19.6%	RC/019	0.2%	RA/008	7.3%
RB/023	0.3%	RB/057	12.1%	RD/084	1.0%
RC/065	6.0%	RC/044	5.1%	RA/006	1.1%
RC/021	0.5%	RA/059	0.0%	RA/033	0.0%
RA/072	0.3%	RD/080	2.0%		
RC/026	0.1%				

Note: dark colour shows highly vulnerable households; light colour; vulnerable and un-shaded least vulnerable

However, there is a clear link between vulnerability and livelihood change. In general all highly vulnerable households declined (irrespective of their cost burdens), vulnerable households either declined, remained stable or improved, while none of the least vulnerable households declined. This pattern of livelihood change can be explained by various factors:

- Exposure to risk of infection and cost burdens does not always lead to increased vulnerability or livelihood decline because households' assets endowments mediate potential impact through cost management strategies;
- For poor households, treatment seeking behaviour is often a coping strategy. Low cost burdens do not necessarily imply less risk but rather can indicate desperate situations among households that do not seek care due to affordability barriers. Among the highly vulnerable households even low cost burdens were enough to trigger coping strategies with negative implications for livelihoods;
- Livelihoods are affected by many factors and the costs of malaria are just one. Livelihoods are dynamic and are influenced by multiple factors taking place at similar times and thus difficult to associate change to just a single factor (malaria costs). Other factors that played significant roles on livelihood change are discussed in a later section of this chapter.

Coping strategies and livelihood change

The discussion on coping strategies presented in Chapter 8 showed that all households adopted coping strategies irrespective of their vulnerability categories. There was a clear relationship between coping strategies and livelihood change. In general, improved and stable households adopted cost management strategies more often than declined households. These strategies were less risky for most of the households. In contrast declined households rarely adopted cost management strategies but adopted more cost prevention strategies with potentially risky implications. This is because:

- Improved and stable households had higher incomes and sought treatment from the private clinics. Since illness costs were 'outside' the monthly budget, paying for it using cash was beyond what they could manage and had to delay payment until end of the month when they received their monthly income. Taking goods on credit and paying a lump sum of money at the end of the month was a common behaviour in this society. It was different from asking for credit because they did not have, but the way budgets were managed was such that all payments were made at one time. Therefore, the fact that improved households adopted this coping strategy more often than the declined households does not indicate a worse off position, but a better off situation because they were creditworthy and could be trusted to make payments on time.
- Declined household had more 'needs' for cost management strategies because they rarely had enough cash to meet their daily requirements but their asset endowments constrained their options. Consequently cost management strategies were not accessible neither were they affordable and could only be used under exceptional circumstances. The alternative was to prevent costs from arising or manage them using less expensive treatment seeking strategies.

9.4 Factors that constrained or facilitated livelihood improvement

Section 9.3 has revealed that there was no direct link between illness cost burdens and livelihood change. The section has argued that this is due to various factors among them the fact that livelihoods are affected by various factors of which malaria is just one. This section focuses on the factors (other than illness costs) that impacted on livelihoods over the research period in order to provide a detailed understanding of the complexity and dynamic nature of vulnerability. An in-depth understanding of vulnerability and livelihood change is necessary in order to show the dimensions of livelihoods that need to be addressed if households are to be protected from impoverishment. The factors identified over the case study period include:

- Contextual factors: in particular drought and hunger;
- Limited work opportunities and fragility of income sources;
- Social and demographic factors;
- Borrowing and debts;
- Depletion of financial assets.

These factors are presented in more detail below.

9.4.1 Contextual factors: drought and hunger

Understanding contextual factors is key to the findings of this study. It was discussed in Section 4.1 that the study area had experienced continuous drought for four years with the year that the case study took place being the worst year in a long time. Although the rains in the previous years were inadequate, it was enough to produce a little harvest that sustained households for a few months. But in this particular year (2004), the fields were dry, the crops dried before maturity and the granaries were empty. As one household put it *“even the rats have gone back to the bushes because there is not even a single maize cob in the granaries.”* (RB/057)

It is not surprising then, that since farming is the main source of income for households in Ganze, continuous drought and food shortages constrained livelihood development through their impact on the different assets that enable households to

generate income. Attempts to cope with drought and food shortages impacted on different dimensions of livelihoods and depleted assets in several interrelated ways:

Natural and human assets: Labour and land are the most important resources for the households under study. The majority of the population rely on farming and sale of labour in agricultural farms for their income. Due to rain shortages, households could not tend their farms and casual jobs were not readily available. This led to limited jobs and income levels declined tremendously. Even when jobs were available, the wages were low because the labour supply was higher than demanded and the least poor households were taking advantage of the cheap labour available from the poor and vulnerable. Moreover the drought impacted indirectly on all community members, even those with regular income, since most money was spent on buying food with little left to pay wages.

Financial assets: Drought impacted on financial assets through sale of livestock, depletion of savings and limited chances of investments. Households sold their livestock to finance food requirements and could not accumulate savings because the money they acquired was hardly enough to meet their minimum food requirements.

Social assets: Borrowing and lending was the norm in the community. Households often borrowed cash or food stuffs (mainly maize flour and cassava) from friends and neighbours to keep them going for a few days as they tried to get some work to do or as they waited for their working children to remit some money. The drought impacted on social assets as households incurred debts that became increasingly difficult to clear, straining and thus weakening their social relationships. The power of social networks was limited because there was nobody to borrow from. All households were facing the same hardship and most were 'struggling' to survive.

The prolonged drought and food shortages constrained livelihoods as indicated in the comments below:

“When you started things were better, work was easily available...now we have difficulties buying food, soap, paraffin and water and all this is brought by lack of rains. Nobody will give you vipande [a portion to dig] when there is nothing in the farms.” (RC/026)

“Things are different now...when you started people had maize in their granaries and things were a bit good. Even when the maize got finished we could cultivate vipande but now there are no vipande and we are looking upon Kadzo [works as a house girl in town]...last year we would go out looking for vipande and come home with a packet of flour but now there is nothing.” (RA/039-not key case study household)

“In the past, people used to get food from the granaries but now shops have been turned into granaries [meaning there is no food in the stores]. Going to the shops requires money and this money is not enough for the whole month.” (RA/008)

Even households that had permanent incomes were not spared because they had to assist their relatives and friends and were left with little to spend on investments. For example, RD/084 had to provide assistance to their relatives who lived within the same homestead. Although this household was able to meet their needs without difficulties, the drought affected them indirectly in that people always went to borrow money and flour from them because they knew they always had flour in the house *“When I go for my salary I have to assist everybody in the homestead.”* With time, RD/084 started complaining about helping their relatives and they decided to stop taking goods on credit from the local shop partly to reduce the amount payable at the end of the month, but also to reduce the amount of flour in the house *“so that they can be like others”* that is; not to have extra flour in the house in case relatives came to borrow.

The majority of households felt that their livelihood situation was unlikely to improve unless they received adequate rains that would enable a good harvest. Once

this happened they would have some extra money to invest in assets like livestock because everybody would have enough to eat:

“We see no changes in the future if things remain this way. Maybe if the rains come our situation might improve because we will have enough to eat. But right now we have nothing to rely on.” (RC/021)

“We can not say much about the future. When you started we had maize in the granaries, water and relish. Now we have to buy water for our use and for the twenty cows.” (RA/006)

The impact of drought on the livelihoods of case study households is summarised by cases presented in Box 9.1.

Box 9.1: Drought and hunger impact directly on livelihoods - some examples

RB/057: Drought and hunger had a major impact on RB/057 through its effect on income sources. This household used to make some money from the sale of milk (KES 15000 per month) but by the time the study ended they were milking two cows and could sell only two litres of milk per day (about KES 2000 per month). In addition, they used to get money from the sale of local wine but the palm trees were dry... *"I used to make money from selling 'mnazi' that would buy two packets of flour per day but now the palm trees no longer provide wine."* They stopped tapping two months before the study ended and because of decline in their income, RB/057 incurred a debt of KES 4000 from a friend to finance daily requirements for the family. HHH commented, *"If things continue this way, people will starve."*

RC/021: In RC/021 the HHH is a tapper employed by someone to tap his trees. They have been relying on this job to meet their needs but due to the drought the HHH had stopped tapping regularly. The HHH's employer had two people tapping from his trees but when the quantity of wine decreased they agreed that they do the job in turns. One person taps for one month and goes home for another month to enable his colleague to tap for one month; thus each of them stayed without an income for one month. As a result, RC/021 experienced difficulties meeting food requirements and sometimes slept hungry for two consecutive days without any idea of where food would come home... *"Am always faced with problems because I have to keep borrowing from relatives to make ends meet...and sometimes there is no one to borrow from."*

9.4.2 Social and demographic factors

Changes in household structure together with social factors constrained livelihood improvement. The changes were mainly due to marriage; girls getting married and stopping support to their families or men marrying additional wives, thus increasing the number of dependents within a household. For most households, increase in

household size meant more mouths to feed and thus a greater income requirement, which was often not enough to meet the family needs as presented in Box 9.2.

Box 9.2: Changes in household structure impact on livelihoods

RC/044: RC/044 relied heavily on two girls, a daughter to the HHH and a granddaughter who stopped going to school in order to assist her sick father provide for the family. Every month these two girls took money home to assist in buying food for the family. But over the course of the case study, one of the girls got married and this reduced the amount of income. The HHH complained that the marriage of the granddaughter complicated things because she was no longer working and nothing was expected from her (cash). They received two cows and cash as dowry but the HHH still felt that the regular income from this girl was important for their survival.

RC/021: In RC/021 the HHH married a second wife in the course of the research. This wife had two children and the marriage increased the household size by three. The household members complained that the marriage increased the number of mouths to feed because the second wife had young children who had to be fed on porridge all the time and they were only depending on the HHH who had unreliable income from his tapping job.

In addition to household size, poor management of resources within the household was a factor that constrained livelihood development. It was clear that control of resources was a man's responsibility even when these resources 'belonged' to women. Men made decisions as to whether their wives could take employment and when they were employed, the men demanded control of their income. This was clearly demonstrated in two cases (RC/019 and RC/026) although it was evident from other households that men had the final say when it came to management of resources, regardless of which person owned them within the household.

Box 9.3: Poor management of money by husband limits livelihood development: the case of RC/019

Over the course of the case study work, the first wife in this household always talked about leaving the village to look for a job in town because the husband does not provide for the family and she felt that the working children were struggling to meet the family needs [*HHH says he can not work because he is diabetic but the wives believe that he is avoiding his responsibilities and he does not want to provide for the family. That is why he claims that the doctors told him not to work*]. The money the working children give their parents is only enough to buy food and there is barely anything left to buy other essential items like soap, paraffin and clothes. The children did not have 'good' clothes and often had to borrow clothes from neighbours to put on for the day when they needed to travel or go visiting. Their mother was unhappy about the situation her children were in and decided to leave for town to look for a job.

She left home with one mission: to raise enough money to buy clothes for the children, soap to wash the school uniforms and paraffin to enable the school children to conduct their evening studies (they could not do their home work because they rarely had paraffin to keep the lamp burning). She managed to get a job of cutting grass to feed her employers cows. Her wages amounted to KES 440 per week. Unfortunately things did not work out as she had planned because her husband took control of her income. He started visiting her work place regularly to collect money to buy food for the children and each time, the wife gave him money with clear instructions about how the money would be spent. Sometimes he went three times in a month and each visit the wife gave him money to buy food, soap and paraffin.

In addition to collecting money from his wife, the husband also went to collect money from his working sons to buy food for the family, now that the wife was away. But the husband never used the money to buy food for the children and other necessities as instructed by his wife. Instead he used it on his 'own' things and the children did not get enough to eat.

Box 9.3 continued

The wife did not learn about the husband's behaviour until she went home to assist in planting and the children complained that she had neglected them and they were sleeping hungry...*"He uses the money for his own things, nobody knows what he does...why should he go for the money and even Katana [his son] is married. Why can't he give the daughter in law permission to go and collect money from her husband instead of him going? He leaves the daughter in law at home and goes by himself. Is this really fair?"* [The first wife comments about her husband's behaviour]

Earlier on, the second wife had left for town to conduct a charcoal selling business. They would burn charcoal together with her co-wife and daughter in law and she would take the charcoal to Kilifi town for sale because it fetches a better price there. After two months, the husband told her to stop the business and come home to take care of him because she was spending most of the time in town and he was afraid that she would get spoilt (meaning she could get other men in town because she was still young). The second wife came home and that is when the first wife decided to try her luck in town.

Because of the poor management of money by the husband and his restrictions towards his wives search for employment (despite his inability to provide for the family) this household did not improve although the number of working members had increased by two. The first wife had plans of going back to her job once she completed planting but her husband was against the idea because he had 'nobody' to cook for him. He claimed that it is the duty of the first wife to cook for her husband and not the second wife. But the wife insisted that she would go back and this time she said she had learnt a lesson and would not give any money to her husband.

9.4.3 Human assets: Limited work opportunities and fragility of income sources

Another factor that impacted on livelihoods was the change in human capital within a household including: decrease in the number of workers leading to high dependency ratios and lower incomes, scarcity and insecurity of income sources. This happened partly because few households had members in permanent employment or with regular income. Work was often unreliable and it was normal for household members to change from one type of job to another depending on availability and payment level.

The majority of the households depended on their children who did casual jobs in neighbouring towns. There was a heavy dependence of female children who in most cases worked as house girls in towns, earning a monthly salary of about KES 1000. It was the girls' responsibility to send the money to their parents every month, usually about KES 800 (if they were lucky to keep KES 200 for their own needs), failure to which a family member would travel to the employer to demand for the money. Although the income earned from this job is small, lack of it either due to girls leaving their employment or getting married impacted heavily on livelihoods because this was the only source of regular income for most households.

For the male children assisting their households, most worked as casual labourers in construction sites in Mombasa town. But unlike the female children who felt obliged to assist their families on a monthly basis and who had no control of their salaries, this was not the case among the male children. It was rare for parents to follow their sons in town to get money unless when the sons were married and had their wives living with their children in the village. In such cases, the wives could go to their husbands every two weeks or month (depending on when the husbands received their wages) to get money to buy food for the children. But for the young sons without families, help was irregular and unpredictable and households could hardly depend on them for support. The impact of job losses and fragility of incomes on livelihoods is presented in Box 9.4.

