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Exploring health risks and Resilience in a Rural Population in the Context of Environment-Related Diseases, Ngara, Tanzania

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Abstract

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Public health 'expert' knowledge and technical 'solutions' to environment-related diseases are often embedded in biomedical perspectives that emphasise objectivity and rationality. However, such perspectives tend to sidestep the ways in which knowledge and solutions are shaped by social and cultural contexts. Public health interventions have therefore been evaluated in terms of the 'failure' of their intended recipients to 'comply' with them and in relation to public 'misperceptions' of risks to their health. This research was developed in an attempt to understandhow social and cultural beliefs and perceptions mediate health and the way that they contribute to, escalate or reduce risks to health. The study explores these attributes in the context of two issues: firstly, environment-related health risks pertaining to malaria and diarrheal diseases, and secondly residents' perceptions and views of public health interventions and programmes. The research was carried out in two villages in rural northern Tanzania to explore the complexities of villagers' behaviours in their everyday lives in order to help understand common public health concerns such as: why do some public health programmes succeed and others fail? Why do some individuals who know how to protect themselves against a particular disease choose not do so? And why are control and prevention of preventable infectious diseases problematic? The study employed an ethnographic approach based on a socio-cultural perspective. Focus groups and interviews were the main tools for data collection, and analysis was done inductively through development of key themes. Research findings show that social and cultural values, especially in relation to social capital, frame health-related risks in such a way as to shape the vulnerability and

resilience of citizens to environment related illnesses. The thesis demonstrates a number of ways in which adherence to socio-cultural norms and practices takes precedence over potential concerns about risks to individual health.

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Declaration

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Joseph J. Sambali

Signed:

Date: April 2015

Statement of Copyright

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CHAPTER ONE

INTRODUCTION

This study focuses on how social and cultural attributes influence the ways in which people interpret and make sense of health risks with a particular focus on the most common tropical infectious environment-related diseases (malaria and diarrhoeal diseases). How human behaviours and beliefs shape vulnerability and resilience of individuals to risks of environment-related diseases has significant effects on individuals' health and well-being in their everyday lives.A better understanding of health behaviours and beliefs can therefore help to inform health-related programmes and policies on improving health and well-being. The study was carried out in a remote rural area, Kagera region, Ngara District, located in the north-west of Tanzania, as an attempt to understand the role of human behaviours and perceptions and beliefs towards mediation of risks related to environmental illnesses. The district is well known globally as it hosted thousands of refugees from Rwanda and Burundi for about 14 years following ethnic genocides in 1993/4 in those countries. This research is integrated within a larger programme of Concern Worldwide, an international Irish Non-Governmental Organisation that aims at improving the health and well-being of rural populations by providing water supply, hygiene and sanitation services, and carrying out action research that informs the programme.

Vulnerability and resilience in relation to health risks are relevant concepts as they intersect with the likelihood of occurrence of illnesses and their socio-economic impacts on a population at risk. Vulnerability has been a difficult concept to define. It explains how individuals are put at risk by varied causes originating from the natural environment (such as infectious disease agents) and society. It can be

defined in terms of the characteristics that make an individual or group more prone or susceptible to damage or injury. Individuals who are vulnerable find it hardest to recover from hazards and thus become more prone to subsequent hazardous event(s) of the same or different nature that may create more vulnerability in their efforts to cope with the hazard (Wisner, 2004). Poor people in rural communities are more vulnerable to health challenges, and these are sometimes viewed as inherently part of the experience of poverty (Kyegombe, 2003). Sudden or prolonged ill-health can precipitate families into an irretrievable downward spiral of welfare losses and even lead to the breakdown of the household as an economic unit (Pryer *et al*, 2003). Susceptibility to diseases may be due to a lack of access to medical care and chronic food insecurity. Households and individuals may also lack the wealth that would enable the acquisition, and utilisation of products such as hygiene and sanitation technologies (Armar-Klesu *et al.*, 2000; Tumwine et al., 2003) and mosquito deterrence products (D'Allessandro *et al*., 1994; Howard *et al*., 2003; Macintyre *et al*., 2002).

The relationship between resilience and vulnerability has been established by Holling's seminal paper in 1973 which presents a concept of resilience as 'ability to absorb change and disturbance and still maintain the same relationships' (Holling, 1973: 14). Resilience characterizes a system's capacity to re-organise under changing environments while preserving its structure and function (Walker *et al*, 2004). This concept of resilience can be adapted to explain how individuals, groups or societies manage and maintain their structure and function in the midst of risks and hazards that affect their health and wellbeing. Resilience and vulnerability can be regarded as opposite sides of the same coin (DFID, 2007) whereby resilience focuses on strengthening the adaptive capacity of systems (individuals or groups) to

mitigate vulnerability and therefore a lack of capacity is, essentially, equivalent to vulnerability (UNDP, 2004). Resilience helps to uncover the positive values of vulnerable groups with an intention of strengthening those values so as to increase their capacity to mitigate their vulnerability. This conceptual understanding of resilience aims to place the emphasis on what communities can do for themselves and how to strengthen their capacities, rather than concentrating on vulnerability as has been the dominant case in public health intervention (DFID, 2007). Unlike vulnerability that focuses on risk factors that cause or accentuate susceptibility to health threats, resilience examines factors and forces that ameliorate risks to health. As a result, it is argued here, it may prove to be a more useful approach for health promotion activities to strengthen the local capacity of individuals, such as that derived from social capital, to 'contain' diseases.

Social capital is an important concept which is used here to help explore the role of human behaviour in shaping vulnerability and resilience of individuals to risks related to environmental health, particularly malaria and diarrhoeal diseases. Social capital emphasizes that relationships matter. Relationships are useful because they make it possible for people to achieve things that they may not achieve by themselves or only achieve with difficulty. Social capital involves reciprocal sharing of societal resources based on shared values and trust (Field, 2008 and Lin, 2001). Trust and reciprocity are important elements to ensure the flow of social capital among individuals within a group (Field, 2008). Part of the rationale for this study is to explore how social relationships in rural communities in Tanzania intersect with their vulnerability to environmentally related diseases including, importantly, how such relationships may increase their vulnerability to such diseases.

In addition, important to this study is an exploration of how socio-cultural beliefs and perceptions interconnect and compete with biomedical or professional knowledge or views. This approach enables a better understanding of how knowledge of diseases and health risks are based on wider social values and norms. This study examines the interplay between vulnerability and resilience in the context of remote rural communities living at risk of two main environmentally related diseases: malaria and diarrhoeal diseases. Importantly, it also explores perceptions of these villagers towards risks of these diseases and respective public health interventions that are commonly implemented in the study area. These health interventions include repellent plants (*Lantana camara*), Insecticide-Treated Nets (ITNs) and Indoor-Residual Sprays (IRS) for malaria, and personal hygiene such as hand washing, and ownership and use of toilets for diarrhoeal diseases. These interventions are the results of increasing recent interests in the control of malaria by the United Republic of Tanzania (URT). The URT in collaboration with partners are implementing important interventions to protect citizens against biting from malaria-transmitting mosquitoes. In 2009, Concern Worldwide initiated a field trial to measure the efficacy of repellent plants to prevent entry of mosquitoes inside houses. Then the URT in collaboration with donor agencies implemented IRS (in 2009 and 2010) and the universal coverage of ITNs (2011).

This research adopts a broadly socio-cultural approach to understanding health, challenging the biomedical or epidemiological approach most preferred by health professionals and policy makers. The biomedical approach adopts cognitive science from psychology in which calculations of probability predominate and risk is defined as 'the product of probability and consequences (magnitude and severity) of an adverse event' [such as a disease] (Bradbury, 1989:382). This approach takes a

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scientific, mechanical, individualistic and reductionist view and considers health in relation to pathology, disease, diagnosis and treatment (Warwick-Booth *et al*, 2012). In addition, this approach emphasises expert intervention only and ignores the significance of social and psychological influences on health risks (Lyons and Chamberlain, 2006). Contrarily, a socio-cultural approach draws on qualitative methods such as interviews and field observation in order to produce in-depth understanding and contextualization of meanings attached to risk (Bickerstaff, 2004). Finally, in an attempt to bridge some of the gap between knowledge and practice this thesis also considers the policy implications of the empirical findings. The key emphasis is on considering the institutions, structures, and practices which are necessary in order to implement programmes for technical interventions or behaviour.

1.1 Research aim and questions

Broadly the study aims to understand the influences of social and cultural attributes on individuals' health and well-being. In doing so the research focuses on how social and cultural beliefs and perceptions mediate health and the way that they contribute to, escalate or reduce risks to health. The study explores these attributes in the context of two issues: firstly, environment-related health risks pertaining to malaria and diarrheal diseases, and secondly residents' perceptions and views of public health interventions and programmes. The essence of this broad aim is to understand the complexities of individuals' behaviours in their everyday lives in order to help understand common public health concerns such as: why do some public health programmes succeed and others fail? Why do some individuals who know how to protect themselves against malaria and diarrhoeal diseases choose not to do so? And why are control and prevention of infectious diseases such malaria and diarrhoeal

diseases problematic? In policy terms an understanding of these complexities is of potential relevance to public health practitioners and professionals, researchers, and programme planners in protecting health and preventing diseases to individuals at risk.

In an effort to garner a deeper understanding of the broad aim, the research seeks to address the following research questions:

Empirical questions

- What are the perceptions and beliefs of rural individuals regarding aspects of daily living that produce or prevent health? And what are their perceptions of environmental health interventions?

- What risky practices and behaviours are adopted which render individuals vulnerable to health problems?

- Which coping and/or resilience strategies do individuals engage in, to reduce their vulnerability to ill-health?

- How has the presence of 'outsiders' (refugees) influenced health-related perceptions and behaviours of local 'host' communities surrounding refugee camps?

- Conceptual questions
  - How are the findings and the socio-cultural perspective relevant in theorizing environmentally related health?
  - What is the contribution of the research to theoretical writing on resilience and vulnerability?

- What implications do the research findings have for health promotion policy?

1.2 Brief introduction to each chapter

Chapter two: This chapter discusses relevant concepts and theoretical approaches that are used in the discussion of my empirical chapters: chapter five focuses on the effects of interactions between refugees and local populations on health, chapter six centres on vulnerability and public perceptions of illnesses and technologies – knowledge and practice; and chapter seven considers social relationships in the context of health.The literature review contributes a conceptualisation of how social and cultural attributes influence the ways in which people interpret and make sense of risks; and in particular, to the most common tropical infectious environment related diseases. This chapter begins by exploring and conceptualising risk, vulnerability and resilience, and then goes on to review the dominant perspectives in risk research, public perceptions of risk, and the role of social capital in understanding health. The chapter concludes by highlighting the key conceptual issues that are most relevant to this study.