Box 9.4: Loss of work and fragility of income leads to livelihood decline

RA/072: After the HHH lost his job as a tapper due to drought and illness, this household had only one person to rely on for support, a son who also worked as a tapper in a far away place. This son who offered great support to the household lost his tapping job in the course of the case study period leaving the household without any source of predictable income. He lost the job because a colleague of his in the tapping job became jealous of him and told the owner of the palm trees that he (son to this household) was taking money from the wine sales to finance his own needs without the owner's knowledge. He was the only hope for this family and the job loss meant that they had to look for an alternative source of income. He came back home and started looking for casual jobs that were difficult to get. Later he decided to go back and look for a job in town but by the time the study ended the parents did not know whether he had been successful in his attempt and could not tell of his whereabouts. In order to meet daily requirements, this household decided that another son (school going child, aged about ten) should stop going to school so that he could assist his parents to provide for the family. He got a job of looking after goats within the locality at a salary of KES 400 per month. After the first month, the mother went to collect his salary from the employer but she was told that he had no money and that she should wait until he got money. The mother got angry and thought that the employer was refusing to pay her son (the employer had just bought many goods to stock his shop). She took her son away with no money having missed school for a month and took him back to school.

RB/023: RB/023 relied heavily on two daughters who worked as house girls in the neighbouring town for their daily needs, including paying school fees for their brother in secondary school. These girls brought money home for their father every month to spend on food (KES 1000 each) and when they failed their father would go to collect it at their place of work. Two months before completing the case study work, both girls left the jobs to get married and the household was left without any source of regular income. Life for this household became difficult, they often slept hungry when the HHH failed to get work to do and at one point the HHH complained that their marriages had done more harm than good and he reported that he would go to demand for dowry from their husbands in order to sustain the family since they had taken their only source of income.

Just like loss of work and insecure incomes led to livelihood decline, ability to get work, having a permanent job and promotion accompanied with salary increments and low dependency ratios were factors that facilitated livelihood improvement.

Box 9.4: Increase in the number of workers and salary increments enable livelihood improvement

RD/084: The HHH in RD/084 is an adult education teacher employed by the government. Since his employment in the 1980s he was earning a monthly salary of KES 5000. In the course of the case study work, he received a salary increment of 80% raising his earnings to KES 9000 per month. This increment was backdated for a number of years, he got a lump sum of money in form of arrears and he referred to himself as a '*small rich man*'. Due to rising income, this household could afford to meet their needs for a whole month without strain including buying '*cerelac*' for a newborn and eating fruits for the whole family because they felt fruits were good for their health. This household was also able to buy household items (two hurricane lamps) and started constructing a better house for his sons because the ones they were sleeping in 'was not good' and the boys were now growing up and needed some privacy. They could take goods on credit from the shop comfortably throughout the month because they had enough money to clear their debts by end of the month. This salary increment is clearly shown in the household expenditure patterns presented in Figure 9.3.

RA/006: In RA/006, two members (a son and a daughter) completed college and acquired permanent jobs, with regular income. This meant that the burden of paying school fees had reduced drastically. Unlike before when they only relied on the HHH earnings from his rental house, they now had two additional people with regular income and the burden of meeting the family needs would be shared among them. Before the son got a job (now a policeman), this household used to raise school fees through the sale of goats but they no longer needed to sell any goat because they now had more people contributing towards education. Thus the HHH was left with a little amount of money to save each month to finance urgent needs in the future, he no longer needed to sell his goats to pay school fees and he was able to acquire additional assets including a mobile phone to communicate with his working children.

9.4.4 Social assets: borrowing and lending

Social assets played a key role in livelihood change either positively by releasing money for investment or negatively by accumulating debts that were difficult to clear. Although borrowing strategies were successful in meeting short-term needs like food and treatment, households that borrowed large amounts were highly indebted by the time the research ended and they were struggling to pay back. Three of the households (RB/023, RB/057 and RC/026) declined partly because of the debts and one remained stable because they borrowed to finance investments. Examples of the impact of debt levels on livelihoods are presented in Boxes 9.5 to 9.7.

Box 9.5: High debts impact on livelihood but enable investments: the case of RD/080

The HHH in RD/080 teaches in a local primary school. His salary is enough to meet basic needs but the household was complaining that they did not have enough to eat. They had accumulated 3 loans with the teacher's cooperative society: (1) a loan of KES 60000 to finance the construction of a rental house in the local trading centre that was completed in the course of the case study work but was yet to get tenants and generate income; (2) an additional KES 30000 for paying school fees for his brother in secondary school (fourth year); (3) an emergency loan amounting to KES 20000 that he used to pay school fees and buy other necessities required for another brother who joined a boarding secondary school in the second month of case study.

When expressing her concerns on the impact of these loans on their livelihood the wife said, "*If you decide to take a loan, then know your family will suffer. These loans make people move from their normal situation [socio-economic] and life becomes full of problems...the life we live these days, it is as if my husband is not a teacher.*" Because of these loans, the HHH salary was deducted every month and what remained was barely enough to meet the basic needs. Despite having a permanent job, their monthly expenditure on daily needs reduced drastically over the eight months as all the money was diverted towards paying school fees for the two brothers and they had to rely on taking food on credit from the local shops.

Box 9.6: High debt levels deplete livelihoods: The case of RB/023

Unlike in RD/080 where the household borrowed to invest in physical and human capital, RB/023 borrowed to repay a family 'debt' that they had acquired seven years back. The HHH brother who was working as a teacher died seven years ago and the HHH was the sole beneficiary of his brother (the brother had separated with his wife a few years before his death). He received a payment of KES 44,000 from his brother's employer as part of his benefits. He used the money to buy two cows and the remaining amount used to pay school fees for his children in secondary school.

Seven years down the line, the wife to the late brother came to the household to claim her husband's dues. She had reported the matter to the child welfare department and the local chief (where she resides) issued her with a letter requiring the HHH to give her the amount he had received (KES 44,000) or be put in jail. Since he did not have the money, the HHH was put in jail under condition that he could be set free when he produced the KES 44,000. In order to be released this HHH borrowed KES 44,000 from a local bank with the assistance from the local chief. The loan was to be paid within a period of one month. By the time the case study work ended, this household had not yet paid the loan and were considering selling the cows to clear part of the debt. He was concerned that if he sold the six cows the family would suffer because they rely on these cows as a source of income through milk sales. In the end he commented if he sold those cows, his brother's wife would also suffer just like he did. She would know that "*nobody plays with fire and escapes without burns*", meaning he would consult a healer to bewitch the brother's wife so that she does not benefit from the money refunded to her.

Box 9.7: Borrowing depletes livelihoods and strains relationships between household members: The case of RC/026

The livelihood of RC/026 declined to a large extent because they took a loan from a cooperative society where the first wife works. The first wife was the only income earner and supporter of this household. In the second month of the case study, the wife took a loan of KES 10,000 to pay school fees and other necessities for her son who was joining secondary school. She was required to repay the loan every month from her salary. Unfortunately the child who had joined secondary school could not continue because the loan was only enough to pay for one term. She started complaining that her co-wife only *“sat at home and waited for her to provide food, giving birth to many children that she has nobody to provide for them”* while she worked and all her salary went to paying the loan. She stopped providing any kind of support to the family and the household was left without any regular income. This household had to sell the only livestock they had in order to sustain the family needs and relied heavily on borrowing food from relatives who lived in the same homestead *“if he sees two or three packets of flour coming to this house he just comes to borrow it and he does not return because he has nothing to do to get the money.”* (a relative to the HHH comments on the difficulties they are experiencing due to the loan)

This led to problems between the HHH and his working wife. The HHH forwarded the matter to the chief, complaining that he allowed his wife to work and yet she did not give him anything. He did not believe that the wife only got KES 500 after the salary was deducted to repay the loan. By the time the case study ended there were plans for the HHH to go to the wife's employer to find out the amount his wife gets after the loan deductions, failing to which he would go to her family to demand back his dowry. Because of the loan, this household had extreme difficulties in getting food and often had to sleep hungry sometimes for three consecutive days.

9.4.5 Financial assets: sale of livestock due to financial stress

Another factor that led to decline or improvement in livelihood was accumulation or depletion of financial assets in the form of livestock. Households that owned livestock used them as savings that they easily transformed to cash when they were faced with financial stress. The ability to transform assets into cash enabled households to meet their short-term goals without 'struggling' and without depleting their asset base because goats and chickens reproduced fast enough to replace the gap.

Generally, sale of livestock was reported among all categories of vulnerability but the reasons for the sale differed. Highly vulnerable and vulnerable households sold assets to finance basic needs that required little money which they could not raise without the adoption of a strategy (like treatment, food and debt repayment), while least vulnerable households sold livestock for less urgent needs including financing some luxuries. The sale of assets among least vulnerable households did not deplete their asset base because the number of livestock had increased through reproduction, while highly vulnerable households sold all they had leaving them at a worse off situation than they were when research started. Sale of assets among the highly vulnerable households led to decline in livelihoods while sale among the vulnerable or least vulnerable households did not necessarily impact on their livelihoods. They managed to remain stable or improve despite the sale of livestock.

Highly vulnerable households that sold livestock

Highly vulnerable households sold livestock to finance differing needs: RC/065 and RB/039 sold goats to pay for treatment of malaria, RC/026 sold the only goat they had in order to buy food for the family and soap to wash school uniforms while RA/072 sold two goats to finance a case concerning witchcraft and land between their immediate neighbours. The sale of assets within this group led to livelihood decline for all households.

Vulnerable households that sold livestock

All the vulnerable households sold assets to finance food requirements and illness. RC/044 sold all their chicken to finance treatment for two children who suffered from malaria and food requirements. In RC/019 two goats and a cow were sold to pay school fees for a child in secondary school while the chickens were sold in order to buy food. In RA/008 a goat was sold to pay for treatment while RD/080 sold chickens to pay for treatment for a child suffering from malaria. However the sale of assets in this group did not lead to decline because it was compensated by an increase in other elements of livelihoods (for example increase in number of workers in RC/019 and livestock from dowry payment in RC/044) or because they reproduced making the strategy sustainable.

Least vulnerable households that sold livestock

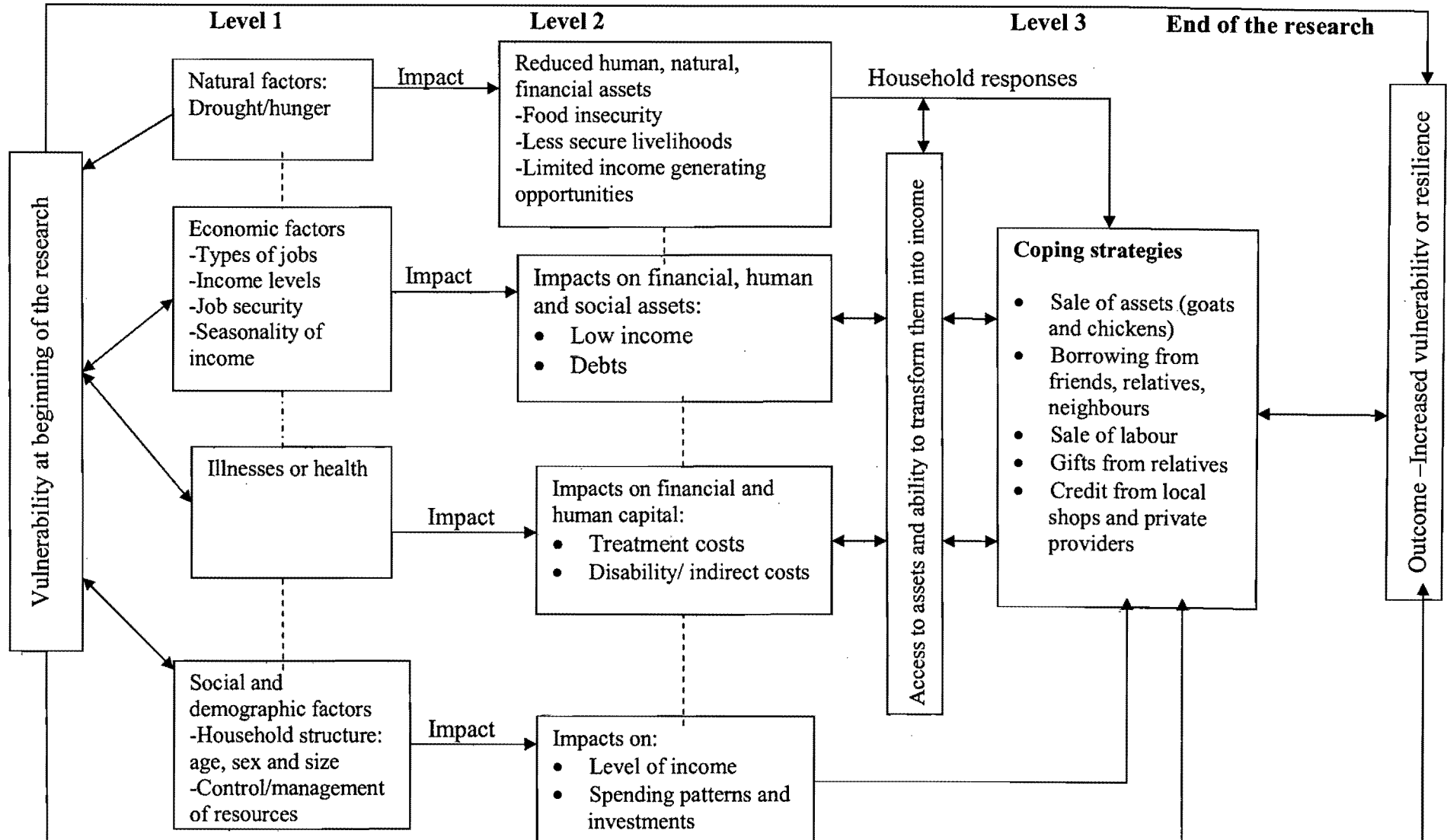
None of the households in this category sold livestock to finance food requirements but one sold a chicken to pay for treatment (RD/080) because they had limited cash due to a loan (see Box 9.5). RA/006 sold five goats to pay school fees for the children but still recorded an improvement in livelihood because the goats were kept purposely for financing education and had increased through reproduction as compared to beginning of the research. RD/084 sold two goats to clear debts in the shops which they had acquired over Christmas (had taken many goods than usual because they wanted to enjoy Christmas) and another goat to hire labour in the farms during the planting season. One household in this category (RA/033) did not sell any livestock despite recording increase in the number of livestock because they had enough income to meet basic needs and there was no need that required the sale of assets.

A summary of the main factors that impacted on livelihoods is shown in Figure 9.4. The figure brings together factors that affected households' vulnerability at the beginning of the research (Chapter 5) and those that impacted on livelihoods over the case study work to determine livelihood situation at the end of the research. Starting from the left and moving clockwise we observe the different factors that affect household livelihoods (level 1). They include natural factors (drought and hunger),

economic factors (seasonality of work, income and job insecurity), illness and health and socio-demographic factors (household's structure and management of resources). All these factors influence the impact of shocks faced by households as presented in level 2. Natural factors impact on human and financial assets through inability to use labour to generate income, limited work opportunities and food insecurity. Economic factors impact on financial and social assets through low levels of income and debts. Health factors impact on livelihoods through treatment costs and inability to generate income, while socio-demographic factors impact on spending and investment patterns.

All factors presented in levels 1 and 2 interact with each other to influence the magnitude of impact as indicated by the dashed lines. Whatever happens between levels 2 and 3 highly depends on the policies and institutions in place including the health care system. Households respond to the impact by adopting coping strategies presented in level three. The coping strategies are influenced by access to the different types of assets and ability to transform them into income. These factors interact to determine household vulnerability or resilience at the end of the research.

Fig 9.4: Linkage between vulnerability, illness costs, coping strategies and livelihood change: a summary



9.5 Summary and conclusions

This chapter has presented the main elements of livelihood change recorded over eight months. Relying heavily on the conceptual framework developed in Chapter 3, the chapter address three main topics of interest:

- Overview of livelihood change over eight months;
- Link between illness cost burdens, coping strategies and livelihood change;
- The factors that constrained or facilitated livelihood development.

Malaria cost burdens and livelihood change: There was no clear relationship between cost burdens and livelihood change. Some households with low illness cost burdens recorded livelihood improvement while others declined. Similarly some households with high costs improved, others remained stable while others declined. This is because malaria is not the only factor that influenced livelihoods. The different elements of livelihoods interact with different types of shocks facilitating or constraining livelihood development. When these other types of shocks are taken into consideration the potential link between malaria, vulnerability and livelihood change becomes clearer. These impacts cannot be separated from the broader context of livelihood change.

On the other hand exposure to risk of malaria infection and related consequences does not necessarily lead to increased vulnerability. Whether costs of malaria make livelihoods vulnerable will depend on households' asset endowments and their ability to use them to manage costs burdens. It is important to understand the broader context of livelihood change by bringing together the different elements that constrained or facilitated livelihood development and the role of coping strategies in preventing or mitigating livelihood decline. When this is done the results show a clear relationship between the three main factors of interest in the study that is vulnerability, cost burdens and livelihood change:

- Highly vulnerable households declined irrespective of their cost burdens and coping strategies;

- Vulnerable households either declined or remained stable except in one case that recorded an improvement because the son in this household was able to access money that helped him buy additional assets;
- None of the least vulnerable households declined irrespective of their cost burdens and coping strategies.

Livelihood change over the research period: The discussion on livelihood change shows that livelihood development was constrained or facilitated by various factors. Of major importance is the role played by drought in influencing the different aspects of livelihoods. Factors that enabled livelihood improvement included an increase in the number of working members with regular incomes, decrease in dependency ratios and income rises due to promotions. Factors that constrained livelihood improvements included job losses, changes in household structures, husbands' control of women's resources and accumulated debts.

Factors that facilitated livelihood development were mainly observed among least vulnerable and vulnerable households while those that constrained developments were observed among the highly vulnerable.

CHAPTER TEN

CONCLUSIONS AND POLICY RECOMMENDATIONS

10.1 Introduction

This chapter summarises the main findings of the study in terms of the objectives set out at the beginning of the research. The chapter brings together the information presented in the thesis to provide answers to the research questions and demonstrates that the research objectives have been met.

The chapter has four main sections:

- Section 10.2 revisits the policy context that drove the research and demonstrates that the study findings justify the concern about implications of malaria cost burdens for households;
- Section 10.3 summarises key findings based on main topics of interest: illness patterns, treatment seeking, cost burdens, coping strategies and implications for livelihoods. The section demonstrates that objectives one to four have been met;
- Section 10.4 uses the results presented in section 10.3 to identify policy issues that can be addressed in order to improve access to health care and protect households from high costs of illness. It addresses objective five and completes the dissertation;
- Section 10.5 identifies area for further research.

10.2: Policy relevance: overview of general findings

Section 1.3 discussed the key issues that drove the research. The section also justified that Kenya is an ideal country for the study due to the high burden of malaria and the existing user fees in public health facilities. These debates are briefly revisited here to demonstrate the relevance of the study findings to current debates in health care financing in Kenya and internationally. Policy recommendations to address these findings are identified in a later section of this chapter.

Health care charges: A common goal of the health sector reforms introduced in the 1980s was to improve the financing and delivery of health care services. This was to be achieved through various reform designs including user fees, encouraging privatisation and decentralization (World Bank 1987). The review of the literature presented in Section 2.1 demonstrated that the achievements of health sector reforms have been far below expectations. Rather user fees have been criticised on the basis of imposing additional cost burdens, creating barriers to access for the poor and promoting inequities (Arhin-Tenkorang 2001; Gilson et al. 1995). Most recently, donor agencies and governments of developing countries have been considering shifting policies from charging user fees towards providing free health care at primary levels. Developing countries are also considering shifting from out-of-pocket payments towards approaches that encourage risk pooling like community prepayment schemes and social health insurance (WHO 2000).

The findings from this study, summarised in Section 10.3 contribute to these policy debates. Evidence from the survey and case study data showed that charges in health care facilities impose additional financial burdens on resource poor households. Even though fees charged at the public dispensary were relatively low, lack of cash was the main factor that hindered households from seeking treatment, a factor that can lead to delay or lack of treatment all together. Among the survey households, the majority of individuals (60.3% in wet season and 64.0% in dry season) that did not seek treatment reported that lack of cash was the main factor that prevented them from seeking treatment. Among those that sought treatment, the majority coped by using cheaper alternatives like self treatment. For a large proportion of households (both the poorest and least poor) illness costs were financed using coping strategies (Chapter 8) that potentially impacted on their asset base, making them more vulnerable in future (Chapter 9).

Although user fees in primary health care services are just one component of illness cost burdens, evidence from the findings summarised in this chapter show that there is need to act urgently towards protecting households from costs of illness.

Malaria, poverty and development: Health is a key asset for the poor because it enables them to use their labour to generate income. The findings presented in this study show that malaria imposes significant costs on households through paying for treatment, income losses and asset depletion. Although the costs of malaria can be much lower than those of

chronic conditions (Russell 2004), continuous spending and inability to work due to illness can lead to impoverishment among the poor and vulnerable. In the process households progress towards poverty and those that are already in poverty are trapped in it. These costs translate to limited economic growth and increased poverty at a national level.

The findings from the surveys estimate mean direct cost burdens as 7.0% of monthly expenditure in the wet season and 5.9% in the dry season. When mean total cost burdens are analysed by quintiles, the results showed that the poorest spend a larger proportion of their expenditure (19.1% in wet season) than the least poor (5.0%). A similar pattern was observed among case study households. Other studies have found that spending on malaria is highly regressive ranging from 2.0% for the highest income quintile to 28.0% in the lowest quintile Ettlting et al. (1994). Highly vulnerable households incurred the highest average cost burdens (5.4%) compared to the least vulnerable (1.0%). The case study data also showed that some households had their livelihoods depleted by malaria cost burdens before and during the study and were in a trajectory of decline (Section 10.4). These findings contribute to a small body of literature that has explored the implications on illness cost burdens and health care charges on livelihoods (Falkingham 2004; Russell 2001; Russell and Abdela 2002; Segall et al. 2002).

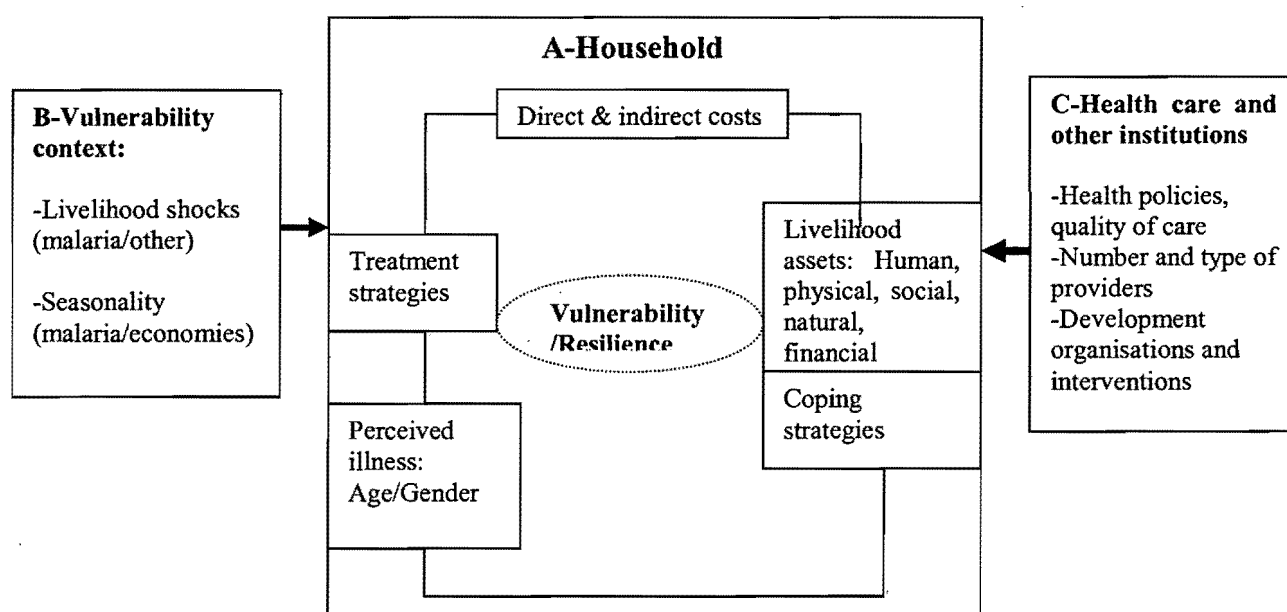
The conclusion that arises from these general findings is that malaria imposes burdens on households' budgets and these costs can potentially lead households towards poverty and vulnerability. These findings provide additional evidence towards the relationship between malaria and poverty and highlight the need to move beyond a narrow health sector focus to reduce the burden of malaria to one that takes a multi-sectoral approach and incorporates development and poverty reduction strategies.

10.3 Summary of findings by key objectives

The research presented in this thesis was designed to contribute to a better understanding of the economic burden of malaria and in so doing build on existing literature and contribute towards policy and intervention debates discussed above. To illustrate how the study findings support and expand on the existing literature, the key findings considered to have practical and policy implications are outlined in this section.

The findings presented in this section are organised around the conceptual framework presented in Chapter 3 and relate to the key variables identified and explored throughout the study (Figure 3.3). The key elements of the conceptual framework are briefly repeated here for the convenience of the reader (Figure 10.1). The importance of focusing on different levels of analysis and using multiple methods to understand vulnerability and coping behaviour is clearly demonstrated by the findings.

Figure 10.1: Key elements of the conceptual framework



10.3.1 Vulnerability and livelihoods

Chapter 4 described the community under study by locating households within the livelihood framework (Box B, Figure 10.1). It analysed the external environment in which households live and how it impacts on the different types of capital used to generate income and to cushion households from illness and other shocks (Box A). The chapter also highlighted the importance of understanding livelihoods and contextual factors in detail because results need to be interpreted within the context in which the study took place. Chapter 5 took the analysis of livelihoods and vulnerability further by focusing on

15 case study households. The information arising from these two chapters addressed objective two by identifying factors that made households vulnerable or resilient.

Vulnerability and livelihoods at a community level

The findings showed that the Ganze community is under resourced in terms of the five types of capital. Not only are specific households vulnerable but also the whole community is disadvantaged due to remoteness and natural disasters that prevent the population from making use of their important assets; labour and land. Specific key findings include:

Human assets in the form of education and skills are of low standards. For instance, 63.8% of all adult females did not have even a single year of education. Illiteracy rates are above the national figures estimated as 16.0% in males and 21.0% in females (GOK 2002). Literacy levels in most parts of Kenya are very high and the job market is such that even informal jobs require people with formal qualifications. Consequently Ganze residents stand a lower chance of employment and most of them end up doing highly unskilled jobs. These jobs are seasonal, often insecure with low and unpredictable income that is inadequate to meet basic needs.

With respect to financial assets, the results showed that access to 'large' amount of money is difficult. Ability to raise KES 250 equivalent to charges incurred at a private provider was only possible for 45.0% of the population and only 12.3% could manage to raise KES 2000 equivalent to charges for admission in a district hospital. This raises a concern about the impact of malaria on households. Considering that the majority of households can only manage to raise below KES 50 (Section 4.3.2), even buying effective AMs from the shops would have a significant impact on their budgets.

The analysis of social assets identified different types of networks used to access cash. They included relatives, friends and neighbours. The chapter also presented the different types of informal groups operating in the area. A good proportion of households (36.8%) had at least one member in a voluntary group. These groups were seasonal and difficult to sustain due to limited access to cash and problems associated with trust. Group membership was higher among least poor households (50.0%) as compared to the poorest (28.0%). These findings have important implications for any interventions that intend to

use groups to reach the poor: (1) The fact that groups operate seasonally raises a question of sustainability. In communities where incomes highly depend on agriculture, group contribution is likely to go down in the periods of economic hardship; (2) Any interventions that target these groups would have to identify strategies to ensure that the poorest households are represented. If such measures are not put in place, the poorest are unlikely to benefit from any services and this can promote inequities between the poor and the least poor creating 'antisocial' capital (Campbell et al. 2002).

Vulnerability and livelihoods at a household level

Even within a predominantly poor community, there exist differences in vulnerability at a household level based on ability to cope with the consequences arising from broader contextual shocks and more specific ones like illness. Using 15 case study households Chapter 5 classified households into different vulnerability categories.

Households that had spent large amounts of money on malaria and related deaths were more vulnerable than those that had not experienced illnesses. Three households (RB/039, RB/023 and RC/065) had their livelihoods on a trajectory of decline due to past malaria illness that led to debt accumulation and sale of assets. As a result these households were highly vulnerable at the point the research started and their livelihoods continued to be depleted over the research period.