Chapter three: The purpose of this chapter is to provide an explanation and justification for selection of the research design, and strategies for data collection, analysis and interpretation in order to address the study's research questions. Research methods appropriate for the socio-cultural perspective such as field observation, focus groups, in-depth semi-structured interviews and informal conversations with groups and individuals are discussed. I also discuss my involvement in the study area, my positionality and that of the research assistants I engaged. In order to minimize potential 'biases' in data collection, my approach tries

to allow themes to emerge from the data in an inductive fashion (generated from the data in contrast to a deductive approach based on verification) with the reflexivity that a structured approach (deductive) would not support (Parahoo, 1997). The analysis of data involved transcription, coding, categorization and interpretation of data and emerged issues related to health and well-being are presented under three broad topics – effects of interactions between refugees and the host population, public perceptions of illnesses and technologies and the role of social relationships in shaping vulnerability and resilience in a health-related context. Chapters 6 and 7 discuss each of these themes in turn, and Chapter 8 deals with the policy implications of the findings.

Chapter four: This chapter introduces the context of the study area addressing the social, economic and political settings. It also considers important contextual elements for environment-related diseases such as literacy, sanitation coverage and status, source of drinking water, and living conditions. It then moves on to discuss the socio-economic characteristics of Ngara district, Kasulo Ward and finally the study area, Kumnazi and Nyakariba sub-villages.

Chapter five: This chapter discusses the impact of the influx of refugees on local communities following ethnic conflicts in Rwanda and Burundi. These conflicts, between Hutus and Tutsi in 1993 and 1994, forced thousands of people to cross the border into Tanzania to seek refuge in the western part of the country including Ngara District. Thousands of refugees settled in Ngara district resulting in a dramatic increase in the population to the extent that they significantly outnumbered the local population. Although there were responses from the United Nations High Commissioner of Refugees (UNHCR) and international non-governmental

organisations, less attention was paid towards the potential effects on the health and well-being of the host population. This chapter attempts to explore how the presence of refugees shaped local citizens' vulnerability and resilience in terms of health and their well-being at large. Chronologically, the chapter addresses the effects of the refugees before and after the establishment of refugee camps as well as the effects following closure of the camps and the repatriation of the refugees. These effects are of particular importance as very little information is available on how host-communities re-organise in a 'post-refugee' environment.

*Chapter six:*The results here reveal that recent national public health interventions focussing on malaria control – Insecticide-Treated Nets (ITNs) and Indoor-Residual Sprays (IRS) – have met with significant challenges regarding their acceptance and efficacy within the local community. The major concerns and perceptions are discussed, along with implications for usage. The findings show how context shapes villagers' perceptions of risks to their health, and also shapes their attitude towards behavioural change or acceptance of a technology. For example, the research found promising responses and perceptions regarding the use of mosquito repellent plants (a biological control strategy). The findings show that non-medicinal benefits such as ability to repel snakes, and beauty values (ornamental flowers) were more important and contributed significantly to the acceptance of these plants. There were, however, a number of alternative and more negative views regarding this health intervention, and these are discussed in detail in the chapter.

The research also uncovers a number of challenges experienced in the context of managing diarrhoeal diseases in rural areas when health professionals consider least the context and focus mostly on practices such as hygiene, safe drinking water, hand

washing and sanitation. The chapter discusses specific practices and behaviors in this context and the ways in which these serve to challenge conventional health messages. It considers how 'western' advice relating to hand-washing is considered by villagers to be 'exotic'; something for wealthy, urban people or '*wazungu*' (white people from Europe, Australia or North America).

Chapter seven: This chapter discusses how social relationships influence health by exploring how such relationships contribute to the occurrence and management of diseases, thus shaping people's vulnerability and resilience to health risks. The chapter begins by introducing the nature of social relationships and then discusses the problems of defining and conceptualizing social capital, a framework to be used for discussion. I show how social relationships contribute to shaping risks of occurrence of illnesses. In this context, vulnerability and resilience are conceptualized in terms of positive and negative health behaviours that shape an individual's likelihood of succumbing to illnesses.

Chapter eight: This chapter considers aspects of risk communication and implications for health policy. It returns to ideas used in the research including public perceptions of risks to health, and public health interventions and, based on the empirical findings, three key themes (agency and power, trust and communication, and place and identity), are used to expound further risk communication and perceptions. Risk communication is emphasized to be a two-way process engaging negotiations between the public and communication agents. At the heart of communication is trust, which plays a crucial role in ensuring effective communication. Finally the chapter provides recommendations that can be useful to

consider when planning and implementing risk communication to raise awareness of health risks and technological (intervention) 'solutions'.

Chapter 9: This chapter summarises the key findings and how the research has addressed the research questions. It discusses the key challenges of carrying out the research and offers suggestions for further research directions.

CHAPTER TWO

LITERATURE REVIEW: REVIEWING VULNERABILITYAND RESILIENCEINTHE CONTEXTOF ENVIRONMENT-RELATEDHEALTH RISKS

2.1   Introduction

This literature review chapter will discuss relevant concepts and theoretical approaches that are used in subsequent empirical chapters (chapters 5, 6 and 7). The literature review contributes a conceptualisation of how social and cultural attributes influence the ways in which people interpret and make sense of risks; and, in particular, to the most common tropical infectious environment-related diseases (malaria and diarrhoeal diseases).   This chapter begins by exploring and conceptualising risk, vulnerability and resilience, then goes on reviewing dominant perspectives in risk research, public perceptions of risk, and the relationship between social capital and health. The chapter concludes by highlighting the key issues that are relevant to this study.

2.2   Understanding Risk

The meaning of risk has been changing with time. In the pre-modern era risk was a neutral term and was mainly associated with probabilities of losses or gains. During this era a high-risk event meant the potential for high losses or gains. In modern times the term has been associated with undesirable or negative outcomes such that it is synonymous with terms of danger or hazard (Lupton, 1999b). According to the British Medical Association's (1987) guide to Living with Risk, a hazard is linked to

causes of harmful consequences while risk refers to likelihood of the hazard to cause such effects. In risk perception research different approaches have been used in theorizing risks in order to set out means to mitigate or manage them. Research on risk perceptions has mainly theorized risk in terms of technico-scientific and socio-cultural perspectives (Bickerstaff, 2004). The technico-scientific perspectives are realistic and are most common in technical and scientific fields such as statistics, psychology and epidemiology. A socio-cultural perspective is based on social constructionism in which social and cultural aspects are considered in understanding perceptions of risk. In this section I will compare and contrast these perspectives and later, based on these perspectives, I will explain the processes and characteristics of risk perceptions.

2.2.1   Technico-scientific perspectives

These perspectives are based on psychological or cognitive approaches and consider whether individuals' decisions are objective and rational. They focus on the precision of the calculation of risk, the magnitude of impacts, methodological accuracy, the generalizability and predictions of the occurrence of risks, and how people respond to them (Lupton, 1999a). The biomedical or epidemiological model/approach that is dominant in much public health research takes a technico-scientific perspective. This approach adopts cognitive science from psychology in which calculations of probability predominate. Here risk is defined as 'the product of the probability and consequences (magnitude and severity) of an adverse event [such as a disease]' (Bradbury 1989:382).

The principal drawback to these approaches is that they tend to ignore 'how are risks constructed as social facts' (Bradbury 1989:382) and they tend to narrow down risk perceptions to the individualistic level. These approaches also assume linear deterministic causation in which hazard is taken as the independent variable (Douglas, 1985). In this case behavioural responses are considered to be the result of individual mental processing, without any consideration of how social and cultural contexts can mediate an individual's judgments. Therefore, these approaches tend to position people outside the social, cultural and political contexts that are so useful in explaining individuals' beliefs and behaviours. According to these approaches, individuals are seen as free actors and their engagement with appropriate behaviours is constrained by ignorance of the impacts caused by risky events as well as by lack of self-efficacy (Lupton 1999a :23). In other words the model considers individuals as members of the 'lay public' who lack 'appropriate' or 'correct' information and are therefore considered to respond to risks 'unscientifically' using inferior knowledge such as intuition (Lupton, 1999a:19).

The biomedical model in behavioural health research adopts a technico-scientific perspective and defines human behaviour as volitional and rational in that avoidance of risk is rational and risk-taking is considered irrational (Bloor 1995). Behavioural health research applying the biomedical model prevails where psychological measurements are based on a theory of rational behaviour, and the 'Health Belief Model' is an example of this (Lupton, 1999a). This model has been widely used in the research and management of health-related behaviours such as through health promotion and education. It is based on the ideaof a linear relationship between knowledge about the threat of the risk, then developingthe understanding that one is

at risk, and finally adopting a practice to protect against the risk (Lupton, 1999a). This means that individuals become aware of the threat of a hazard and take steps to intervene, believing that the benefits of action will outweigh the costs.

2.2.2 Socio-cultural perspectives

Unlike technico-scientific approaches, sociocultural perspectives consider the social, cultural or political contexts in which risk is understood and negotiated (Lupton 1999). Different socio-cultural perspectives exist with cultural anthropological approaches (Douglas and Wildavsky 1982; Douglas, 1992) and reflexive modernization approaches (Beck, 1992 and Giddens, 1990, 1991)being among the major perspectives. These approaches are similar in that they take into account the broader social and cultural contexts that frame the meaning of risk. The anthropological approach focuses on maintaining boundaries between the self and the other; and reflexive modernization focuses on macro-social processes in relation to risk(Lupton, 1999a). Since the focus of study was to understand the lived experiences of individuals in the context of health risks, I found limited applications of the major socio-cultural perspectives. Instead, the socio-cultural perspective used in my study was a phenomenological or hermeneutic account. Phenomenology is less interested in macro-structures and rather focuses attention on 'lived experience' or 'how individuals experience their world as an interpretive reality with the use of shared commonsense meanings and knowledge…qualitative research methods such as in-depth interviews [and focus groups] with respondents about their understandings and experiences of risk is the basis of phenomenological inquiries' (Lupton, 1999a: 27). Phenomenological research considers how a meaning of risk differs from place to place or is constructed within a micro-context. Lupton

(1999a:27) adds that 'phenomenological accounts examine how specific actors (or sub-groups) within a certain sociocultural setting construct their risk understandings as part of their interactions with others, albeit within the broader frame of social structures'.

Therefore, in the socio-cultural perspective 'rationality' in the decision making of individuals is based on their everyday experiences with a broader dimension of risks and this notion disputes what has simply been expressed as 'ignorance' or irrationality' of the public's response to experts' understandings of risks. It is noted that 'people often make their own assessments of "health research", judging its conclusions against the benchmark of their personal experience and knowledge' (Phillimore, 1998:203).The technico-scientific and socio-cultural perspectives complement one another because neither kind of perspective is sufficient on their own to explain the nature of human behaviours. While the technico-scientifc perspectives predict likelihood of occurrence of a particular human behaviour, the socio-cultural perspectives complement this by providing thick description of the context in which such prediction may either occur or not.