The results also showed that vulnerability is dynamic and influenced by many factors. Although the main aim of the study was to understand vulnerability and coping with costs of malaria, it was evident that other factors influencing vulnerability could not be isolated from malaria per se. Therefore some households were vulnerable not due to malaria, but due to other illnesses and non-illness events that had impacted on livelihoods before the research started (RB/057 and RC/019). The impact of these factors (though not malaria specific) was shown to be important because the economic situation of households at the beginning of the research determined their ability to cope with malaria cost burdens when they arose.

10.3.2 Self reported malaria and cost burdens

Data on reported malaria and cost burdens was presented in Chapters 6 and 7 using both survey and case study households. The information on this topic explored variables presented in Box A of the conceptual framework (Figure 10.1) and addresses objectives one and two. Key topics addressed in these chapters were patterns of illness, treatment seeking behaviour and cost burdens. A summary of key issues arising from these topics is presented below.

Self reported malaria

The proportion of households reporting malaria was higher in the wet season than in the dry season (64.3% in the wet season and 38.2% in the dry season). A similar pattern was observed among the case study households. Few studies have looked at seasonal variations in self-reported illnesses, and even fewer have looked specifically at seasonal differences in malaria. Sauerborn et al (1996b) explored seasonal differences of all illnesses (i.e. not malaria specific) in a rural setting in Burkina Faso. They observed the opposite pattern; more illnesses were reported in the dry season than in the wet. They argue that since the wet season is a busy time for agricultural communities, people are less likely to be ill (perceive illnesses as less severe) in order to minimise potential losses. Being ill during the wet season can lead to income losses arising from inability to conduct income generating activities. Other studies not higher utilization of health care services in the dry season than in the wet, implying higher reporting in the dry season (Litvack and Bodart 1993; Fabricant et al. 1982). Despite these differences, the findings arising from this study are in line with what one would expect because of the nature of malaria transmission (higher in the wet season than in the dry) and the economic activities of Ganze residents.

The number of households reporting illness was highest among the poorest households (71.4%) as compared to only 47.3% of the least poor. The difference across the five quintiles was not statistically significant. A review of the literature by Worrall et al. (2002) found that the number of self-reported malaria was higher among the poor households but these differences did not vary significantly across socio-economic groups. They attribute this to various factors including lack of proper ways of identifying the poor and limited use of preventive measures among all categories of households. This study attributes the findings to the following factors:

- All survey households faced a similar risk of infection because they live within an area of similar malaria transmission patterns;
- The community is predominantly 'poor' and least poor households are likely to experience difficulties affording risk preventive measures like ITNs;
- Other studies have argued that the poorest households tend to under-report illness because they 'cannot afford to be ill' (Sauerborn et al 1996b).

Among surveys and case study households, reported illnesses were higher in children than adults. For example two households comprising primarily of children (RA/008 and RD/084) reported the highest number of illness episodes over the eight months (Boxes 6.1 and 6.2). Although this is expected due to the nature of transmission in the area, it implies that households in the early stages of their life cycle are not only prone to the risk of infection but are also more vulnerable to the costs arising from the disease. Moreover it was found out that working children were a main source of financial support for their families (Chapter 8). Households that had children working in town did not only have more income but also accessed credit easily in case of financial stress. Thus households with young children are faced with a double challenge: (1) higher risk of malaria infection (and thus potentially higher costs) and; (2) limited financial support because their children are young.

Treatment seeking patterns

Self treatment using shop drugs was the main type of action identified in both surveys (47.9% in the wet season and 43.9% in the dry season). Other studies in Kenya have identified shops as the most common type of treatment (Amin et al. 2003; Molyneux et al. 1999; Mwenesi et al. 1995; Nyamongo 2002; Snow et al. 1999). A similar pattern has been observed in other parts of Africa (Akenso-Okyere and Dzator 1999; Attanayake et al. 2001; Muela et al. 2000c; Onwujekwe et al. 2000; Onwujekwe and Uzochukwo 2004). It was not clear from the surveys whether households preferred using private clinics to the dispensary. For example, in the wet season 9.5% of all actions were taken at private clinics compared to 6.8% of actions taken at the dispensary. The pattern was different in the dry season where 13.1% of all actions were taken at the dispensary compared to only 5.2% that involved a private clinic. These results can be interpreted in different ways: (1) there are mixed preferences between these two kinds of providers. None is preferred over

the other; (2) the dry season is a season of economic hardships and so households use the dispensary because charges are lower than private. In contrast there are more economic activities (and thus more income) in the wet season and households can afford to pay the charges incurred at a private clinic; (3) because the wet season is a busy agricultural season, households go to the private clinics to minimise time losses that are likely to arise from long waiting times at the dispensary.

Overall treatment seeking patterns among case study households were similar with those identified in the survey. However, unlike in the survey it was clear that case study households preferred using private clinics to the dispensary. A study using similar methodologies in Sri-Lanka a contrasting pattern. Case study households used government facilities more often than the private (Russell 2001; 2004). Although the public health care system in Sri-Lanka offered free health care services for all (which might have led to higher utilization) Russell associates the pattern with high levels of trust in the public health system especially for illnesses requiring regular visits and large amounts of money. In Kenya, although government health services are relatively cheap, people prefer to use private providers because of their perceived higher quality services and a general lack of trust in government services (MOH 2003).

A striking difference in treatment seeking patterns between survey and case study findings was the use of healers. FGDs reported that healers are used for malaria treatment especially for childhood illnesses. Interestingly, the results from the surveys showed that healers were rarely used (0.7% in the wet season and 1.7% in the dry season). Over the course of the case study work there was reported use of healers to treat persisting illnesses both in adults and children. The case study was able to capture this information because of its design that enabled the research team to build relationships and develop rapport with households. These relationships made it possible for the households to talk comfortably about their treatment seeking patterns even when they were kept as secrets from 'outsiders'. Moreover, healers were rarely used as a first action and were only consulted when an illness persisted. This might have made it difficult to capture this information in a two-week recall survey. A good example was a household that belonged to a church which did not allow their members to use any type of treatment, except prayers. But this household did not follow the rules of the church and sought treatment 'secretly' from the formal health care providers and from healers. This secret was only exposed later to the

FW as she became part of this household's life and it provided enriching information of the 'unseen' and 'unknown' costs of illness (See Box 6.6).

Malaria cost burdens

The data on illness costs showed that the distribution of cost burdens (direct and indirect) was highly skewed. The majority of households incurred low cost burdens below 5.0% (56.2% in the wet season and 66.3% in the dry season) but a few incurred high cost burdens that pushed the mean high above the median.

Mean cost burdens were higher in the wet season than in the dry season. Other studies comparing illness costs burdens by season have reported higher cost burden in the dry season than in the wet (Sauerborn et al. 1996a; 1996b). The difference between the finding arising from this study and that of others can be explained by various factors:

- The drought may have impacted on household production; income levels and spending patterns to the extent that the study did not capture the actual variations in expenditure (and thus income) as would have been in a normal year.
- Methodological differences of valuing income and costs have an impact. While Sauerborn et al. (1996a; 1996b) valued home production to estimate income, this study used expenditure as a proxy of income. The use of expenditure rather than income among agricultural communities is preferred because households consume a large proportion of their own production, which becomes difficult to value (Deaton 1997).

Mean monthly direct costs per household amounted to 7.1% of monthly expenditure in the wet season and 5.9% in the dry season. A recent review of the literature by Russell (2004) identified mean direct costs per month ranging from 2.0% of income in Malawi to 2.9% in Nigeria (Attanayake et al. 2000; Ettlting et al. 1994; Onwujekwe et al. 2000). Clearly mean direct cost burdens estimated in this thesis are much higher than elsewhere. This can be explained by various factors including:

- The context in which the study took place: The results presented throughout the thesis have shown that the population in Ganze is predominantly poor. In absolute terms, the survey households might have spent relatively lower amounts of money on treatment. Since mean expenditure (and thus income) in this community is low, cost burdens as percentage of monthly expenditure are likely to be higher;

- Comparison across studies is difficult because of differences in methodological approaches. There are no clear guidelines as to what should be incorporated as part of direct cost estimates (see Section 1.4.2);
- Estimates of cost burdens are likely to vary depending on the nature of malaria transmission and the timing of the surveys. This information is often left out when data is presented making it more difficult to account for any difference across and within settings.

Indirect costs were lower than direct costs. Mean days lost per sick adult per episode were 4 in the wet season and 5 in the dry season. These findings are in line with others identified in similar settings. For example, Leighton and Foster (1997) estimated that a sick adult in Kenya lost between 2-4 days per episode. A recent review of the literature by Chima et al. (2003) revealed that days lost by a sick adult range from 1-5 per episode. When days lost are valued in monetary terms, mean cost per household per month amounted to 5.4% of expenditure in the wet season and 2.1% in the dry season. It is difficult to compare these results with other studies because of differences in methods of valuing time. However the large difference between the direct and indirect cost estimates can be explained by various factors:

- Illness episodes were concentrated among children under five and the potential impact on income generating activities was likely to be minimal. Although studies on malaria cost burdens report loss of income among carers, this was rarely reported in Ganze because the majority of households live as large extended families and childcare is not the responsibility to the mother alone. Other people within the household assist to look after children as part of their routine activities;
- Income generating activities were very limited due to drought. Even in the absence of illness, very few days in the month were regarded as income days;
- What is clear is that malaria causes pain and anxiety to both the sick and healthy members of a household in addition to being unable to conduct normal non-income activities. Valuing this impact is difficult and expressing days lost to non-income in monetary terms could lead to 'over-estimation' of cost burdens. When the data on indirect costs is interpreted on the basis of the study context, the results are in line with what one would expect in a setting with much labour substitution.

In general, these findings support the need to incorporate seasonality components into estimates of the economic burden of malaria. At the very least, the timing of surveys and other context contextual information such as economic activities and malaria transmission patterns should be provided to enable comparisons between studies.

Illness costs and vulnerability

There was a clear relationship between cost burdens and vulnerability categories. Highly vulnerable households recorded the highest average cost burdens per month (5.4%); vulnerable households had average cost burdens of 4.1%, while least vulnerable households incurred the lowest cost burdens (1.0%). However, cost burdens varied from case to case (Table 6.11). Some highly vulnerable households reported a high number of illnesses but incurred low cost burdens because they rarely sought treatment and continued to struggle on despite the illness, thus preventing costs from arising.

Illness costs were often complex and fluctuated from month to month (Box 6.5). Consequently the impact of illness varied between months with different implications depending on illness severity and treatment seeking behaviour. The case study data also revealed that there are 'unseen' costs of illness which are difficult to capture in a survey unless it is carefully designed and conducted. These costs can sometimes be higher than actual charges as presented in Box 6.6 and have major implications for ability to come up with accurate cost estimates in a survey. The 'unseen' costs of illness

10.3.3 Health care providers and their implications for cost burdens

Chapter 7 focused on Box C of the conceptual framework (Figure 10.1) by analysing the potential role of key health care providers in aggravating cost burdens and protecting livelihoods. It looked at characteristics of the three main health care providers (shops, dispensary and private clinics) and their impact on treatment seeking behaviour. Key variables explored included quality of care, cost burdens and charging strategies. This information contributed towards meeting objectives one and two of the study. The results revealed that the different health care providers played different roles on cost burdens and livelihood protection as presented below.

The shops: Shops were important for the poor and the least poor because they sold drugs at a low price that was affordable for most households. Cost burdens incurred from buying shop drugs were easily managed using cash savings within the household. Low spending on shop drugs made other resources available to meet other basic needs and investment as clearly demonstrated by the case of RA/008 and RD/084 (Boxes 7.3 and 7.5). However this key resource did not fully protect households from high illness cost burdens because it suffered from various limitations including:

- Shops could only be used for mild illnesses;
- There is limited quality control, if any, over the quality of the drugs.
- Self treatment can lead to inappropriate use of drugs.

The drugs sold at the shops are often of low quality and in some cases these drugs expire on the counter posing a health risk to the consumers. Amin et al. (2004) found that most drugs sold over the counter in Kenya were of below standards and recommend that measures be put in place to control licensing of drug sales. Although shops acted as potential 'safety nets' in terms of offering 'affordable' drugs, it creates the danger of irrational drug use¹. Irrational drug use increases the chances of resistance as has already been recorded in many parts of SSA (Foster 1995; White 1999). Drug resistance requires that new effective drugs be introduced (for example the move from monotherapy to combination therapy) and often the new drugs are more expensive posing higher cost burdens that potentially lead to more irrational drug use and the cycle goes on.

The dispensary: The results showed that the public dispensary has the potential to protect households (Box 7.6) but fails to do so because of many weaknesses. The main weaknesses of the dispensary were:

- Low trust in the perceived quality of care;
- Long waiting times;
- Staff attitude (rude staff who lacked patients' interest);
- Irregular opening hours;
- Limited interpersonal relationship between doctors and patients.

¹ Understanding the quality of drugs and how they are used within the households, was however beyond the scope of this study.

The results also showed that households were keen to benefit from the potential protection offered by the dispensary but its deficiencies reduced their chances of getting any protection (Boxes 7.7 and 7.8). Because of the limitations of the dispensary, even the poorest households preferred to use the private sector despite the high costs. The public dispensary therefore drove households away towards other types of treatment leading to high costs with potential implications for livelihoods (Boxes 7.8 and 7.9). This is not unique to Kenya alone, in other parts of SSA trust between patients and public providers appears to be declining due to institutional and service delivery failures including drugs shortages and poor relationships with staff. These weaknesses have potential implications for the poor and vulnerable populations trust in and access to health care services (Burungi 1998; Gilson 2003).

The overall conclusion arising from these findings is that unaffordable charges together with low trust in the public dispensary exclude many of the poor people from accessing quality health care leading to high costs that can be prevented if this service was improved.

Private clinics: Private clinics attracted households because people trusted the quality of services and providers used innovative charging strategies (post payment either in full or instalments) to improve ATP. These strategies were mainly favourable for wealthy and least vulnerable households. The innovative charging strategies protected livelihoods by spreading costs over time limiting the chances of adopting risky coping strategies like it would otherwise have been if all costs were paid in bulk. Although private clinics were an important alternative to the dispensary that failed to offer protection to households, they had the potential to ‘exploit’ customers through offering services of low ‘technical’ quality. While technical quality of care is perhaps the most important element of care, households might not be in a position to make correct judgement because they suffer from lack of information.

10.3.4 Coping strategies

Chapter 8 addressed objective three by analysing coping strategies. The surveys identified the different types of strategies while the case study explored these strategies in detail to

understand the factors determining access to the wide range of strategies. The main types of strategies used among the survey and case study households were:

- Borrowing from friends and relatives;
- Credit from private providers;
- Credit from the shops;
- Sale of livestock;
- Gifts from relatives and friends;
- Sale of labour on agricultural farms.

Of these strategies, social networks were the most common sources of cash for all categories of households. Financial and human assets were rarely used to finance illness costs because they were neither affordable nor accessible to most households. The ability to access coping strategies through social networks differed between vulnerability categories. A key factor that determined access to social networks was wealth. Households that had regular incomes could borrow easily from all types of networks unlike their poor counterparts who were excluded from these networks. Key features arising from social networks were:

- Least vulnerable households had access to all types of networks;
- Highly vulnerable households had limited access to shops and private providers because they were uncreditworthy;
- For highly vulnerable households, relatives and friends were the main sources of support. In contrast least vulnerable households rarely used friends and relatives because they had other sources of credit but could access them if need arose;
- The amount of support that highly vulnerable households could access through their social networks was limited because network members were in a similar or worse wealth status. Least vulnerable households could access large amounts of money from their friends because most of them were in similar or higher wealth status.

The important role of social networks in meeting the costs of illness has been identified elsewhere. In Sri Lanka households with strong social networks were able to cope with illness costs without experiencing livelihood impoverishment. Similarly robust or rich households had better access to social networks than the highly vulnerable because they could be trusted to repay debts on time (Russell 2001). In Tanzania, single women with

strong social networks were able to finance the costs of malaria treatment without much difficulty (Muela et al. 2000a). Other studies have argued that borrowing (as social networks) are only readily available to the wealthy households (Lucas and Nuwagaba 1999; Sauerborn et al. 1996a). Regarding other types of coping strategies, other studies have observed different patterns. For example, in Sri-Lanka jewellery was the main type of asset sold to pay for treatment. In Urban Sri-Lanka, jewellery is regarded as savings and women especially accumulate them to be traded in future in cases of emergency or to finance wedding ceremonies (Russell 2001). This reflects the nature of the livelihoods in an urban community, unlike in this study setting and in Burkina Faso where livestock act as ambulatory banks (Sauerborn et al. 1996b). Similarly, while group membership was an important asset for people in Sri-Lanka (Russell 2001), this was not the case in Ganze. Group membership was low due to limited access to cash, the drought and the high levels of poverty in the area, in addition to lack of organisations that can 'boost' or strengthen social capital like the case of Sri-Lanka.

The conclusions that arise from these findings is that although social networks are important resources the poor and vulnerable benefit least from them because of their low wealth status. Any attempts to promote social networks as a way of improving access to cash and thus increase ATP should be carefully designed to meet the needs of the poor and vulnerable who are often underrepresented in these networks.

10.3.5 Catastrophic spending and livelihood implications

A discussion on catastrophic spending (high costs with potential implications for livelihoods) was presented briefly in Chapter 6 as a foundation for more detailed analysis on livelihood change conducted in Chapter 9. This information addressed objectives two and four by identifying factors that make households vulnerable and the implications of cost burdens for livelihoods over eight months.

Using a cut-off point of 10% of monthly expenditure (commonly used in the literature), the survey findings revealed that a good proportion of households incurred potentially catastrophic cost burdens (30.7% in wet season and 24.4% in the dry season). The two poorest quintiles recorded the highest proportion of households with costs above 10% (53.8% in wet season and 61.9% in the dry season) as compared to least poor households

(11.5% in wet season and 4.8% in the dry season). Whether these cost burdens had implications for households could not be established using the survey findings but these findings suggests that the 10% cut-off typically referred to in the literature is arbitrary: depending on household socio-economic status and/or asset base, some households might incur low cost burdens, which lead to impoverishment. Others have argued that it is not only the level of the burden that matters, but also the timing of health care expenses, how costs are managed within household budgets and the functioning of the health system (McIntyre et al. 2006; Russell 2004; Van Damme et al. 2004). In poor communities, even relatively small amounts of money have been found to cause financial hardship and accumulating debts, which can become catastrophic (Daniel 1993; Van Damme et al. 2004).

Among the case study households illness cost burdens had important implications among the poor and vulnerable households. But in most cases the relationship between illness costs and livelihood change over eight months was not clear. Highly vulnerable households were desperate and struggling to make ends meet and therefore ignored illness and prevented costs from arising (recording low cost burdens). Once the three key concepts (vulnerability, cost burdens and livelihoods) are analysed together the relationship between cost burdens and livelihood change becomes clear.

Overall 13 out of the 15 key case study households incurred illness cost burdens over the eight months. The implications of cost burdens for livelihoods were different depending on income, asset endowments and ATC. It is difficult to generalise these findings across vulnerability categories since the impact on livelihoods were household specific and were influenced by various factors (Chapter 9). In general, there were three broad categories of livelihood change:

Declined households (n=6): Five households in this category were highly vulnerable at the beginning of the research. Three had their assets depleted due to malaria before the research started. Declined households had low and insecure incomes and even low costs of spending on treatment constrained their budgets and required adoption of a coping strategy. These households had limited choices of cost management strategies. Cost burdens were financed through borrowing (leading to debts) and/or sale of assets leaving them more vulnerable than they were when the research started.

Stable households (n=5): Most households in this category were moderately vulnerable at the beginning of the research. Only one household had their livelihoods affected by malaria prior to the study. The others had their livelihoods affected by non-malaria related factors but still owned some assets to cushion themselves against shock. Two households in this category incurred high costs and depleted their assets. One of them remained stable because they had a rich friend who assisted them with cash gifts while the other acquired additional livestock in form of dowry due to marriage of one granddaughter.

Improved households (n=4): Three households in this category were least vulnerable at the beginning of the research. They all had secure incomes and none had experienced events in the past that had depleted their assets. These households recorded low cost burdens over eight months that were easily financed within the household budgets. However, one household had high illness costs (RA/008) but managed to accumulate assets over the research period through purchase, although they still sold some livestock to pay for treatment.

The results also showed that livelihoods are complex and it is difficult to distinguish fully between the impacts of malaria from that of other shocks. In addition to malaria cost burdens, livelihood development was facilitated or constrained by various factors including:

- Contextual factors: drought and hunger;
- Limited work opportunities and fragility of income sources;
- Social and demographic factors;
- Borrowing and debts;
- Depletion of financial assets.

The overall conclusions arising from these findings are that the costs of malaria (combined with other shocks) can be detrimental for livelihoods especially when households are exposed to malaria throughout the year. The findings therefore highlight the importance of studying the economic burden of malaria within a broader context since these costs occur and are managed within people's day-to-day lives. Such an approach should look at

economic and social constraints (work, income and gender roles in managing resources), coping strategies and the role of different assets in mitigating cost burdens.

10.4 Methodological issues arising from the findings

The overall presentation of results in Chapters 6 to 9 identified various methodological issues that are worth considering in other studies on malaria cost burdens or illness costs in general:

- *Household definition:* The key factors incorporated in the definition of a household are sharing a roof and meals. However, the results from the case study showed that this definition is inadequate in a rural setting where households live as extended families. This was evident from the number of case study sub-households that made it increasingly difficult for the fieldwork team to maintain visits through out the eight months. A key issue about studies related on illness costs is the fact that all these sub-households manage illness costs separately from the main food budget. Large households do not necessarily provide cash for treatment and when they do, it is often in terms of cost management strategies (borrowing or gift) adopted by the ill household rather than costs being part of the normal budget. It might be important for illness costs surveys to incorporate a component on sharing illness costs as part of their household definition. This will give a clearer picture on how costs burdens are managed within households' budgets.
- *Complex livelihoods:* Households are involved in more than one income generating activity, some which are difficult to capture. In surveys, it becomes obvious to classify households on the basis of more visible activities like farming but in the real sense (like in Ganze) these activities might not contribute much towards household income. In fact the 'extra' activities are in most cases the ones that provide a large proportion of household income. In that case judgements on income levels and economic generating activities are made on a less accurate basis. However understanding livelihoods requires more time and not all studies can be conducted longitudinally.
- *Understanding vulnerability context:* The findings presented in this study have shown the need to understand the external environment within which households live. In most case, studies on the costs of malaria look at costs in isolation to other risks facing households. Identifying and understanding contextual factors is important because the

types of risks (other than health) that households are exposed to determine their ATC with illness cost burdens. In this study understanding the vulnerability context was essential because it impacted on all aspects of livelihoods. For studies that estimate the costs of malaria, understanding seasonality is essential because it not only impacts on cost burdens but also influences treatment seeking behaviour, illness perceptions and ATC.

- *Multiple methods:* The burden of malaria at a household level is best understood using a multiple method approach. Using a single method gives a ‘different’ impression on the burden of illness. While surveys are good for quick quantitative data that is representative of the community, they fail to address the ‘hows’ and the ‘whys’ things happen the way they do. The longitudinal qualitative data is enriching because it provides these answers and enables the researcher to watch implications of illness as they unfold over time. In addition, longitudinal methods allow one to adjust for differences in risk of malaria infection and economic activities in different times of the year. Using different complementary methods facilitates a better understanding of the complex realities that influence treatment seeking behaviour, cost burdens and coping strategies. Such approaches should take into consideration the multi-dimensional nature of vulnerability and livelihoods in order to inform policy on how to design interventions that target the poor and vulnerable.

10.5 Policy recommendations

The summary of findings presented in Section 10.3 have demonstrated that objectives one to four have been met. This section uses these findings to address objective five by providing policy recommendations that can improve access to health care and protect households from ‘catastrophic’ costs of illness. The recommendations address issues at three levels relevant to the main levels of analysis presented by the conceptual framework (Figure 10.1):

- Health system level: financing and delivery of health care (general and specific to malaria treatment);
- Household level: Health education on self treatment and perceptions of quality of care;
- Vulnerability context: poverty reduction and development strategies.

10.5.1 Health system policy actions

The main goal of the study was to generate information that contributes towards improving access to effective malaria treatment, by making treatment affordable to the poor and vulnerable. One way to achieve this is through designing pro-poor health policies. This section briefly presents the pro-poor health policies currently being considered in the Kenyan health sector. The aim is to use the study findings to make contributions towards these debates while identifying other potential areas that can be build on to promote health care access among the poor and vulnerable.

Removal of user fees in lower levels of care: The discussion on user fees presented in Chapter 2 showed that fees act as barriers to health care among the poor. Over the last year, removal of user fees from public health care facilities has been a hot topic in the Kenyan health policy agenda. In July 2004, free health care was introduced in primary levels of care (health centres and dispensaries). Under this new financing mechanism patients are required to pay a minimum consultation fee of KES 10 at dispensaries and KES 20 at health centres during each visit. Children under five are exempted from this payment (Daily Nation 2004). Other services like drugs are provided for free although patients still have to provide paper on which prescription is written. The abolition of fees from primary health care services was taken as a pilot and a bridge towards the introduction of free health cards for the poor through a social health insurance programme that would offer universal coverage of free health care (Korte et al. 2004).

National Social Health Insurance (NSHI): Due to the negative implications of user fees for the poor (Chapter 2), international agencies like the World Bank have shifted their focus from user fees to financing mechanisms that emphasize on risk pooling (World Bank 1997). The most proposed approach to risk pooling in developing countries is through social health insurance. Within a social health insurance programme, contributions are based on ability to pay but people have equal access to services depending on their health needs (Korte et al. 2004).

Kenya is one of the developing countries considering introducing a NSHI scheme. The debate on NSHI in Kenya has been faced with a lot of resistance from civil servants, private insurance companies and private sector employees and employers. Concerns arise

regarding the weakness of the existing National Health Insurance Fund (NHIF) that is compulsory for all Kenyans working in the formal sector. Weaknesses of NHIF include inefficiency in revenue collection, tedious claiming process and misappropriate use of funds by key government officials. These factors have limited the ability of NHIF to protect households from costs illness. Key stakeholders argue that unless the failures of NHIF are addressed, the proposed NSHI will follow a similar route (Njeru et al. 2005). Despite the shortcomings of the NHIF, the MOH views NSHI as a possible financing mechanism that can enable effective provision of health care for all Kenyans at both out- and in-patient services.

The findings from this study contribute towards informing the design and success of the above policies in various ways discussed below. The study also identifies various points of actions that can be taken forward to improve access to good quality treatment at an affordable cost. The recommendations suggested to address financing and delivery of health care are divided into four broad topics:

- Health care financing: charging strategies and cost levels;
- Quality of care at all levels of service (shops, dispensary and private clinics);
- Community accountability in service delivery;
- Educating households on appropriate self treatment approaches.

From user fees to NSHI: important lessons for the Kenyan health sector

A key feature that influenced treatment seeking behaviour and coping strategies among survey and case study households was the amount of health care charges, quality of care and the mode of payment. The findings showed that people used private clinics despite the high charges because the dispensary had many weaknesses (Section 7.5.2) and because private clinics offered treatment on credit and spread payments over time to enable households meet treatment costs without much difficulty. Interestingly these charging strategies worked very well in the community despite the high level of poverty. People always had a commitment to go back and make their payments after recovery in order to protect their credit status in future. These findings have important implications for health policy.

First, the findings have shown that low charges in public health facilities do not necessarily improve access among the poor and vulnerable. There is wide evidence to show that free health care of low quality limits the use of public services among the poor (Bitran 1987; 1989). The findings from this study support this notion. If well designed, user fees can improve access to the poor. The challenge however remains how to charge fees and ensure that the very poor benefit from the services. The study recommends different types of targeting and charging strategies to improve access among the poor:

- **Geographical targeting for predominantly poor areas:** The results showed that Ganze community is predominantly poor. In addition to limited resource endowments this community has experienced drought for many years. It is rather obvious that where households cannot meet minimum food requirements, affording treatment is almost impossible. It would be beneficial in the future for the government to consider geographical targeting in terms of user fees, providing free services for people living in the poor regions like Ganze. This would also apply in relation to the proposed NSHI where free health cards are issued for people in the poor regions.
- **Individual targeting for better resourced areas:** In areas where the communities have better resource endowments, targeting individuals rather than the whole community could promote access among the poor while at the same time ensuring that some revenue is generated to support the constrained MOH budget. Designing pro-poor health policies requires that the poor be well identified. The challenge however remains how to identify the genuine poor. Some of the variables that were found useful in distinguishing the poorest from the least poor in Ganze and which might be applied elsewhere include: (1) ability to get credit from the local shops; (2) having working children who give regular remittance; (3) the life-cycle stage of households and (4) the types of jobs people do. However, it should be noted that these indicators although helpful change fast over time and they may be misreported if it becomes known what identifies the poor. To address such problems, the study recommends the need to involve communities through participatory approaches that can help MOH to identify the genuine poor, who can then benefit from free health care services or the proposed free health care card.
- Despite the fact that the study area experienced rain shortages, the surveys revealed that it was easy to get casual jobs during the wet season. It is likely that access to work and thus cash income would have been much higher if the rains were enough to sustain

crops. Considering this, the study recommends that health care charges and payment mechanisms be adjusted to suit the economic activities of different contexts. Among agricultural communities these strategies can aim to capture the seasonal variations in income generating activities enabling households to pay more in seasons where access to income is high and pay less during the difficult times in the year (Sauerborn et al. 1996b; Muela et al. 2000a).