2.3   Perceptions of Risks

This section will explore the nature of risk perceptions. The psychological and socio-cultural perspectives which are complementary have been used in perception research to understand how individuals perceive risks (section 2.2).   The section starts by discussing the evolution of psychological studies of risk perceptions, and their relevance and criticism in addressing such perceptions. Then the socio-cultural

perspectives and their relevance are discussed. Finally, the section concludes by discussing key themes that combine both psychological and socio-cultural perspectives.

2.3.1 Psychological approach and risk perception

Attempts to understand the reasons for discrepancies between public perceptions and that of 'experts' in management of risks led to the development of research on risk perception (Bickerstaff, 2004). Various methodologies have been used to understand the perceptions of risks including those based primarily at an individual level (psychological approaches) and those which involve wider social and cultural dispositions (social-cultural approaches). The applications of socio-cultural approaches have emphasized the importance of risk perceptions as the product of the social, cultural, political or historical contexts in which they occur. These approaches show risk perceptions as being grounded in individuals' everyday life experiences.

The psychological approaches which address cognitive and attitudinal processes at the individual level were the first used to carry out research on risk perceptions in order to find out reasons for misunderstanding between the lay public and experts' perceptions of risk. Risk was understood in terms of two categories - objective or statistical risk, and subjective or perceived risks (Bickerstaff, 2004). The former is related risk as understood by scientists or experts, for example through epidemiological surveys, and the latter refers to non-experts and their 'misconceptions' or 'misunderstandings' of objective risk. In the psychological paradigm risk perception is concerned with understanding the reasons for the gap in

knowledge between experts and non-experts. This knowledge gap is normally attributed to public ignorance of scientific or technical knowledge, a situation that has been termed the 'deficit' model of public (mis)understanding of science (Irwin, 1995; Burgess et al., 1998).

The field of environmental studies such as air pollution and climate change dominates much of the risk perception literature. However, there are similarities in which individuals develop perceptions of risk regardless of the nature of the hazard involved. As a result, most of the literature I discuss will be related to environmental studies in general because little work has been carried out on environment-related diseases in the global South, particularly malaria and diarrhoeal diseases. Environmental studies that have focused on risk perceptions have shown that various experiences – such as social, cultural or physical – shape individuals' attitudes differently. With respect to air pollution these include direct perceptual experience (Prescott-Clarke, 1982; Barker, 1976), the neighbourhood halo-effect (Rankin, 1969; deGroot, 1967; Shusky, 1966; Francis, 1983; McBoyle, 1972) and neighbourhood or personal invulnerability (Wall, 1973; Billingsley, 1974/1975). In my study I explore attributes of individuals' beliefs and behaviours as they are related to malaria and diarrhoeal diseases.

The literature shows that there are trade-offs between risks and benefits accrued for taking such risks. Some studies have attempted to investigate high public concern over nuclear technology when, according to scientists, it was considered safe and reliable with very low risk compared to activities such as driving a car. The seminal

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study carried out by Starr (1969) concluded that people accept risks where exposure is voluntary and where the risks perceived were proportionate to the benefits gained from their decisions. Conversely activities are avoided where exposure is involuntary and risk is perceived to outweigh the benefits. Building on Starr's work in explaining the greater public concern, other researchers further demonstrated that experts and lay people use different criteria to make their judgments about risks and therefore the public's concerns should not be judged a matter of ignorance or irrationality (Fishchoff *et al*., 1978). These researchers explained that while experts consider the probability of fatality, lay people are influenced by other perceived characteristics on the risk agent.

Psychometric studies have demonstrated that perceptions of risk differ depending on the level of satisfaction of individuals with the environment in which they live. Those who are satisfied tend to underestimate the risk whereas those who are not satisfied overestimate the level of risks. In their influential work Slovic *et al*. (1980) argued that perceptions of risk and acceptability are closely related to positions of the hazard in relation to two important factors called 'dread' and 'unknown'. The dread factor included characteristics of hazards such as uncontrollability, being potentially catastrophic, dangerous to future generations and being involuntary. Other characteristics included the observability of risks, duration of occurrence of effects, the familiarity of the risk and degree of it being known to science. In terms of the acceptability of a technology the dread factor shows highest influence. For example, nuclear power scored highly in terms of both factors and thus resulted in public disquiet. Everyday risks such as cycling or home power tools scored low on

both dimensions, despite being judged to be more likely to cause effects based on scientific evaluations.

In terms of the risk perception issues that form a focus of the present study – those related to malaria and diarrhoeal diseases – the 'dread' and 'unknown' dimensions could be useful in interpreting people's responses to technologies related to protection against mosquito bites. The importance of this framework is that it facilitates an understanding of how individuals see a particular technological intervention as a hazard in itself when, on the contrary, the 'experts' consider it to be safe and effective in reducing or minimizing the prevalence of diseases. Therefore while experts look at diseases as a threat to health and set out an intervention to mitigate the problem, villagers on the other hand may see the intervention itself as the threat to their health. This situation is what Fischoff et al (1980) saw in terms of the different premises that the public and the experts use to make their judgments about the risk from a particular hazard. For instance, it is expected that the characteristics of Indoor Residual Sprays (IRS) such as the newness of the technology and its forceful implementation by Government, may have low acceptance by comparison to bednets which are well known and where individuals have control over their use. The psychometric paradigm has contributed significantly to our understanding of people's perceptions of risk (Gregory and Satterfield, 2002). Psychometric research, in spite of its usefulness has been criticized because it merely provides 'a description of the perceived risk characteristics of hazards rather than of underlying psychological or social processes' (Pidgeon and Beattie, 1998: 301); inherent characteristic of quantitative research related to restrictions imposed by questionnaire surveys (Arabie and Maschmeyer, 1988), and limitation on

investigation using the questionnaire tool that limits participants in expressing what really matters to them (Pidgeon *et al*., 1992). This is because of the tradition of aggregation of data by the psychometric approach which omits individual and group differences in risk perceptions (Bickerstaff, 2004).

Further developments of the psychometric methodology have attempted to integrate social, cultural and political factors in explaining risk perceptions. Mary Douglas' 'cultural theory' of risk (1985) has provided a milestone in the development of the psychometric approach. The tenet of 'cultural theory' is that cultural biases or world-views influence attitudes towards risk. Dake (1991, 1992) attempted to measure world-views using attitudinal scales and correlated the results with risk perception. He found that there was relationship between general attitudes (world-views) with people's risk attitudes and perceptions. Findings from other researchers (such as Peters and Slovic, 1996; Marris, *et al*., 1996) supported Dake's psychological approach. But Dake fell into the same trap as the traditional psychological approach as he adopted the individual unit of analysis. This made some authors (Tansey and O'Riordan, 1999; Sjoberg, 1995) to criticize his approach as inappropriate for a cultural theory of risk perception. Further the psychological approach has extended its scope to explore the role of a range of social factors such as values, gender, race, emotions, trust and stigma in shaping risk perceptions (Peters and Slovic, 1996; Burns *et al*., 1993; Finucane *et al*., 2000).Most important to socio-cultural perspectives is that they complement the psychological studies by 'presenting grounded accounts of these processes and how they shape risk perception' (Bickerstaff, 2004: 833).

2.3.2   Socio-cultural perspectives: Situating risk perceptions

Psychological individual-based analysis provides only partial accounts of risk perception as the latter is related to broader social factors and processes. This means that considering 'the public' as a non-differentiated entity is seriously limited because of the existence of many world-views within a society. Society comprises many groups with different attitudes, values, interpretations and thus different perceptions of risk (Pidgeon and Beattie, 1998; Rayner and Cantor, 1987). In terms of data collection the application of questionnaire surveys as a tool in the psychological approach fails to capture the processes of social interaction (Sjoberg, 1995). Socio-cultural approaches instead apply qualitative methods based on interviews and field observation, that bring about in-depth understanding and contextualization of the meanings attached to risk (Bickerstaff, 2004). Several authors in environmental studies have applied socio-cultural perspectives to representing risk perceptions in a wider frame of social, cultural and political analysis (Bulkeley, 2000; Bickerstaff and Walker, 1999; Bush *et al*., 2001; Irwin *et al*., 1999; Walker *et al*., 1998; Horlick-Jones *et al.*, 2003). Since socio-cultural perspectives provide in-depth and contextual understandings of risk perceptions they could be useful in the development of appropriate strategies to carry out risk mitigation. In this study I will attempt to apply the socio-cultural view of risk perceptions among other things to explore the implications of my empirical findings to health policies in Tanzania as will be discussed in chapter eight. According to Bickerstaff (2004), research based on socio-cultural perspectives has been organized around the following themes: locality and place; agency and power; and trust and communication. These themes provide important premises that are used in my study to conceptualize risk perceptions in a broad context. Building from these themes I

explore various dimensions of the risks related to malaria and diarrhoeal diseases. These dimensions include individuals' responses to health interventions (bednets, Indoor Residual Sprays, repellent plants); health practices (handwashing and use of toilets); communication of health information (involving communication among themselves and experts); their ability to bring about change (agency); locality and social groups (refugees, ethnicity and gender). Other elements of importance in my study include how risk perceptions are shaped by social capital, values and norms. I try to capture the complexity of perceptions of environment-related risks by exploring the complex inter-relationships of various cultural and social factors and processes that contribute to various world-views that cannot be captured adequately by statistical analyses. Perceptions of risks related to malaria and diarrhoeal diseases form the grounding of the discussion in chapter six. In addition, participants' perceptions are taken further in chapter seven to understand their influence on the vulnerability and resilience of individuals to these environment-related biological health hazards - malaria and diarrhoeal diseases.

The following section discusses the key themes that can be used to conceptualize risk perceptions.

2.4 Key Themes in Risk Perceptions

2.4.1 Locality, place and body

This theme pertains to the role of practical experience in how people make sense of risk and shows how understandings of health-related risks from a particular hazard are embedded in daily life through the senses and the body. Most importantly,

according to Douglas (1966) real risk is perceived through the experience of physical dirt or sensory experience that transgresses boundaries of personal or 'safe' space in a direct manner. Mary Douglas' seminal work on purity and danger highlighted the influence of conceptual boundaries of order and disorder where she argued that dirt is essentially disorder – it is 'matter out of place' (Douglas 2003: 35). This idea is essential to understanding risk perception as related to hygiene and sanitation practices in the present study, such as how hand washing, bathing and faecal disposal are understood by villagers.

A common feature in perception studies is the reluctance of residents to connect potential risk to their area; rather they 'distance' the risk spatially and socially (Bickerstaff, 2004; Bush *et al*; 2001). Bickerstaff and Walker (2001) suggest that low identification of the risk is related to social and cultural affiliation of residents with their place. My study also attempts to explore this sense of invulnerability by exploring how respondents feel about their place or locality, and about other social groups such as tribes and refugees. Environmental studies have demonstrated that stigma affects the place or inhabitants associated with the potential risk from hazardous agents (Gregory and Satterfield, 2002; Walker *et al.*, 1998; Bush *et al*., 2001). Stigma generally denotes the process by which a person is characteristically marked as deviant, flawed, spoiled or generally undesirable from the view of an observer (Slovic *et al*., 1991). In my study I explore how hygiene and sanitation practices can produce stigma effects associated with an individual, social groups or place.