Secondly, although the results showed that the majority of households preferred to use private clinics, the study also revealed that the poorest and highly vulnerable households could not afford any type of treatment (for example RA/072 and RC/026). These households could not access credit from either shops or private clinics and had weak networks of friends and relatives. These findings justify the need to eliminate fees in primary health care services and to adopt other mechanisms for higher levels of care. Various policy issues arise regarding abolishing user fees and moving towards NSHI:

- The economic law of supply and demand stipulates that removing fees from primary health care services and/or introducing free health care cards will automatically lead to increased demand. In Uganda, for example, abolition of user fees increased utilisation of referral facilities from 26% in 2001 to 55% in 2002 compared to 2000 when facilities charged fees. In lower levels of care, utilisation increased from 44% in 2001 to 77% in 2002 (Nabyonga et al. 2005). This increase in demand has potential implications for quality of services and the supply of health care services must be ready to clear the expected rise in demand. The experience in Ganze showed that initially when fees were removed, the dispensary was over-crowded with patients who wanted to benefit from the free services. However, this demand was not accompanied by changes in essential items like drugs and personnel. As a result, the perceived quality of care declined tremendously and more people opted to self-treat or use private clinics where they could get better quality services. Although removing fees aimed to improve access and protect the poor, this financing mechanism failed to do so in Ganze because it was not carefully planned. Removing user fees requires a detailed plan of how resources will be channelled from the MOH budget into primary health care facilities. While providing universal coverage of health care might be a simple solution to access barriers, it can be costly for governments and MOH facing budgetary constraints. Addition financial and human resources should be put in place to ensure that these pro-poor policies achieve their objectives. If not carefully

implemented these policies could end up achieving limited success similar to the controversial SAPs.

- The findings from this study also identified important lessons for the design and implementation of the NSHI scheme in Kenya. The discussion on group membership presented in Chapter 4 revealed concerns about groups sustainability and the problem of trust. Group membership changed from time to time and trust in handling money was low. Some members did not make their contributions on time while some group leaders made inappropriate use of group funds. If revenue collected through NSHI does not meet the target required to provide free health care (due to difficulties in payments among members) and if people move in and out of the NSHI depending on seasonality of economic activities the success of this programme is likely to be minimal. In addition, contributing towards risk pooling might not be a priority for resource poor households struggling to meet basic needs, neither will people be willing to make their contributions to NSHI when they can not trust the existing NHIF (Njeru et al. 2005).

Although the MOH is committed towards implementing pro-poor policies, evidence from the study have shown that poor quality in the public health system led to high cost burdens and livelihood depletion. The section below considers how access to effective malaria treatment for the poor can be promoted through investing in better quality services.

Protecting the poor from high cost burdens through providing good quality services

Treatment seeking behaviour, cost burdens and coping strategies were influenced by quality of care. The quality recommendations suggested below address the concerns highlighted in Chapter 7 regarding the three main types of providers.

The dispensary lacks equipments to conduct even basic parasite tests and there is only one nurse and one clinical officer who serve all patients irrespective of their health problems. Long queues were inevitable since this one nurse had to offer antenatal services in the morning before shifting to other departments in the afternoon. Clearly just two clinical staff are not enough to serve the 35,299 people living in Ganze. The MOH should reconsider deploying other personnel in this rural area although redistributing staff is likely to face resistance. To address this problem the MOH should offer incentives to

those who accept to work in remote rural settings like Ganze. Such incentives could include housing and extra opportunities for training and promotion.

Although treatment of malaria in rural settings is based on symptoms (fever) and WHO recommends that all children with fever be treated with AMs, the results from this study showed that people placed high value on tests and wanted to know what they were suffering from. In addition, the staff at the dispensary sometimes referred people to the private clinics for tests in order to be able to issue a prescription. This clearly shows that even the staff at the dispensary realise the importance of tests but they are not able to do so due to resource limitations.

To address this problem, the study recommends that the MOH invests in rapid diagnostic tools. Rapid diagnostic tests are easy to use and require minimum training among staff. In India, the results from a rapid test could be read readily by field workers (Singh et al. 2002). Other studies have shown that rapid tests are as sensitive and specific as thick film examination and they are cheap, reliable and valid (Guthman et al. 2002). In the absence of laboratories and in a setting where the community has great value for tests, the use of these rapid tools can contribute greatly towards improving access to quality treatment. Moreover with the increasing change from Sphurdoxine-Pyrimethamine (SP) to combination therapy, it is important that the new drugs are only prescribed to those people who are actually suffering from malaria. Presumptive treatment of all fevers as malaria using combination therapy could lead to wastage of scarce resources (Amexo et al. 2004). However it might not be possible to conduct tests for all fevers presented at the dispensary. In areas where malaria is the main source of morbidity and mortality in young children, it might be more appropriate to treat all childhood fevers with AMs since most of them are likely to be malaria. This would release resources for compulsory testing among adults experiencing malaria related symptoms. Although just one aspect of quality, introducing rapid tests at the dispensary might go a long way towards ensuring that people benefit from the 'free' health care and thus prevent potential negative implications on livelihoods.

The shops play an equally if not the most important role in improving access to malaria treatment. Despite the dangers associated with self treatment, the truth of the matter is that shops will remain a major source of malaria treatment among the poor in SSA. The MOH

has put measures in place to improve the role of shops in home management for malaria by training shopkeepers. However, the poor and vulnerable households will still buy incorrect doses depending on the amount of money available or share drugs between household members when they cannot afford to buy a complete dose for each ill member. This will happen despite being aware of the correct types of drugs. In addition not all shops stock the appropriate first-line treatment drugs. There is a possibility that people still continue to buy drugs that are not recommended by MOH and are less effective in treatment leading to persisting and recurring illnesses and potentially higher cost burdens.

There is more room to use this important sector to improve access to effective malaria treatment among the poor. Possible ways might include for example MOH distributing good quality drugs at affordable costs to the trained shopkeepers to dispense them when people present themselves with malaria, at a standard price across all shopkeepers. Since there is already a credit system in existence, the shopkeepers will manage their credit services while at the same time issuing quality drugs at a cheaper price. At least if households get access to the appropriate drugs then they will be struggling to pay for a just cause. In addition, the training of shopkeepers should be done regularly (for example every two years) to ensure that that good quality is maintained. However this requires that additional resources be put aside and incorporated into the MOH budget for this important activity.

Designing interventions that reach the poor: Community participation in service delivery

The discussion on the weakness of the public dispensary highlighted that at some point the community got concerned of how the staff were handling the patients and decided to take action by informing the local administrator who ordered it closed for two days (Chapter 7). This action has important lessons for policy.

It is important for communities to have a voice in the delivery of health care services. The Ganze experience shows that even the poor desire good quality services and if empowered they can control the quality of services provided at the local level. It is important for the MOH to build ownership of dispensaries as a community resource and encourage households to engage actively in the delivery of services in order to improve access for the poor and voiceless. Ideal areas to involve the community regard ensuring good

interpersonal relationships between patients and health staff and ensure that the dispensary operates within the appropriate time. This support can improve the attitude of the health personnel by making them accountable to the community and realising that they should offer nothing but the best within the available resources. Such a process might require having dispensary committee representatives (selected by the community) sitting in District Health Management Teams to represent the view of the 'voiceless' people and be actively involved in designing interventions.

10.5.2 Using health education to promote effective use of AMs at the household level

Policy actions to address issues at the household level interrelate with those at the health system level. Specific areas that can target households are on self treatment and perceptions on quality of care.

Self treatment: Results revealed that even when people knew the correct drugs, their decision on the types of drugs bought was highly influenced by the price. If the shops are to be supported to provide quality drugs, this should be accompanied by interventions at the households level. People should be educated on the dangers of using drugs inappropriately. This can be done using simple messages of the likelihood of illness persisting, partial clearance of parasites (leading to recurring episodes) and possibilities of over-dosage if they continue to take drugs for persisting illness. Such messages can be incorporated as part of a national campaign (similar to ITNs promotion) and might include simple Information Education and Communication (IEC) materials like radio adverts and pamphlets that clearly demonstrate the danger of using drugs incorrectly. Decisions on the appropriate ways of educating households should involve the community through participatory approaches. Evidence from Ghana shows that community participation was an effective way of passing key messages and designing interventions that reach the poor. As a health worker in the Ghana study put it (Tolhurst 2004, p2): "*I have realised that everybody has an idea, and then you have to involve the community in whatever you are doing, and then you tap the ideas that they have and then you help them solve their problem...you can not solve anything for them.*"

Whether the campaign will change use of drugs will largely depend on whether they are affordable or not. The education intervention should therefore go hand in hand with

affordability packages addressed at the health system level. Currently in Kenya, ITNs are being provided for free to pregnant women and children under five. These nets are also available at a subsidised price of KES 50 for the rest of the population. While risk prevention is perhaps the best option to protect households from malaria, it should be accompanied by other strategies that protect those who get infected.

Trust in quality of drugs: Treatment seeking behaviour is highly influenced by perceptions but these perceptions should not arise from inadequate understanding. There is a possibility that households ‘doubted’ the drugs issued at the dispensary due to the nature of packaging. The dispensary is likely to issue generic drugs that are loosely packed in large containers while private clinics issue pre-packaged drugs that look ‘attractive’ to the households. While generic drugs are in most cases as effective as other drugs, the way they are presented to patients can create mistrust. The community should therefore be made aware that generic drugs (though not smartly packed) are as effective and much cheaper.

10.5.3 Interventions beyond the health sector: poverty reduction and development

The results presented in this thesis have demonstrated the need to move from a narrow focus on health sector issues to a multi-sectoral approach that considers health as part of development. For example, the infrastructure in Ganze is poor limiting access to the area and other necessities like safe water and sanitation are limited. The market for goods is constrained by the high poverty levels and the area is generally under developed (Chapter 4). In addition, the analysis of coping strategies revealed that a household’s asset base determines its ATC and prevents livelihoods from decline (Chapters 8 and 9). Pro-poor health policies therefore need to move beyond the health sector to promote access to assets that improve ability to meet illness cost burdens. Such an approach has the potential to reduce vulnerability by supporting the livelihoods of the poor, enabling them to manage risks and generate beneficial livelihood outcomes as discussed below.

Building assets to cushion households from illness cost burdens and other shocks

Health and illness is not the responsibility of the health sector alone. People living in poor conditions (for example poor housing, lack of water and sanitation) are at high risk of contracting diseases and thus incurring illness costs. At the health system level, costs are

incurred by providing health care services for illnesses that would have otherwise been prevented by investing in better living conditions. The GOK together with other NGOs should work towards improving essential services in order to reduce the risk of infectious diseases. The key areas that require attention include:

Water and sanitation: Access to safe drinking water and sanitation are urgent needs in Ganze. The role of NGOs in improving access to water in the area is highly recognised. PLI has initiated tapped water projects in the area but households have to pay for the water. These taps are located in the shopping center or along the main road making it difficult for people living in the interior to access them (where the majority live). Although the water charges are relatively low (KES 2 for 20 litres), it is not affordable for most of the people in the area. There is need to ensure that that other taps are put in Ganze and that people can be able to get safe water without paying.

With respect to sanitation, PLI has been working towards ensuring that households have pit latrines. They educate people on the dangers of communicable diseases that can arise when people use the bushes as toilets. However, PLI cannot build toilets for all households in the area and they need support from other NGOs and the government not only in building but also in educating this community of the health risks that can arise from the widespread behaviour.

Promoting and strengthening livelihood diversification and facilitate markets for livestock products: The livelihoods of the Ganze community rely on subsistence farming. This income generating activity is prone to drought, which destroys the means of livelihood and impacts severely on food security. Households should be encouraged to use traditional coping mechanisms by planting crops like cassava and millet that are resistant to drought instead of relying heavily on maize which is highly prone to drought. In addition, diversifying livelihoods by adopting other sources of income that are not heavily dependent on rainfall could help minimise effects of drought. For example, the community could be encouraged to start livestock production and bee keeping projects where they can benefit from the sale of milk, honey and meat. Goats are ideal for meat projects because they reproduce fast and households can benefit from the sale without depleting the asset base. However, starting such projects requires money and this is where NGOs and micro-credit organisations could provide initial capital through small loans-enough to buy a few

animals. Encouraging people to start such projects can be a long-term solution towards improving their income and reducing food insecurity rather than offering short-term solutions like relief food. However, the findings reveal that the market for livestock in Ganze is limited. The study also showed that livestock were used to make bulky payments like education (RA/006 and RA/033). Although livestock were important assets in this community, ability to transform them into cash was difficult. Improving ATP and reducing poverty will require creating markets and investing in infrastructure. Building infrastructure will open up the area to other major towns for trade. For instance, households that own cows do not get a good price for their milk in the area. A similar case applies to the market for charcoal (see Table 4.1). This situation can change if GOK invested in developing infrastructure in the area. PLI and KDDP are NGOs whose role is highly recognised by community members. These NGOs together with other development agencies can initiate marketing programmes for animal products and other goods, by building networks that link the community with companies dealing with such products.

Support micro-credit schemes: Lack of financial capital (savings) was a major factor that constrained livelihood development. There is only one organisation in the area (the village bank) that offers small loans and promotes savings. Although the performance of this bank was an issue of concern for many, it still provided a close and convenient place for saving little amounts of money. There is need for NGOs to invest in building confidence in these people that they can save a few shillings every month despite their poverty, by initiating small banks and micro-credit schemes that allow people to save a little amount of money each week or month. These informal savings can then be used to issue cheap loans to enable households to accumulate other types of capital. However, these organisations will require to rebuild trust in this community that was destroyed by the financial mismanagement at the village bank. One possibility of rebuilding trust is giving the community a chance to elect some of the village bank leaders, who are responsible with respect to the community's standards while the NGOs elect the 'technical' staff.

Section 10.5 has identified potential areas that can be addressed in order to improve livelihoods and affordability of good quality treatment. Combining health sector interventions with poverty and development strategies is particularly important in Ganze and other remote rural areas in Kenya and SSA. Unless households have better access to cash income and other assets, illness costs burdens will continue to be unbearable and

livelihoods will continue to deplete. A summary of the recommendations is presented in Table 10.1.

Table 10.1: Summary of policy recommendations

Level	Key policy issues
Health financing and delivery	<ul style="list-style-type: none"> • Public sector should adopt innovative charging strategies that suit the context, for example, post payment or seasonal adjustments in charges. • Fee removal and NSHI should be accompanied by detailed plans to improve health service delivery. These plans should be integrated into budgets and management at a local and national level. • Need for health policy to identify the poor and exempt them from paying fees or insurance contributions. • Provide rapid diagnostic tools at the dispensary or liase with private clinics such that individuals referred there from the dispensary do not pay twice. • More clinical staff required at the dispensary to reduce the long queues. • Important to regulate quality of services at private clinics but also ensure that private providers stay within the market. • Quality of drugs at the shops should be improved and where possible distributed by MOH at an affordable price. • Health system should identify strategies to use shops to reach the poor with affordable quality malaria treatment. • The community should have a voice regarding the quality of services provided in order to avoid ‘misuse’ and ‘abuse’ by health staff.
Health education	<ul style="list-style-type: none"> • More education and information on self treatment and quality of drugs should be provided to households. A focus on the dangers of using malaria drugs incorrect is essential. This should be done with enthusiasm just like the education on preventions and ITNs that is available from all sources including radios, newspapers and televisions. Shopkeepers can be used in remote areas like Ganze where access to information channels is limited.
Poverty reduction	<ul style="list-style-type: none"> • NGOs and GOK should help build all types of capital to promote development. • Encourage income diversification with activities that are not prone to drought. • Build confidence in people to save through small banks and micro-credit organisations.

10.6 Areas for further research

The findings presented in this study raise additional areas for further research:

- It would be important to conduct a similar study in areas with different malaria transmission patterns. The burden of illness and the implications for livelihoods are likely to vary between areas where malaria affects primarily children (like Ganze) and where the illness affects adults equally with children. Where malaria affects adults, the indirect costs are likely to be higher, time management strategies are likely to be common and treatment patterns will differ for the more economically active adults. Clearly implications of malaria cost burdens for livelihoods will vary depending on endemicity of the disease.
- Livelihoods and treatment seeking patterns vary between a rural and an urban setting. It is suggested that a similar approach should be taken to investigate the impact of malaria on urban households.
- The charging systems adopted by private clinics have a lot to offer in terms of improving access to quality health care. It would be necessary to study charging strategies of private providers in different parts of Kenya in order to inform the public sector on how they can be innovative by adopting strategies that suit communities.
- Improving access to treatment requires policies that are specifically designed to benefit the poor and vulnerable. Future research should focus on 'pro-poor' health care financing strategies in different contexts.

The findings presented in this thesis have demonstrated the different ways in which malaria impacts on the livelihoods of the poor and vulnerable. The study has also identified potential areas that can be addressed in order to improve access to effective malaria treatment and general health care. The challenge now remains how the findings and recommendations arising from this study can be put into practice.

Appendix 2: FGD guide

APPENDIX 1 - ACUTE – Fever in different people... (Malaria)

Scenario Ai:

Imagine a mother who is living in this village with a young child of two years. Two days ago the mum noticed that the child was crying a little more than usual, and when she felt the body it was hot. By now the child's body has been hot for two days and (s)he has started to reduce his/her breast feeding... on the third day the child had still not recovered – despite having given drugs from the shop on several occasions. He/she then started to fit.

Scenario Aii:

Would the points made differ if we were talking about a 10 year old child. (*(((I.e. Imagine a mother who is living in this village (within this area of Mtwapa) with a child of ten years. Two days ago the mum noticed that the child was not as active he/she normally is, and when she felt the body it was hot. The child has stopped playing football as much with his friends and is complaining that he does not feel well enough to go to school. This is unusual for him. By now the body has been hot for two days and (s)he has started to reduce his/her breast feeding)))).*

- The child is the middle of three children (7yrs, 10 yrs, 12yrs); he's a boy

Social situation

In response to questions about the child/family, ask first why they need to know (what would the different response be), then set the following answers:

- The child is the youngest of three children (5yrs, 3 ½ yrs, 2yrs); he's a boy
- The husband is resident in Ganze (rural: and comes home at the end of every month)
- The nuclear family live in an extended family. Relations with the extended family and her husband are 'average'
- She and her husband are non-practicing Christians; the elders are typical Mijikenda Wazees (hold traditional beliefs).
- The household is one that is struggling to meet its' daily needs; not the very poorest in the area/village but certainly one of the worse off ones.

Scenario Aiii:

Imagine (another) woman who is living in this village (within this area of Mtwapa). The woman is about 30 years old and is six or seven months pregnant – at least she has a big bump! This woman has had fever, body pains and headache for the last two days, and is feeling increasingly tired and lethargic. She is now finding it very difficult to go and dig in the shamba and when she does try, she is finding it harder to breathe so she is having to take deep breathes
... *what about if the mother was not pregnant?*

Aiv

... *what if it was a man of the same age? (rural - both he and wife are residents in household);*

Appendix 3: Survey questionnaire

Social and demographic information

HH TYPE [I] TOTR [I] TOTH [I]

- 1.1 Are you owners/tenants of the house? [I]
- 1.2 Occupied by 1) owners; 2) owners/tenants; 3) tenants [I]
- 1.3 How many households live in this house/homestead? [I]
- 1.4 How many people are members of this household (fill later)? [I]
- 1.5 Respondent name (and ID) _____ [I]
- 1.6 Physically split household? (Y/N) _____ [I]

Illness
in last
two

Hosp/
overnight
tmt in
last year?

ID	Names of all resident household members	R'ship to HH head	M/F	Age	Marital status	Ed n	Et h	Main Occpn	Qu 1	No	Qu 2	No	LR	HI *	NB HH/ HF
01															
02															
03															
04															
05															
06															
07															
08															
09															

Relationship to HH head

- 1 HH head
- 2 Spouse
- 3 Father
- 4 Mother
- 5 Son
- 6 Daughter
- 7 Brother
- 8 Sister
- 9 Grandfather
- 10 Grandmother
- 11 Grandchild
- 12 Other relative
- 13 Other (specify)

Highest education Level

- 1 Primary, finished
- 2 Primary, not finished
- 3 Secondary, finished
- 4 Secondary, not finished
- 5 College
- 6 University
- 7 Koran school
- 8 None/pre-school
- 9 Adult education
- 10 Other (specify)

Main income source

- 1 Subsistence farmer
- 2 Large scale farmer
- 3 Trader/business person
- 4 Civil servant
- 5 Fisher man
- 6 Casual laborer
- 7 Student
- 8 Child – non-school
- 9 Domestic worker
- 10 Driver
- 11 None/Housewife only

LR – MAIN labour role of sick person (jukumu)

- 1. Sole econ active adult
- 2. Main cash income earner
- 3. Adult engaged in household chores
- 4. Child/student
- 5. Retired/handicapped etc and doesn't bring income
- 6. Small income (and eg HH chores/retired)
- 7. Other (specify)

HI – Health insurance

Marital status (if <14yrs)

- M: married
- M2: cowife
- S: Single
- D: divorced /separated
- W: widowed

SECTION B: Two week morbidity

- B2.1 Sick person's name (id).....[]-[]-[] I []
- B2.2 Adult/child less than 16 yrs A/C []
- B2.3 Are you interviewing him/her (Y/N) []
- B2.4 Date of interview..... [] [] [] [] [] []
- B2.5 Episode no. [] I []
- B2.6 How many days ago did the illness begin? [] I []
- B2.7 Has the patient recovered? (Y/N) [] I []
- B2.8 If Yes, no. days episode lasted [] I []
- B2.9 Do you know the name of the illness? (Y/N) [] I []-[] I []

Able to have a look at the health card/papers? (Y/N) [] I []
Conf sick Y/N [] Confirm name Y/N [] confirm tmt []-[] I []

General symptoms:	Y/N	Chini/Tsini note 'Y'	Gali note 'Y'
Mwili moto			
Kukohoa			
Kuharisha			
Kutapika			
Kufitika			
Matatizo ya kupumua			

Other:	Y/N	Chini/Tsini note 'Y'	Gali note 'Y'

- B2.10 How much did the illness worry you? 1 Very much; 2 Moderately; 3 Hardly... [] I []
- B2.11 Did you do anything to treat the illness? (Y/N/dk) If yes, go to table [] I []
- B2.12 If no, any reason you did not take any treatment? A: No need; B: needed but prob [] I []

Didn't have cash readily available	
Had no time	
The illness was not serious	
It is too expensive	
You wait too long at the government facilities	
Drugs are not available at the government facilities	
Drugs are not effective	
Staff at government facilities are rude	
Was too ill to get to hospital	
There was nobody to accompany me to hospital	
Don't Know	
Other (specify)	



B3: Treatment-seeking and payment table: 2 week morbidity

	Action 1	Action 2	Action 3	Action 4	Action 5	Action 6
B3.1 What sort of treatment (code)						
B3.2 After how many days?						
B3.3 Why there (open below)						
B3.4 What transport? (code)						
B3.5 SELF TMT?						
<i>a. drugs/herbs</i>						
<i>b. special foods</i>						
B3.6 OTHER TMT?						
a. Patients' transport						
<i>b. Consultation</i>						
<i>c. Prescribed drugs</i>						
<i>d. Other drugs/herbs</i>						
<i>e. Tests (X-rays, blood, urine etc)</i>						
<i>f. Gifts or informal fees</i>						
g. Total at facility						
h. Special food (journey & there)						
h. Other costs (open overleaf)						
B3.7 Accompanied? Y/N						
<i>a. If yes cost of their transport</i>						
<i>b. If yes cost of their special foods</i>						
B3.8 Time (mins) spent: Total						
<i>a. To & fro travel</i>						
<i>b. Waiting for provider</i>						
<i>c. With provider</i>						
<i>d. At pharmacy</i>						
B3.9 Where did you find the money to pay for this action? <i>(probe-was it already in the house or.)</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BTotal 1 (cash)						
BTotal 2 (time)						
*If 1-4 had money been saved for 1) a specific purpose 2) precautionary/emergency purposes? <input type="checkbox"/>						
*If 6-13, did you have to pay any interest? (Y/N/DK) <input type="checkbox"/>						
*If 18-21, would it have fetched a better price had you not sold it to pay for treatment? (Y/N) <input type="checkbox"/>						
*If 18-21, did sale lead to any income/output loss for you and other HH members? (Y/N) <input type="checkbox"/>						

Providers/facilities: Where and why

Action _____ Action _____
 Action _____ Action _____

SECTION C: Overnight treatment

C2.1 Sick person's name . (id).....[]-[]-[]

C2.2 Adult/child less than 16 yrs A/C []

C2.3 Are you interviewing him/her (if adult and impossible to arrange, state why) (Y/N)..... []

C2.5 Date of interview..... [] [] [] [] [] []

C2.6 Where were you being treated (specify and code). [] [] []

C2.7 For how many nights were you there (admitted)..... [] [] []

C2.8 Do you know the name of the illness, or what the problem was? (Y/N)..... [] [] []

If yes, please could you tell me what it was.

C2.9 How much did you have to spend on:

<i>Total cost for patient</i>	
<i>a. Patients' transport</i>	
<i>b. Consultation/admission</i>	
<i>c. Prescribed drugs</i>	
<i>d. Other drugs</i>	
<i>e. Tests (X-rays, blood, urine etc)</i>	
<i>f. Gifts or informal fees to people at government facilities</i>	
g. Total cost at facility	
h. Special foods (home & over journey)	
i. Other (specify)	
Total cost if accompanied?	
<i>j. Their transport</i>	
<i>k. Their accommodation</i>	
<i>l. Their special foods</i>	
Grand total	

C2.10 Where did you find the money to cover the expenses? ... [] [] [] + [] [] [] + [] [] []

Probe-was it already in the house or.... ?

(coding sheet)

Indirect costs (fill one per type of illness) Chronic Recent Overnight ... []

4.1 Sick person's name (id).....[]-[]-[]

4.2 Patient assists at all in providing for the family (or did B4 illness)? (Y/N/DK) []

4.3 IF Y, able to carry out main shughuli during illness? 1Fully; 2Partially; 3No; ... []

If fully, go to question 4.4

4.3.1. No. days patient unable to carry out normal activities because of illness? . [] []

4.3.2 Was anything done (by HH members) to recover the activities lost to illness? (Y/N/DK)

..... []
If yes, what was done?

- 1 Hire people/equipment
- 2 Received help from relatives and friends
- 3 Working for longer hours
- 4 New household members joined the work force
- 5 Children missed some school days/drop out
- 6 Adopted other means of production
- 7 Household members substituted for labour
- 8 Reduced the area under cultivation
- 9 Other (specify)

How many people?	[] []
How many days?	[] []
Total cash paid?	[] [] [] []
Cash value of food and other incentives?	[] []

How many people?	[] []
How many days?	[] []
Total cash paid?	[] [] [] []
Cash value of food and other incentives?	[] []

4.4 If young, able to continue attending school ? 1 Fully; 2 Partially; 3 No ... []

If not fully...No. days unable to go to school because of illness? []

4.5 If adult, able to continue other roles/activities? 1 Fully; 2 Partially; 3 No ... []

If not fully...No. days unable to continue role? []

4.6 Did anyone have to take care of the patient? 1 Yes; 2 No; 3 DK []

	What is person's r'ship to patient?	Has activities that bring money into HH? Y / N / DK	Able to continue at same time as caring for patient? (1 Fully; 2 partially; 3 No)	No days unable to carry out activities because caring for patient
Person no 1	[] []	[] []	[] []	[] []
Person 2	[] []	[] []	[] []	[] []
Person 3	[] []	[] []	[] []	[] []

1Husband 2Wife 3Mother 4Father 5 Son 6Daughter 7relative (male)
8Relative (female) 9Friend/neighbor (male) 10 Friend/neighbour (female); 11Other

Social resources

Now I would like to ask you about groups/organizations/associations to which you or any member your household belong. These could be formally organized groups or just groups of people who meet **regularly** to do an activity or talk about things?