2.4.2   Agency and power

The key issue in agency refers to an individual's perception of their ability to bring about a change to conditions that affect them. That power to influence change has also been associated with perceptions of risk (Walker *et al.*, 1998; Wynne *et al.*, 1993; Irwin, 1995). According to Boholm (1998) individuals overestimate or underestimate the potential of risks depending on power differentials. Individuals with a low socio-economic profile such as those unemployed, and/or with low income, have a tendency to overestimate risks as compared to those who have a higher income and education. It has been observed that there is a tendency towards fatalism when individuals perceive that their actions, whether by acting singly or collectively, cannot bring about desired change (Bulkeley, 2000; Bickerstaff and Walker, 2001). In my study I explore how the notion of agency influences the perception of individuals in the mitigation of risks related to malaria and diarrhoeal diseases.

2.4.3   Trust and communication

It widely believed that people's perceptions of risks and their own agency are strongly linked to the trustworthiness of the controlling regulatory institutions (Walker *et al.*, 1998; Wynne *et al.*, 1993; Renn and Levine, 1991; Slovic, 1993; Langford *et al.*, 2000; Irwin, 1995) and risk management professionals (Slovic, 2000). Lack of trust significantly influences the effectiveness of risk communication resulting in limited effectiveness of the strategy (Slovic, 2000). Johnson (1999) summarises factors influencing trust for management institutions under competence, care and consensual values themes. For example while it is common for the public to suggest that the Government should be responsible for the management of risks and

disengage themselves from taking part in the management of risk, there is also a tendency of recreancy (Freudenburg, 1993). Walker et al. (1998) in their study of industrial hazardous sites observed that a socially disadvantaged population showed greater distrust and cynicism towards Government agencies than other groups. Since my research was carried out in a marginalised poor society, it is therefore of interest to explore the trustworthiness of these agencies in relation to health promotion and education as well technological interventions such as bednets and IRS.

2.5   Defining Vulnerability

Vulnerability has been a difficult concept to define. Blaikie *et al* (2004) define vulnerability in relation to risk and hazard, where risk is viewed as the combination of hazard and vulnerability (R=H x V, [*Risk (R) = Hazard (H)* x *Vulnerability (V)*]). That means that there will be no losses due to a risk if there is no vulnerability or if there are vulnerable individuals but no hazard. A hazard is an event that affects individuals with varying degrees and intensity. Because of multiple dimensions of this concept, various disciplines have adopted different foci to define or carry out research on vulnerability. For example studies in the socio-ecological sciences have shown the concept of vulnerability can be conceptualized in terms of three key approaches. These are: risk/hazard, political economy, and resilience (Eakin and Luers, 2006). The main component elements of these three approaches are summarized in Table 2.1.

Table 2.1 Approaches to vulnerability research in the social sciences

Points of comparison	Risk/hazard	Political economy/Political ecology	Ecological Resilience
Focal questions	What are the disease risks? What are the impacts of diseases? Where and when diseases occur?	How are people and places affected differently? What explains differential capacities to cope and adapt? What are the causes and consequences of differential susceptibility?	Why and how household or community is affected by diseases What is the capacity to respond to diseases?
Exposure unit	Places, sectors, activities, landscapes, regions	Individuals, households, social groups, communities, livelihoods	Coupled human-environment interactions
Selected definitions	". ...the likelihood that an individual or group will be exposed to and adversely affected by a hazard (diseases). It is the interaction of the hazards place with the social profile of communities" (Cutter, 1996, p.532) ". . .the idea of potential for *negative consequences* which are difficult to ameliorate through adaptive measures (Reilly and Schilmmelpfenning, 1999, p. 774)	"The characteristics of a person or persons in terms of their capacity to anticipate, cope with, resist and recover from the impact of diseases" (Blaikie, *et el*.;1994, p.9) "Vulnerability comes at the confluence of underdevelopment, social and economic marginality, and the inability to garner sufficient resources to maintain livelihood and to cope with the challenges of diseases." (Ribot, et al, 1996, p.28)	Vulnerability defined as the opposite of resilience, where resilience is "the capacity of a system to undergo disturbance and maintain its functions and controls" (Gunderson and Holling, 2001, Carpenter, 2001, p.767) "Resilience has the following characteristics: a) the amount of change a system can undergo; b) the degree to which the system is capable of self-organization; c) the degree to which the system can build the capacity to learn and adapt" (Carpenter, 2001, p.767)

Source: Eakin and Luers (2006)

For some scholars, this difference in approach to conceptualizing vulnerability has created the need to develop an integrated approach that harmonises and addresses the full complexity of the concept (Eakin and Luers, 2006). Such an integrated approach defines vulnerability as the product of reciprocal relationships between the human

(social) and environmental (physical) elements in the system that interact and respond dynamically and non-linearly (DFID, 2007). The integrated approach is helpful in identifying risk factors, societal resources, and household or community capacity and strategies to cope with health hazards in poor rural communities. Blaikie*et al* (2004) propose the Pressure and Release Model, a model useful to conceptualise relationships between risk and vulnerability such as those related to environment-related diseases. The Pressure and Release Model shows how risks from natural hazards differently affect individuals depending on their vulnerability rooted in social processes. In this case a risk becomes the resultant effect of those processes generating vulnerability and a natural hazard (Fig 2.1). The 'release' idea is conceptualized as the relief of pressures brought about by reducing or mitigating forces that create vulnerability.

2.6   Vulnerability, Health and Poverty

Vulnerability explains how individuals are put at risk by varied causes originating from nature (such as infectious disease agents) and society. It generally means characteristics that make an individual or group more prone or susceptible to damage or injury. Individuals or groups experience varied outcomes of risks depending on important characteristics such as gender, ethnicity, age, occupation, physical environment, and social networks. Individuals who are vulnerable find it hardest to recover from the hazard and thus become more prone to subsequent hazardous event(s) of the same or different nature that may create more vulnerability in their efforts to cope with the hazard (Wisner, 2004).

| Root | Dynamic | Unsafe | Disaster | Hazards |

| | | | | |

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Root          Dynamic          Unsafe              Disaster    Hazards
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| Limited access to

Power structures resources

Ideologies:
Political systems
Economic systems | Lack of:

Local institutions
Trainings
Appropriate skills

Local Investments
Local markets

Macro-forces:
Rapid population change
Rapid urbanization
Debt repayment schedules
Deforestation
Decline in soil productivity | Physical environment:
Dangerous locations
Unprotected buildings

Local economy:
Livelihoods at risk
Low income levels

Social relations:
Special groups at risk
Lack of local institutions

Public actions and institutions
Lack of preparedness
Prevalence of endemic disease | RISK = Hazard x vulnerability | Earth quakes

Cyclone, hurricane, typhoon

Flooding

Volcanic eruption

Landslides

Drought

Virus and pests |

Figure 2.1: Pressure and Release (PAR) model: the progression of vulnerability
Source: (Blaikie *et al.*2004: 51).

Poor people in rural communities are more vulnerable to health challenges, and problems of ill-health are sometimes viewed as inherently part of the experience of poverty (Kyegombe, 2003). Sudden or prolonged ill-health can precipitate families into an irretrievable downward spiral of welfare losses and even lead to the breakdown of the household as an economic unit (Pryer *et al*, 2003). Roundy (1979) argues that when people are sick, their productivity is decreased, and decreased

productivity causes susceptibility to further illness, and so on, such that there is an assumed continuous decrease in productivity in conjunction with an increase of ill-health. Susceptibility to diseases may be due to lack of access to medical care and chronic food insecurity. Households and individuals may also lack the wealth that would enable the acquisition and utilisation of products such as hygiene and sanitation technologies (Armar-Klesu *et al.*, 2000; Tumwine *et al.*, 2003) and mosquito deterrence products (D'Allessandro *et al*., 1994; Howard *et al*., 2003; Macintyre *et al*., 2002).

In Tanzania, according to the Ministry of Agriculture and Cooperatives (2006), food security for rural populations depends on agricultural production. Despite a favourable agricultural climate, food insecurity in the country is both transitory and chronic in nature. Transitory food insecurity arises from instability in food production and food prices. During the rainy season, the situation is critical because of increased food demand and prices as well as decreased food supply. In addition, overselling of food immediately after the harvest due to competing needs for cash including for health, education, debt repayment and clothing costs may lead to transitory food insecurity. In Tanzania, the rainy season is also characterised by higher prevalence of environment-related diseases such as malaria, diarrhoeal diseases and acute respiratory infections. Food insecurity leads to poor nutrition that increases the susceptibility of poor people to environment-related diseases. Bloom *et al.* (2001) explain that poor nutrition weakens the body's defences against infection (for example malaria). Infection, in turn, weakens the efficiency of absorption of nutrients and makes individuals more susceptible to other diseases such as diarrhoeal diseases and acute respiratory infections. Furthermore, such illnesses inhibit the work capacity of the afflicted, leading to lower production (or income) and further

accentuating food insecurity, hence these conditions again render individuals vulnerable to further illnesses.

Environment-related diseases are referred to as diseases of poverty because they can be successfully prevented or treated (Bloom *et al*., 2001) but without prevention or treatment may lead to further deprivation (Chambers, 1983; Roundy, 1979). However, the relationship between poverty and disease is not a simple one; it is multi-faceted and bidirectional (Grant 2005). Table 2.2 provides details on how to understand and conceptualise the bi-directional relationship between poverty and health.

Table 2.2 Poverty, health and disease Source: Grant (2005)

Factor	Poverty	Ill-health/diseases
Poor nutrition	Lower productivity and income	Weakened immune systems and reduced ability to fight disease Increased food requirements but poor utilisation capability;
Poor shelter &living conditions	Housing quality diminishes as illness continues, consumption spending is reduced & assets may have to be sold (e.g. roofing iron).	Susceptibility to diarrhoeal diseases (poor water and waste management), and respiratory diseases (cooking fires and lack of ventilation). Morbidity increases. Crowded conditions increase the likelihood of diseases spreading to others
Poor working conditions	Poor health can reduce employability leaving people more dependent on taking informal or casual work where conditions are worse	No health and safety protection increases the vulnerability of poor people to health risks
Health care costs and education	Low income households least able to meet (quality) health care costs. Low levels of education mean households are often unable to access suitable information about services resulting in low value for money on the services that they utilise,	No or poor quality health care can prolong ill health. Stopping medication or self medication reduces effectiveness and may change the nature of disease.
Coping and livelihood strategies	Poorer people often rely on li*velihood strategies* that may deplete their assets (withdrawal of children from school, selling land) or increase their vulnerability (taking hazardous or degenerative jobs, moving into sex work or taking on unserviceable debts). Poor households cope with high levels of household ill-health and mortality by reducing investment in productive sector (agricultural production) or savings	Increased vulnerability to ill-health from childhood to adulthood High levels of household ill health and mortality

Kyegombe (2003) identifies five main dimensions through which aspects of environment-related diseases interact with other components of poverty: poor nutrition; poor shelter; poor working conditions; health care costs; and extra-legal livelihood strategies. Furthermore, Goudge and Govender (2000) offer a sixth dimension which is coping strategies. People cope with illness and poverty in different ways. How they cope is largely determined by the opportunities available to them on the basis of their capabilities and asset stores (Grant, 2005). Grant argues that over time these assets are reduced, and if there is no rebuilding of assets, individuals or households become increasingly vulnerable to destitution and may be forced towards extremely insecure or harmful strategies.