2.1 Does any member of this HH belong to a community group or MGR? (Y/N).....

In N, no member of any registered group, or any group of friends or relatives who get together regularly to pool small amounts of money, or anyone meet regularly with a religious group?

If yes, go to table overleaf

2.2 In the last two years, has anybody in this household stopped being a member with any group? (Y/N).....

If yes, which of the types of groups were they involved with (table column)?

Why did they withdraw their membership from these groups? (table column)

2.3 If you/a member of this household needed the following amounts of money in the wet and the dry season, how likely would you be able to get it and how?

1 Bila shaka; 2 Pengine; 3 Sina Hakika;

Amount and need	Uezekano of getting it in the <u>wet season</u>	Most likely way of getting it (code sheet)	Uezekano of getting it in the <u>dry season</u>	Most likely way of getting it (code sheet)
10/= for duka drugs	[<input type="checkbox"/> I]-[<input type="checkbox"/> I]	[<input type="checkbox"/> I]-[<input type="checkbox"/> I]	[<input type="checkbox"/> I]-[<input type="checkbox"/> I]	[<input type="checkbox"/> I]-[<input type="checkbox"/> I]
50/= to govt disp	[<input type="checkbox"/> I]-[<input type="checkbox"/> I]	[<input type="checkbox"/> I]-[<input type="checkbox"/> I]	[<input type="checkbox"/> I]-[<input type="checkbox"/> I]	[<input type="checkbox"/> I]-[<input type="checkbox"/> I]
250/= private clinic	[<input type="checkbox"/> I]-[<input type="checkbox"/> I]	[<input type="checkbox"/> I]-[<input type="checkbox"/> I]	[<input type="checkbox"/> I]-[<input type="checkbox"/> I]	[<input type="checkbox"/> I]-[<input type="checkbox"/> I]
2,000/= for admiss	[<input type="checkbox"/> I]-[<input type="checkbox"/> I]	[<input type="checkbox"/> I]-[<input type="checkbox"/> I]	[<input type="checkbox"/> I]-[<input type="checkbox"/> I]	[<input type="checkbox"/> I]-[<input type="checkbox"/> I]

2 4 Haiwezekani

2.4 Have you/any member of your household ever tried to get **free treatment** from a government facility when others of similar age and illness have had to pay?

If yes, were you successful? (Y/N)

For what reason did you succeed/fail?

.....

2.5 Does anybody in this HH currently **owe money** to anybody/organization for treatment or anything else? (Y/N)

If yes, who to? (coding sheet)

If yes, 1) wholly 2) partially or 3) not at all for treatment

2.6 Has anybody **borrowed any money** from you for treatment or anything else? (Y/N) ..

If yes, who to? (coding sheet)

If yes, 1) wholly 2) partially or 3) not at all for treatment

2.7 Generally speaking, would you say that most people in this community 1) huishi kwa upendo na uaminifu **au** 2) ni lazima ujidhahari unapo jinusisha na watu?.....

What makes you say that?

.....

Type of group	2.1.1 No in HH who belong	2.1.2 If >0, Main benefit to HH?	2.1.3 If >0, Are most members of this group the same...? Do members usually have the same...?								2.1.4 Shirikiana na groups outside area?	2.1.5 Kwa jumla unaweza kusema group hii inafanya kazi vipi?	2.1.6 Active	2.1.7 Most imp to HH? (‘Y’)	2.2.1 EX (‘Y’)	2.2.2 Why EX code
			Area	Family/kin group	Religion	Gender	Age	Ethnic group	Occupation	Education level						
										1 sometimes 2 often 3 no	1. Very poorly 2. Poorly 3. Average 4. Good 5. Very good 6. Excellent					
a. Related to formal employment																
b. Education related																
c. Women’s groups																
d. Financial or credit groups																
e. Politically orientated groups																
f. Cultural (sports/ dance)																
g. Religious																
h. Health, safety or n’hood watch																
i. Other																

Main benefit of joining: 1) Improves my household’s current livelihood or access to resources (*hali ya maisha*); 2) Important in times of emergency/future; 3) Benefits the community; 4) Enjoyment; 5) Spiritual, social status, self esteem (*kiroho, uhusiano na kibinafsi*); 9) Other (specify)

Why ex: 1) Leadership problems; 2) Other disfunctioning of group; 3) Too much time; 4) Too much cash; 5) HH members unhappy; 6) Whole group collapsed; 7) Non-group related issues (eg transfer; employment etc.); 9) Other (specify)

ASSETS AND EXPENDITURE

We are trying to find out what resources people have available that might assist in times of need and so would like to ask you if this household (ie – the people listed on the first page) has certain things, and how much is spent by the same people. Can I begin with whether the household has certain things?

3.1 Do you or any other member of this household own any of the following items?

	Rural/Urban
Livestock (Y/N)	[] I []
Goats (n)	[] - [] I []
Cows (n)	[] - [] I []
Chicken (n)	[] - [] I []
Sewing machine	[] I []
Radio	[] I []
Land/Plot	[] I []
Farm equipment (ploughs, plump etc)	[] I []
Telephone/cellular phones	[] I []
Television sets/VCR	[] I []
Fridge/Freezers	[] I []
Cooking stoves (electrical and gas)	[] I []
Vehicles (Y/N)	[] I []
Bicycles	[] I []
motor bike	[] I []
Car	[] I []
Tractor	[] I []
Own cash crops? (Y/N) – specify <i>Ie – crops grown primarily for sale for profit</i>	[] - [] I []
Own business? (Y/N) - specify	[] - [] I []
Rooms/house rented by others (Y/N)	[] I []
Other (specify).	[] I []

3.2 *Now I would like to ask you how much your household spends on various items. Before I continue though, can I ask if there is one person who is overall in charge of money issues in the household, or are there different members responsible for different types of spending?*

A One person responsible (Y/N) and if Y who [] I []

B Different people responsible (Y/N) [] I []

*If different people are responsible, which people are responsible for which types of expenditure on the table overleaf? (fill in the first column only if there is more than one person responsible)
You may need to contact the responsible people later.*

Please try to remember as accurately as possible what is spent on a monthly/weekly/ daily basis for as much as possible.

3.3

All of us as household members have regular expenses that we have to meet. Some of our expenses tend to come daily, some weekly, some monthly, and some more rarely.

I would like to ask you about what your household (ie the people that we listed at the beginning of this discussion) spend on various items. For each item I'll ask you what you spent over a given time, but if account for your expenses differently, please let me know.

So, let's begin with asking can you tell me what your household (ie the people that we listed at the beginning of this discussion) spent... Item	Who most responsible? (only if > one person)	Time scale? 1 Per day 2 Per week 3 Per month 4 Per term 5 Per year 6 Other Don't know	Ksh
a. Last week on food	[I]-[I]-[I]		
b. Last week on firewood/Gas (any fuel used for cooking)	[I]-[I]-[I]		
c. Last week on cleaning/washing/water	[I]-[I]-[I]		
d. Last month on kerosene/ electricity/any other form of lighting	[I]-[I]-[I]		
e. Last month on rent	[I]-[I]-[I]		
f. Last month on transport (ie fares on taxis/matatus)	[I]-[I]-[I]		
g. Last month on remittance/regular gifts to family members living elsewhere	[I]-[I]-[I]		
h. Last month grinding flour	[I]-[I]-[I]		
i. Last month on loans and debt repayments (eg to bank/dowry)	[I]-[I]-[I]		
j. Last month in contribution to community organizations and MGRs	[I]-[I]-[I]		
k. Last term on education/tuition fees/boarding fees	[I]-[I]-[I]		
l. Last term on school books and stationary	[I]-[I]-[I]		
m. Other last month (eg payments to burial societies, to the church or mosque, or on anything else you spend on in your HH)	[I]-[I]-[I]		
n. In the last month have you had any other major household expenses	[I]-[I]-[I]		
o. In the last month have you had any other major household expenses	[I]-[I]-[I]		
Total			

3.4 For how long has the family lived in this village/town?

1) Mzaliwa, born in the village/town; 2) 10 years or more; 3) Less than ten years [I]

3.5 If not native, what made you move to this village/town?

1) Marriage; 2) Job; 3) Better health facilities and schools; 4) other [I]

3.6 What are the wall/floor/roof of the house made of? Wall []; Floor []; Roof []

1) Mud; 2) Bricks; 3) Cement; 4) Iron sheets; 5) Makuti; 6) Tiles; 7) Wood; 8) Other

3.7 Main source of **drinking** water for this HH: a) WET season [I] b) DRY season [I]

1) Tap, private; 2) Tap, public; 3) Bore hole; 4) Dam; 5) River/stream; 6) Other (specify)

3.8 Huwa mnajisaidia wapi (main toilet facility)? [I]

1) Sewer/flush; 2) Pit latrine, private; 3) Pit latrine, public; 4) Free range; 5) Other (specify)

3.9 Type of fuel usually used for cooking?: 1) Kerosene; 2) Firewood; 3) Charcoal; 4) Dung;

5) Gas; 6) Electricity; 7) Other [I] - [I]

3.10 Main source of electricity/light: 1) Kerosene; 2) Firewood; 3) Mains; 4) Solar; 5) Other

..... [I] - [I]

3.11 Do you have any relatives living elsewhere who regularly assist you financially (pay remittance?) (Y/N) [I]

If Y, how many people? [I]

How often does each person assist?

Person 1 [I]

Person 2 [I]

Person 3 [I]

1 – Daily; 2 – Monthly; 3 – Weekly; 4 – Annually; Don't know

3.12 Je, kwa maoni yako unafikiri watu wana hudumiwa vizuri katika....

What makes you say this?

Probe... does what you're saying differ at all between government services, private services or healers?

	Treated fairly (Y/N)	What makes you say this? (as much detail as possible)	Why fair
Private chemists/pharmacies	[<input type="checkbox"/> I <input type="checkbox"/>]		[<input type="checkbox"/> I <input type="checkbox"/>]
Private clinics	[<input type="checkbox"/> I <input type="checkbox"/>]		[<input type="checkbox"/> I <input type="checkbox"/>]
Healers	[<input type="checkbox"/> I <input type="checkbox"/>]		[<input type="checkbox"/> I <input type="checkbox"/>]
Government dispensaries	[<input type="checkbox"/> I <input type="checkbox"/>]		[<input type="checkbox"/> I <input type="checkbox"/>]
Govt health centers (kliniki za serikali)	[<input type="checkbox"/> I <input type="checkbox"/>]		[<input type="checkbox"/> I <input type="checkbox"/>]
Government hospitals	[<input type="checkbox"/> I <input type="checkbox"/>]		[<input type="checkbox"/> I <input type="checkbox"/>]
Private hospitals	[<input type="checkbox"/> I <input type="checkbox"/>]		[<input type="checkbox"/> I <input type="checkbox"/>]

3.16 Looking at the impact of treatment costs on households is the main aim of this work and it can be helpful to revisit a household to ask similar questions again.

Can I ask if you would be willing for us to revisit you to re-do this questionnaire in 6 months or so? (Y/N) [] []
.....
.....

For a small subsection of households who we feel may be able to teach us in detail about this things, we would like to visit on a monthly basis, would you be willing to discuss this possibility with my senior?

(Y/N) [] []
.....
.....

FW comments on interview

FW name..... []

What impression do you have of the overall quality of the data collected?

1 = Excellent 2 = Average 3 = Poor []

What makes you say that
.....

What impression do you have of the overall situation of the household?

1 = Wealthy 2 = Average 3 = Struggling []

What makes you say that
.....

What impression do you have about suitability for future work?

1=Fine 2= Doubtful..... []
.....
.....

Appendix 4: Feed back form

FEEDBACK – EXPLAINING KEMRI FW..... DATE:
FEEDBACK.....

	WELL DONE	TO IMPROVE & HOW
INTRODUCTION Set good atmosphere?		
What is KEMRI? KEMRI and policy ATP – What trying to learn? – Why trying to learn? What needed from HH Risk 1 & what done Risk 2 & what done Voluntary Time again Sections		
White section		
Residency definition		
Main income vs income role		
Health insurance		
Visitors		
Probe on MGRs		
Wording of qu 2.4		
Borrowed/Owed		
Assets and expenditure intro and sensitivity		
Fairness of different providers		
Recent		
Symptoms probing		
Probe 4 all tmt-seeking		
Type of duka drugs		
Other		
COMMENTS Good two way? Asks if questions? Handling of questions? Length		

Appendix 5: Cross-check questions/reliability check

EZH [<input type="checkbox"/> I <input type="checkbox"/>] / [<input type="checkbox"/> I <input type="checkbox"/> I <input type="checkbox"/>]	Dates: original [<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>]	cross-check [<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>]
Cross-check code A) < 3 days later or B) 3 or more days later		[<input type="checkbox"/> I <input type="checkbox"/>]
FW code.....		[<input type="checkbox"/> I <input type="checkbox"/>]
Respondent name (and ID).....		[<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>]-[<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>]-[<input type="checkbox"/> I <input type="checkbox"/>]
Any initial comments, concerns, questions?		[<input type="checkbox"/> I <input type="checkbox"/>]
<i>comment if problem</i>		

- 1 Confirmed that the interview took place (Y/N) [I]
comment if problem
- 2 How many people are members of this HH? (ask & fill, then check HH list with resp) [I]
note why any differences
- £ Of the listed HH members, how many have suffered from any *illness in the last two weeks* (ask & fill, then check HH list with resp) [I]
note why any differences
- First one on list id [I]. Any treatment (Y/N) [I]
Self treatment []; Private facility []; Government facility []
No. of days unable to work/ attend school..... [I I]
- 4 Of the listed HH members, how many have been *hospitalised* or undergone any other overnight treatment over the last year? (ask & fill, then check HH list with resp) [I]
note why any differences
- 7 Anybody in the HH covered by health insurance (Y/N)..... [I]
note why any differences
- 8 Does any member of this HH belong to a group or MGR? (Y/N, and number) [I]
In N, no member of any registered group, or any group of friends or relatives who get together regularly to pool small amounts of money, or anyone meet regularly with a religious group?
note why any differences
- 8a Do this HH have any goats? (Y/N, and number) []-[I]
- 8b Do this HH have any have any rental rooms? (Y/N, and number) []-[I]
note why any differences
- 9a How much did this HH spend last month on remittance/regular gifts to family members living elsewhere? [I I I]
- 9b How much did this HH spend last month education/tuition/boarding [I I I]

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