According to Chambers (1983) diseases disrupt different aspects of social coping and one can apply the concept of what he terms 'poverty ratchets' to rural communities. He argues that a poverty/health ratchet exists in which sickness in poor households are more likely to lead to impoverishment than in a wealthy household. The poor are vulnerable to further deprivation due to the lack of 'buffers' or extra resources that they are able to call upon when in need. He explains that the ratchet increases due to the challenge of disease resulting in a high and rising incidence of assets disposal and indebtedness as a consequence, whereby health expenditure may be an increasingly important cause of impoverishment. In coping with ill-health, some individuals may fail to seek medical care in order to avoid indebtedness or destitution (Corbett, 1989). In the mid-1980s, Abel-Smith (1986) showed that 60% of 'involuntary' land sales in Tanzania were due to the need to meet high medical bills.

As the UNDP (2004) suggests, understanding vulnerability requires that we understand the people concerned, their activities, their institutions, and the resource systems on which they depend. WHO(2008) analysed the social determinants of health to argue that health and poverty are negatively related, that is, people with low socio-economic status such as rural people living in poverty are more vulnerable to illnesses such as environment-related diseases. Therefore in seeking to understand vulnerability at the micro-level it is necessary to place this in the context of their multiple deprivation, poor living conditions, hazardous and tiring work, food insecurity, illiteracy, hygiene and sanitation practices, dietary practices, and coping mechanisms. In other words, developing an insight into the causes and consequences of environment-related diseases requires an approach that is holistic, multi-scalar and inter-disciplinary.

2.7   Conceptualizing Resilience

Resilience was first introduced as a descriptive ecological term (Holling, 1973), to describe recovery or maintenance of equilibrium of an ecological system after sustaining damage. Resilience is regarded as a perspective, rather than a clear and well-defined concept. It is conceived either as a way of thinking, as an approach to address social processes, such as social learning, leadership and adaptive governance (Folke, 2006), or as a metaphor for the flexibility of a socio-ecological system over the long term (Pickett *et al*, 2004). Anderies *et al.* (2006) further describe resilience as a collection of ideas about how to interpret complex systems. Since the term has been adapted differently by various disciplines, there is no clear and widely accepted definition of resilience as summarized in Table 2.3.

Table2.3 Definitions of resilience Source: Adapted from Brand and Jax, 2007, pg. 3-4

Categories and classes	Definitions	References
DESCRIPTIVE CONCEPT	*ECOLOGICAL SCIENCE*	
Original-ecological	Measure of the persistence of systems and of their ability to absorb change and disturbance and still maintain the same relationships between populations or state variables	Holling 1973: 14
Extended-ecological	The magnitude of disturbance that can be absorbed before the system changes its structure by changing the variables and processes that control behaviour	Gunderson and Holling 2002:4
	The capacity of a system to experience shocks while retaining essentially the same function, structure, feedbacks, and therefore identity	Walker *et al*. 2006:2
Three characteristics	Capacities i) to absorb disturbances, ii) for self-organization, and iii) for learning and adaptation	Walker *et al*. 2002
Four aspects	1. Latitude (width of the domain), 2. Resistance (height of the domain), 3. Precariousness, 4. Cross-scale relations	Folke *et al*. 2004:573
Systemic-heuristic	Quantitative property that changes throughout ecosystem dynamics and occurs on each level of an ecosystem's hierarchy	Holling 2001
Operational	Resilience *of* what *to* what	Carpenter *et al*. 2001
	The ability of the system to maintain its identity in the face of internal change and external shocks and disturbances	Cumming *et al*. 2005
	SOCIAL SCIENCES	
Sociological	The ability of groups or communities to cope with external stresses and disturbances as a result of social, political, and environmental change	Adger 2000:347
Ecological-economic	Transition probability between states as a function of the consumption and production activities of decision makers	Brock *et al*. 2002
	The ability of the system to withstand either market or environmental shocks without losing the capacity to allocate resources efficiently	Perrings 2006:418
HYBRID CONCEPT		
Ecosystem-services-related	The underlying capacity of an ecosystem to maintain desired ecosystem services in the face of a fluctuating environment and human use	Folke *et al*. 2002:14
Social-ecological system		
Social-ecological	The capacity of a social-ecological systems to absorb recurrent disturbances so as to retain essential structures, processes and feedbacks	Adger *et al*. 2005:1036
Resilience-approach	A perspective or approach to analyze social-ecological systems	Folke 2006
NORMATIVE CONCEPT		
Metaphoric	Flexibility over the long term	Pickett *et al*. 2004:381
Sustainability-related	Maintenance of natural capital in the long run	

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Generally, resilience is related to the capacity of the system, individual or groups to maintain their characteristics after facing damage or disturbance of their 'normal' state. In this way a relationship between resilience and vulnerability can be established. Since resilience is based on strengthening the adaptive capacity of systems in order to mitigate vulnerability, then lack of capacity is, essentially, equivalent to vulnerability (UNDP, 2004). In this view, resilience and vulnerability can be regarded as opposite sides of the same coin (DFID, 2007). Resilience offers an alternative approach to looking at the analysis of health problems where the focus is directed towards the adaptive capacity. It helps to elicit the positive values of the vulnerable groups with an intention of strengthening those values so as to increase the 'buffering' zone, their capacity to absorb or control challenges (Adger, 2000).

This conceptual understanding aims to place emphasis on what communities can do for themselves and how to strengthen their capacities, rather than concentrating on vulnerability (as has been the case in public health intervention) (DFID, 2007). Unlike vulnerability that focuses on risk factors that cause or accentuate susceptibility to health threats, resilience examines factors and forces that ameliorate risks to health. As a result, it is argued here, it may prove to be a more useful approach for health promotion activities to strengthen the local capacity of individuals to contain diseases. A good example of resilience in the context of my research is an adaptive capacity derived from social capital.

2.8   Social Capital

In essence the concept of social capital emphasizes that relationships matter. Relationships are useful because they make it possible for people to achieve things that they may not achieve by themselves or only achieve with difficulty.   Social capital involves reciprocal sharing of societal resources based on shared values and trust. Trust and reciprocity are important elements to ensure the flow of social capital among individuals within a group (Field, 2008).

2.8.1   Defining social capital

Social capital is a multidisciplinary concept with its meaning originating in sociology, political science and economics. Pierre Bourdieu, James Coleman, and Robert Putnam are the three founding theorists of social capital. Bourdieu (1986) identifies three types of capital, namely economic capital, cultural capital and social capital. He sees social capital as comprising social obligations or connections. It involves the aggregation of "actual or potential resources which are linked to possession of a durable network of institutionalized relationships of mutual acquaintance and recognition – or in other words, to membership in a group" (Bourdieu, 1986: 248).   Capital is represented by the size of the network, and the volume of the capital (economic, cultural or symbolic) possessed by individuals to whom the person is connected.   Social capital depends on the size of the economic capital to which the person belongs and it is the collective assets that allow members of the group to access economic resources based on obligations of exchange and mutual recognition.   Therefore, members are required to invest in relationships in order to maintain and reinforce benefits derived from such social capital (Lin, 2001). Looking at social capital from an economic point of view, Bourdieu sees social

capital as a form of economic capital because "economic capital is the root of all other types of capital" and in this case "every type [of] capital is reducible in the last analysis [to] economic capital" (Bourdieu 1986: 252- 253).

Unlike Bourdieu, Coleman (1988) demonstrated that social capital is not limited to the powerful class but is also beneficial to poor and marginalized communities. Social capital is a resource based on reciprocity and goes beyond individuals to involve the wider networks in which relationships are governed by trust and shared values. Coleman defines social capital as the resource available through relationships. Social capital is a public good that is created and benefits all individuals who are engaged in social relationships. These relationships constitute capital resource as they help to establish obligations and expectations, trustworthiness, sanctions, the sharing of information, and the setting of norms for standards of behaviour for members of the group (Coleman 1994). Two important elements are important to an individual in order to exploit social capital: the extent of obligation and the trustworthiness of the social environment. Social capital is a public rather than a private good and Coleman defines "social capital defined by its function. It is not a single entity but a variety of different entities having two characteristics in common: they all consist of some aspect of social structure, and facilitate certain actions of individuals who are within the structure" (Coleman 1994: 302).

Robert Putnam is perhaps the most recognized proponent of social capital since the publication of his book *Bowling Alone* in 2000 and his contribution went beyond his

profession of political science. His first major work was based on fieldwork in Italy that sought to understand the role of civic education in civic engagement to ensure political stability and economic prosperity (Putnam, 1993). Later Putman (2000) turned his attention to the USA where he addressed the state of un-governmentality due to a decline in social capital. Based on levels of civic engagement, Putman considers trust, norms and networks as critically important elements that enable participants to act together more effectively to achieve their shared goals. Putnam identifies participants, and not society, as beneficiaries who share resources embedded in the networks through the norm of reciprocity and trustworthiness (Putman, 2000).

Putnam further classified social capital into two forms: bridging (or inclusive) and bonding (or exclusive). Bonding capital reinforces exclusive identities and maintains homogeneity, and bridging social capital tends to bring individuals together from different social backgrounds. Each form represents different needs. Bonding capital is good for defining reciprocity, binding people together, and maintaining in-group loyalty and reinforcing specific identities. Bridging capital offers wider connections to external resources and generates broader identities and reciprocities (Putman 2000). The three foundational definitions do not distinguish between different types of capital (Field, 2008) but Woolcock (2001) provides a useful distinction to differentiate forms of social capital where:

(a) 'bonding social capital, which denotes ties between like people in similar situations, such as immediate family, close friends and neighbours;

(b) bridging social capital, which encompasses more distant ties of like persons, such as loose friendships and workmates; and

(c) linking social capital, which reaches out to unlike people in dissimilar situations… thus enabling members to leverage a far wider range of resources than are available within the community' (Woolcock 2001: 13 -14).

2.8.2   Benefits of social capital to health and well-being

Various researchers have drawn on the concept of social capital from these foundational authors to examine the impact of networks or social relationships on individuals' lives. These include authors working in a range of disciplines such as sociology, politics, economics, health, social work and education. Field (2008) summarizes the benefits of social capital finding those individuals or groups with good social capital as relatively healthier, wealthier and happier. In addition their children do better at school, and exhibit less antisocial behaviour. Since the focus of my study is on health and well-being, I will explore the role of social capital in improving or, when it is absent, in threatening health and well-being.

Social capital was rarely talked about in the realm of public health before 1996 (Kawachi, 2008). However, the concept was in use in other fields - in sociology (Bourdieu, 1986; Coleman, 1990), economics (Loury, 1992), and political science (Putman, 1993), for example. As has been seen, social capital is a contested concept and there is no single definition or set of standards for measuring it (Kawachi, 2008). The meaning of the concept is vague and there is no consensus definition. It is like

the parable of the blind Indian who reached disparate conclusions after touching different parts of the elephant's body (Kawachi, 2008).

In general in health research, work on social capital takes two distinctive conceptualisations of the concept, one based on social cohesion and the other on social networks (Kawachi, 2006). The social cohesion approach conceptualizes social capital as resources such as trust, norms and the exercise of sanctions shared by members of a group. In this approach social capital is considered the property of the community and therefore it is not an individual's property. This means that even those individuals who do not participate in a group's activities may benefit simply from being member of that community (Kawachi, 2008). A review of the literature shows that there is a relationship between social cohesion and health, such that people with stronger ties have better health than those with weaker ties (Kawachi *et al*. 1997). Empirical findings from quantitative inquiries have revealed that social cohesion has a very significant effect on health (Kawachi et al, 1997; Wilkinson, 1996 and Putnam, 2000). However, despite the associations between social cohesion and health, the reasons for these associations have not always been very clear. Putnam (2000) provides a clue that social capital through social networks provides material assistance that reinforces health norms and the ability to lobby medical services.

2.8.3   Social capital and policy

Influential policy making bodies such as the Organization for Economic Cooperation and Development (OECD) and the World Bank have taken up the concept of social

capital. It has been widely used by the World Bank, Governments and Non-Governmental Organisations (NGOs) in developing policies for sustainable development. These ideas are reflected in poverty reduction programmes by emphasizing community development, community group participation in decision making, building local organizational capacity, and selecting projects that meet local demands (Narayan and Ptitchett 1999). The significant challenge of social capital on policy issues has been the question of how to measure and monitor the influence of social capital, and that has been limited because, as noted above, the very concept is contested. Therefore, it is argued by Fukuyama (2001) that some activities should be best left to the communities themselves because excessive state interventions can have serious negative effects on social capital. However, it is possible for the state to intervene in some forms of social capital. Other authors have found usefulness in the investment of social capital as it helps a community to look after itself by stronger bonds of trust and co-operation (Leadbeater 1997) or through mutual aid groups (Wann, 1995).

I consider social capital to be useful in my study as it helps to understand the opportunities available for individuals who are in the group and how these opportunities can be useful in improving health or building the resilience of a group to health changes. Furthermore, I use the concept of social capital to investigate how closer ties can help to develop resilience of individuals to ill-health.

2.9   Conclusion: Conceptualizing Health Beliefs and Behaviours

Hazard appears to be relatively easy to define and it is simply understood as a potentially harmful event (Thywissen, 2006); in this study refers to diseases, in particular malaria and diarrhoeal diseases.   Risk and vulnerability lack single accepted definitions as it seems to be difficult to delineate their scope (Cutter 2006; Birkmann 2006) due to varied disciplinary focuses (Wisner, 2004). Blaikie (2004), through the Pressure and Release Model, simply represents risk as the function of risk and vulnerability [*Risk (R) = Hazard (H)* x *Vulnerability (V)*]. Resilience as related to vulnerability may be seen as the opposite as it refers to capacity of individuals or groups to withstand and cope with risk caused by a natural physical agent such as microbiological agents like bacteria and protozoa. My approach to resilience is to investigate opportunities that exist within a society such as social capital that can be useful in building the individual capacity to mitigate illnesses.

There exist discrepancies between the public's perception health risks and those of professionals or scientific and policy experts for management of risks (Bickerstaff, 2004).   The problem of differences in perceptions is rooted in the conventional understanding that risk is only the property of physical hazards that cause harm to individuals or groups. These concerns have led to the development of research into risk perceptions, which attempt to explain differences between 'expert' and 'lay' perceptions. Despite the critics who argue that public perceptions are not based on objective verifications, and thus considering them in a public policy framework would be detrimental, I argue, instead, as asserted by Fischoff *et al*., 1981) that acknowledging and incorporating the social value dimensions of risk issues in decision making process is inescapable. This is because there is no perspective

which has been able to fully explain the complexity associated with adoption of appropriate health behaviour. It is with this in mind that this study is framed in terms of socio-cultural perspectives in understanding the risk of environment-related diseases. This perspective assumes that perceptions of, and responses to, risk are formed in the context of a range of social, cultural and public (mis)-understandings of science (Burgess *et al*. 1998). Most importantly in this perspective judgements of individuals are based on their everyday experiences of risk and how that risk influences their social identity.

Therefore, understanding of individual or group behaviour and beliefs requires broader exploration of interactions and forces that operate around individuals and render them vulnerable to health risks. Vulnerability, as conditions (social, cultural, economic and political) of people at risk (Anderson, 2000) is important in understanding social interactions and processes so as to make rational interpretations of the lay perceptions of the individuals at risk. Blaikie et al (2004) propose the Pressure and Release Model and the capability approach as useful explanatory frameworks in facilitating a wider exploration of people's vulnerability to health risks.

A higher burden of disease for the rural people living in poverty seems to be inevitable because problems of ill-health are viewed as inherently part of the experience of poverty (Kyegombe, 2003). Ill-health can lead to a downward spiral model of welfare losses and the disintegration of families (Pryer*et al*, 2003). Poor communities lack access to reliable healthcare as they have limited resources to cope

with ill-health. Limited resources also hamper them in accessing and utilising technologies for hygiene and sanitation (Armar-Klesu *et al.*, 2000; Tumwine *et al.*, 2003) and mosquito deterrence products (D'Allessandro *et al.*, 1994; Howard *et al.*, 2003; Macintyre *et al.*, 2002).

The next chapter will discuss the research process and means of empirical data collection. Following that comes a chapter on the social, political and environmental context in Ngara. I will then discuss my empirical findings, and apply the concepts of risk, resilience, vulnerability and social capital to explore the multiple layers of influences that inform health behaviours and beliefs.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1   Introduction and Justification for Approach

The purpose of this chapter is to provide explanation and justification for selection of the research design, and strategies for data collection, analysis and interpretation in order to address the study's research questions. Broadly the study aimed to understand the influences of social and cultural attributes on individuals' health and well-being. In doing so the research focused on how social and cultural beliefs and perceptions mediate health in a way that they contribute to, escalate or reduce risks to health. The study explores these attributes in the context of two issues: firstly, environment-related health risks pertaining to malaria and diarrhoeal diseases, and secondly residents' perceptions and views of public health interventions and programmes.

The essence of this broad aim was to understand the complexities of individuals' behaviours in their everyday lives by trying to get insights into these behaviours in order to help understand common public health concerns such as: why do some public health programmes succeed and others fail? Why do some individuals who know how to protect themselves against malaria and diarrhoeal diseases choose not to do so? And why are control and prevention of preventable infectious diseases such as malaria and diarrhoeal diseases problematic? In policy terms an understanding of these complexities is of potential relevance to public health practitioners and professionals, researchers, and programme planners in protecting health and

preventing diseases in individuals at risk.

In an effort to garner a deeper understanding of the broad aim, the research sought to address the following research questions:

Empirical questions

- What are the perceptions and beliefs of rural individuals regarding aspects of daily living that produce or prevent health? And what are their perceptions of environmental health interventions?

- What risky practices and behaviours are adopted which render individuals vulnerable to health problems?

- Which coping and/or resilience strategies do individuals engage in, to reduce their vulnerability to ill-health?

- How has the presence of 'outsiders' (refugees) influenced perceptions and behaviours of local host communities surrounding refugee camps?

Conceptual questions

- How are the findings and the socio-cultural perspective relevant in theorizing environmentally related health?

- What is the contribution of the research to theoretical writing on resilience and vulnerability?

Policy related question

- What implications do the research findings have for health promotion policy?

In order to fully address the research questions, data collection and analysis strategies were chosen that are ethnographic in nature. Crang and Cook (2007) write that such approaches allow us to understand how people actually live out their lives. The aim of the ethnographic approach was to obtain thick description in order to explain and complement information reported from research that had employed techniques such as epidemiology and medical entomology in which a more quantitative, biomedical approach prevailed. Therefore, ethnography helps us to understand the world as experienced and understood by the research participants in their everyday lives. In my study I used different research methods but the main method was participant observation that involved use of a research diary for recording daily events or information relevant to the study (Appendix I). Other qualitative methods used were semi-structured interviews, focus groups and informal conversational groups.

Analysis of field data involved transcriptions, coding and development of relevant themes or topics that were used for discussion or presentation of the findings. Data interpretation was carried outby adoptinga socio-cultural perspective, which considers how individual behaviours are not independent but are mediated or modified by the social and cultural contexts in which they take place. Two important substantive themes were identified: vulnerability and public perceptions of illnesses and technologies; and the role of social relationships in individuals' vulnerability and resilience. Each theme, which constitutes a separate chapter in the thesis, comprised several key sub-themes. Interpretation of the two themes also entailed a convergence on a broader overarching notion, which was the need to maintain

cultural identity.

In this chapter I explore in detail the selection and application of the key methods; analysis of the data which emerged; ethical considerations and researcher positionality. Given that I was regarded by the research participants, to varying extents, as an 'outsider', positionality is of particular relevance in relation to its influence on the nature of the data collected. Having previously worked as a social scientist for the NGO Concern Worldwide I was regarded by villagers more as a Concern programme officer than as a PhD researcher. The chapter begins with an overview of the study's context.

3.2   Background to the Study

This study was carried out in two sub-villages, Kumnazi and Nyakariba, located in Kasulo village, Kasulo ward in Ngara district, Tanzania. These sub-villages were adjacent to one another but were about 8km apart, taking the central area of each sub-village. The sub-villages were adjacent to the former refugee camps of Lukole. Comparatively, Kumnazi has better services such as piped water supply, is closer to health care facilities (Lukole health facility), and is located along the main highway to Burundi and the Democratic Republic of Congo (DRC). In contrast Nyakariba is more remote and drinking water is obtained from streams.

Ngara is located in the Northwest of Tanzania, close to the border with Rwanda and Burundi. It is a mountainous region with much of the land over 1500m and with an

annual rainfall of 1000-1250mm. The region has a favourable climate and land for crop production, mainly bananas, sugar and coffee (IFAD and URT, 2003). Smallholder subsistence farming dominates the economy, and a 2001 survey indicated that the region was among the poorest in Tanzania, where over 40 percent of households were frequently deficient in staple food supply; and over 80 percent were classified as poor with a median annual rural household income of TZS 801 000 (581 USD) (IFAD and URT, 2003).

The district covers an area of approximately 3,744 km^2 and comprises four divisions, 17 wards and 72 villages (Ngara District Government 2012).According to the 2002 population census, Ngara had 49,082 households with population of 334,409 people (NBS, 2006), of whom 30 percent were refugees. Women comprised 52 percent of the local Tanzanian population and 51 percent of the overall population including refugees (Table 3.1). The refugee camps were closed in 2008 and all remaining refugees were repatriated back to their home countries. But some refugees were integrated into the host community through intermarriages.

Table 3.4. Population Census of Ngara in August, 2002

	Male	Female	Total	Percent of Total Population
Local population	110,824	122,047	232,871	69.6
Refugees population	51,492	50,048	101,540	30.4
Total	162,316	172,095	334,411	100

Source: NBS (2006)

The sudden influx of refugees from Rwanda in 1994 led to increased competition for resources such as food, fuel and shelter between refugees and the host community (Mwakasege, 1998). During this time Kasulo ward, where my study was located, having 6000 people received about 200,000 refugees within 24 hours. Mwakasege (1998) reported that the refugees stayed for about a week before relief agencies such as United Nations High Commision for Refugees (UNHCR) started to provide support. I was interested in exploring the potential impact of refugees on the health-related behaviours of the host communities and how the relationship between refugees and surrounding communities shaped the lives of the local population. This aspect is particularly important since little is known of the effects on the local population even after the closure of the refugee camps.

In order to carry out effectively the participant observation work, I rented a room in a family house in Kumnazi sub-village in order to share with them their everyday life experiences. Like many dwellings in the village, the floor and walls of the house were made of mud and the roof comprised corrugated iron sheets. I had no bed and my mattress was laid on the floor. When friends used to visit me at the house some were surprised to see the status of the room and they questioned why I did not have a bed. Each day when I was in the village I walked around, interacting with villagers in different settings where I tried to initiate conversation to discuss health issues in a friendly and informal way. I enjoyed living in the village although I found it was difficult at the beginning as villagers tried to avoid me. Leslie and Storey (2003) explain how living within one's research area is both thrilling (at a personal level) and productive (in terms of data). This is because it offers acceptance and trust; minimizes possible community suspicion, resistance or hostility; and may lead to

greater appreciation of issues. Community suspicion may develop from a feeling of being studied ('under the microscope'), however, which may lead participants performing certain roles and activities which they expect that you want to see, that is, changing their behaviour because you are there, or concealing other behaviours. The fact that I lived in the village became known to the community and, overall, this helped in the development of acceptance, trust and good relationships with villagers.

My PhD research was integrated with the on-going work of Concern Worldwide, an international non-governmental organization that was involved in the improvement of water supply and environmental health promotion in Ngara district (Concern Worldwide 2013) . This programme, as reported in a recent FAO paper, involved health promotion for poor rural populations in Northern Tanzania focusing on malaria control, hygiene, sanitation and water supply, and enlisted a number of water engineers and health promotion officers (FAO, 2013). Within this broad programme a specific research project focused on the interaction between the three leading diseases of poverty (malaria, diarrhoeal diseases and acute respiratory infections), and designing interventions that have 'added value' by reducing the burden of more than one disease. This project sought to develop interventions that are cheap, effective and locally sustainable, using appropriate technology acceptable to the local population. Originally, the project was designed to investigate and facilitate a reduced prevalence of diseases within the Burundian refugee camps, as there was a higher prevalence of environmentally related diseases, in particular malaria and diarrhoeal diseases, within these camps. However, just before commencement of the project in July 2008, the refugee camps were closed (on 30[th]June 2008) and all remaining refugees were repatriated back to their home country, Burundi. This

closure of the refugee camps initiated a re-organisation of the project whereby the target population was re-directed from refugees to the local host community of Kumnazi and Nyakariba sub-villages.

It was within this project where I worked as a social scientist for Concern worldwide for one year prior to my PhD fieldwork. I was mainly responsible for carrying out a case-control survey that was following up incidences of malaria and diarrhoeal diseases for each household within Kumnazi and Nyakariba sub-villages. Each household was given a number, a unique identifier, to ensure effective follow-up of diseases. Unfortunately, the project experienced a number of limitations especially a lack of diagnostic services due to a lack of technical staff. It was initially expected at the outset that my PhD research could have been developed within the framework of the case-control survey but because of the problems experienced a change of direction ensued.

In addition my PhD fieldwork complements a study of another PhD student within the Concern Worldwide project who was carrying out biomedical (epidemiological) research investigating environmental determinants of environmentally related diseases. This student was pursuing studies at the London School of Hygiene and Tropical Medicine, UK. In contrast, my research took a wider socio-cultural perspective to explore and understand individual behaviours and their contextual processes and structures. In this regard, a socio-cultural perspective recognises multiple attributes that impact human behaviours and this perspective appeared appropriate for my study in the context of Ngara district, Northern Tanzania.

3.3 Selection of Research Methods

Quantitative methods have been traditionally useful for describing measurable factors, projecting trends and establishing causal relationships. However, a significant weakness of a quantitative approach is that it de-contextualizes human behaviour such that it considers only variables in the model and ignores contextual socio-cultural dimensions in which the behaviour occurs (Weinreich, 1996). In this sense this model explaining causation is considered a reductionist model of disease causation as it cannot sufficiently describe the complexity of health behaviour (Weinreich, 1996) such as social values, attitudes and perceptions. Qualitative methods are therefore, more effective in obtaining culturally specific information about the values, opinions, behaviours and social context of particular communities. Given the nature of my research that required establishing the complexities of behaviours within the community, qualitative methods are most appropriate. These methods produce rich information in real settings that cannot be captured by quantitative methods such as questionnaire surveys.

In this research, participant observation was the main method of data collection, supplemented by focus group discussions, semi-structured in-depth interviews and informal conversational groups. The research involved two phases of fieldwork to allow critical reflection on the methodology and data between the phases. The first phase was conducted between June 2010 and January 2011 and the second from July to October 2011. Table 3.2 summarises the timings of each method as implemented in the study area.

Table 3.5 Summary of methods of data collection

Time Period	Observation	Focus groups	In-depth interviews	Informal conversation groups
June-Nov 2010	√	X	X	X
Nov 2010 – Jan 2011	√	√	√	X
July 2011	√	X	X	X
Aug - Oct 2011	√	√	√	√

A topic guide that was used for focus groups and interviews was prepared in English but was then translated and executed in Swahili since most respondents speak Swahili. There were, however, a few individuals in the focus groups who did not speak Swahili, only local dialects and in these cases an interpreter (a research field assistant) helped to facilitate the discussion. Although these individuals were not able to speak Swahili fluently, they were able to follow the discussion in Swahili but they made their contribution in their own vernacular language. Therefore, the interpreter helped me to understand the contribution of the respective participants. There were also times when even those individuals who were fluent in Swahili were sometimes contributing in their vernacular language. When I asked why individuals were using both Swahili and their vernacular language at the same time, respondents replied that they used their vernacular language to show emphasis to the point as expressed, as illustrated by one participant:

> *'You should learn to speak Kihangaza [Hangaza] because sometimes stories become very sweet and more meaningful when you narrate it in Kihangaza'*
> *(Mariam, adult woman, FGD, Kumnazi).*

When the interpreter was translating participant words in Swahili, other members were also following up to ensure the correctness of the meaning. This follow up to ensure conveyance of the correct meaning was important in order to avoid the translator's own judgment (Bujira, 2006). During data collection I found that there were occasions where the interpreter missed the meaning and was corrected by other participants.

Through these ethnographic methods data such as daily events, discussions, feelings or interactions were recorded and stored using a research diary/field notes and audio aids. The methods allow for the development of a detailed understanding of the people's values and beliefs and in this case the means by which individuals construct their own narratives (Brockington and Sullivan, 2003). The research diary was also used to document all encounters in the research process be they physical, emotional, or reflections that helped to shape the research in order to achieve its goal.

In my research I took on board issues of validity and reliability, as they are prime to any good research. In defining these terms, 'validity concerns the soundness, legitimacy and relevance of research theory [perspective or approach] and its investigation… reliability refers to repeatability or consistency of a finding' (Kitchin and Tate, 2000:34). Reliability of the research findings when repeatability or consistency of the findings is required was limited in my study because of its

subjective and contextual nature. Table 3.3 shows different types of validity, their meaning and the means or approaches I used to achieve validity in my research.

Table 3.6Types of validity and approaches

Type of validity	Meaning of the type of validity	Means or approaches I used to attain validity
Validity relating to theory		
Face validity	Justification of the study	Considered relevance of the study to interested parties – researchers, public health practitioners, policy makers
Conceptual validity	Linking theory and methodology to ensure philosophical and methodological soundness	Ethnography - qualitative methods and social constructivism - used for data generation and analysis respectively
Validity relating to practice		
Construct validity	Proper selection of research methods	Qualitative methods – participant observation, focus groups, semi-structured interviews – used for understanding people's knowledge, perceptions, beliefs and behaviours related to health
Analytical	Proper selection of data analysis method	Used inductive technique
Ecological validity	Refers to doing inferences	Subjectivity - ecological fallacy, and spatial and temporal in nature of qualitative results. Contextual – provides deeper insight that ensures richness and depth to data
Internal validity	Possibilities of different interpretations and conclusions of the same results	Sharing of coding process with other members of research team and academic supervisors

Source: adapted from Kitchin and Tate, 2000: 35

3.4   Research Methods

3.4.1 Selection of participants and the importance of place

This research applies a purposive sampling technique where participants were selected based broadly on their experiences in relation to the research topic and the notion of homogeneity (people who knew each other and have similar social statuses). This was important in order to understand 'how individual people experience and make sense of their own lives' (Valentine, 2005:111). This approach to sampling involves subjective selection of respondents based on the researcher's prior experience (Rice, 2010). Whilst this means that it is not possible to generalise beyond the sample (Rice, 2010) this is not the goal of such sampling. I recruited participants for focus groups through their local leaders (*Mabalozi*) in their locations. '*Mabalozi*' selected individuals who knew each other and were compatible (friends not enemies) and had lived in the area at for least five years. A challenge that appears in having a group of closer friends is that friends may not challenge each other critically during focus groups. In addition I advised the village leaders that they should not include individuals with more influence such as religious leaders or civil servants as there was a risk that they would have dominated the discussion.

Focus group participants were selected in order to elicit knowledge, understanding and views from a range of people living in the study area (Table 3.4). Focus groups were divided according to gender and age in order to allow a forum for these groups to voice their opinions which might otherwise have been difficult; in particular it was important to hear the views of women since they can be quieter in mixed groups (Dunn *et al,* 2011). Selection of key informants for individual interviews was predominantly based on their status e.g. village leaders, religious leaders, teachers,

elders. These informants were recruited through everyday contacts and networks during my time spent living in the study area and from focus groups for follow up of a particular issue of interest. It was anticipated that these respondents would provide understandings of how health risks are understood from particular vantage points such as religious, political and educated individuals' perspectives

In order to ensure wide exploration of the key themes and issues, 18 focus groups were carried out and included the following categories: male only, female only, mixed (male and female), village leaders and youth (or educated) as shown in Table 3.4. The mixed groups were used in order to explore how environmental health risks might be shared among different groups in the village. The focus groups comprised varying numbers of participants, but ranging from eight to ten as different authors suggest (Longhurst, 2010; WHO, 2000). Formation of the mixed groups considered gender balance where groups comprised an approximately equal number of participants of each sex. There were four mixed groups which included the following categories: two focus groups of adult individuals with one focus group from each sub-village, one for the village leaders and a fourth for youth or educated individuals.

Table 3.7 Summary of focus groups conducted

	Gender	Phase		Total	Location	
		I	II		Kumnazi	Nyakariba
Adult	Female	1	3	**4**	2	2
	Male	1	3	**4**	2	2
Youth	Male	1	3	**4**	2	2
	Female	1	1	**2**	1	1
Mixed	Male and male	2	2	**4**	2	2
Total		**6**	**12**	**18**	**9**	**9**

Effectiveness of focus groups can be determined by the place in which they are conducted and therefore, 'ideally, the setting should be relatively neutral' (Longhurst, 2010: 109). In carrying out the focus groups I aimed for places that were informal with few distractions, 'neutral' and easily accessible. I tried to match people to places where they were most familiar or comfortable. Different places were used which included schools, village leaders' offices, and in some homes of research participants. The use of different venues aimed at making different audiences feel as comfortable as possible. For example local leaders were interviewed in the village office; educated youth at school, and other villagers in their homes. It happened in one focus group convened in the classroom that individuals became so tense that I postponed the discussion for half an hour. When I re-convened the group with the same participants but at a different venue (the home of one of the participants), respondents became active and engaged well in discussion. When I asked individuals why they became more active in the second part of the discussion their response was that the school environment made them

think that they had to produce only 'professional' information with regard to the discussion on health risks.

3.4.2   Observation study and research diary

The research used multiple qualitative methods in an attempt to meet the aims of the research and to answer the study's research questions. Most extracts or quotations from participants come from focus groups and semi-structured interviews (key informants). However, my research diary provided an additional and rich source of contextual and specific information and observations for representing the field reality. Data were collected either as field notes (using a note book and a pen) or electronic materials using a mobile phone. When I was using the note book and pen, I recorded data as and when I encountered interesting events or information during the fieldwork. Where appropriate and relevant I then expanded the notes at the end of the day using key points taken during the day time. The research diary was therefore key in helping to provide detailed explanations, and drawing connections between issues or events observed from the data. For example, at the beginning of my field work I felt that some participants were trying to impress me by providing positive information that they were good at observing hygiene and sanitation practices such as washing of hands and use of toilets. However, after a long stay in the village and developing some mutual trust, I observed discrepancies in their practices from what they informed me earlier.

Participant observation involved spending time living with people in the community in order to understand their health practices related to risks of malaria and diarrhoeal

diseases. The methods involved myself as a researcher in observing and participating in different events within the community where data were recorded as field-notes. According to Laurier (2010) the basis of this approach is to become, or stay, as close as possible to the spatial phenomenon being studied and it is thereby quite distinct from methodologies that emphasize distance and objectivity. The observation study was unstructured and relied on themes that emerged in the course of doing the research. Therefore, this approach tried to minimize influence from the researcher on data generated because it enabled themes to emerge from the data collected through rigorous thinking and re-thinking about the data (reflexivity) (Parahoo, 1997).

During participant observation I was interacting with people in the two study sub-villages, Kumnazi and Nyakariba, in different scenarios such as bars, market place, health centres, churches and village meetings. This was useful for eliciting different views and perceptions according to where the research encounters took place. For example, during the village meetings conducted in Kumnazi participants often emphasized the importance of sanitation and hygiene, but when I spoke to them in the local brew club the same people did not see or take seriously issues of hygiene and sanitation. I attended about three village meetings conducted at *'Mkanyageni',* where the meeting place was adjacent to the local brew club. In the market place individuals used to talk about issues related to entrepreneurial ventures, environmental hygiene (disposal of garbage) and sanitation facilities. The market place was the centre of the village where villagers come to buy their daily needs such as groceries, and others come to sell food crops outdoors such as bananas, potatoes, yams, tomatoes and cassava. Some come to the market place simply for recreation and to talk to other people, to charge their mobile phones, or play games such as pool

and cards, and get drinks (both alcoholic and non-alcoholic local drinks). Therefore, in the evening the market place became very active. Saturday was market day where people from different parts, some from Ngara town, brought various items to sell. On this day the market was particularly busy with people interacting in different ways.

A key health related issue in the market place was a lack of sanitation facilities (toilets) to serve people in the market area. In most cases this was their major concern whenever there was discussion about hygiene. There was only one, broken flush toilet built by Concern Worldwide to serve people in the market. Many individuals complained about this toilet indicating that the technology (flush toilets) was not appropriate because villagers were not used to them. Many villagers suggested that a pit latrine would have been more appropriate. When probed further about this issue they commented that many villagers felt that this should not be a shared endeavour, as one participant indicated:

> *People in Kumnazi are very selfish, they think if they build a toilet, other people who did not participate in building the toilet will benefit. Therefore, they say 'why should I benefit others'? Then, everyone will know himself or herself where to go (Maulid, adult man, research diary, at market place, 23/08/2011)*

In the process of moving about the community and interacting with people I documented daily what I experienced, what I learnt from interactions with other

people, and what I observed. In this case, I walked around with my research diary all the time in order to take advantage of spontaneous opportunities without relying completely on memory. Thus, my writing in my research diary was a method that supplemented the observational study and is a rich source of data. However, it soon became clear that the process of writing notes was alien to the local culture and presented problems for me. Some people became skeptical and questioned what I was doing, while others felt shy and less willing to answer my questions when I was taking notes. Therefore I decided to use my mobile phone for taking key points on the scene and later on I wrote up the observations in more detail when I returned home. Laurier (2010) notes that a tendency to take out a note book when a researcher is engaged in observation is quite useful in showing researcher status in the field and that participants will take you seriously as the researcher. However, Laurier also cautions that not in all situations can field notes be taken because some settings are sensitive such that the researcher has to keep a more low-key status. I found 'the low-key approach' to be more acceptable in Ngara.

During the observation study relevant informal research encounters and conversations pertaining to environmental health risks and well-being were recorded and these included the following:

- Perceptions of malaria interventions – repellent plants, indoor residual sprays and insecticide–treated bednets
- Perceptions of malaria and diarrhoeal diseases
    - Causes, treatment and control of these diseases
    - Perceptions of hygiene and sanitation (hand-washing and use of toilets)

- Role of social relationships in participants' vulnerability and resilience

  - Social values, stigma, conformity and roles of health-intermediaries

- Social capital and exclusion

- Maintenance of social cohesiveness

- Social support and coping strategies in the context of health

3.4.3 Semi-structured interviews with individuals and focus groups

Semi-structured interviews and focus groups both allow open responses from participants, and are conversational and informal in tone (Longhurst, 2010). A semi-structured interview is a verbal exchange in which an interviewer elicits information from an interviewee by asking questions. The interviewer prepares a set of questions or a guide to be used to explore a topic of interest. In contrast to one-to-one semi-structured interviews, focus groups comprise small groups of people who meet with a facilitator in an 'informal' setting. The role of the facilitator is to maintain the discussion around the topic of interest but also to be relatively non-directive, allowing individuals to explore the topic in as wide a sense as they find relevant (Longhurst, 2010).

According to Dunn (2005) interviews are classified into three types: structured, semi-structured and unstructured, which are placed along a continuum:

> *'Structured interviews follow a predetermined and standardised list of questions. The questions are always asked in almost the same way and in the*

same order. At the other end of the continuum are unstructured forms of interviewing such as oral histories…the conversation in these interviews is actually directed by the informant rather than by the set of questions. In the middle of this continuum are semi-structured interviews. This form of interviewing has some degree of predetermined order but still ensures flexibility in the way issues are addressed by the informant' (Dunn 2005:80)

Despite their similarity in modes of operation, focus groups become different from interviews as they allow interactions between members of the group (Cameron, 2005). Basically, in semi-structured interviews the interaction is between interviewer and interviewee. In terms of costs, focus group discussions are 'different from interviews in that it is possible to gather the opinions of a large number of people for comparatively little time and expense' (Longhurst, 2010: 105-106). In this section I will discuss how my research used semi-structured interviews and focus groups to help address the study's research questions. In doing so I will explain the different stages involved in implementing these methods and in understanding their outcomes as a result of interactions between interviewer, interviewees and the context.

Both the interviews and focus groups used the same topic guide that was prepared to explore participants' knowledge, opinions, and perceptions relating to the risk of environment-related diseases and respective health interventions. The health interventions explored were those implemented for the control of malaria, namely repellent plants, Indoor Residual Spraying (IRS) and Insecticide Treated Nets (ITNs), and those targeted towards the prevention of diarrhoeal diseases, notably health promotion and education on hygiene and sanitation, particularly hand-washing

and use of toilets. Given that in in-depth interviews participants are interviewed intensively, these encounters were used to explore the issues in more detail, encouraging participants to express their views and experiences freely and in a wide-ranging way. Interviews and focus groups were very useful methods are they revealed rich information related to community beliefs, attitudes and behaviours in the context of environmental diseases and their respective interventions.

3.4.4 Informal conversations with groups

Informal discussions were carried out with self-formed groups of individuals in their natural settings and without interfering with their social activities. These group conversations were held in a range of different locations including local clubs, bus stops, bars and recreational local story-telling gatherings ('*vijiwe*'). This method is similar to focus groups but does not require pre-arrangement and recruitment of participants. In these informal conversations participants themselves sometimes initiated discussion of health-related issues, sometimes referring to issues that were discussed in previous encounters like focus groups and semi-structured interviews. This is because some of the participants in these informal conversations had previously participated in the interviews or focus groups and others asked questions related to what they had heard from their fellows who had participated in those research encounters. During these informal conversations I participated in what other people were doing at that particular time and explicitly expressed my position as a researcher to those who might not already be known to me. With my long-term stay in the village, I became familiar to many villagers from different social groups and ethnicities and this facilitated my interactions with people.

Informal group conversations were used as a data collection method during the last two months of my fieldwork in phase two (II) and it proved to be particularly useful, as individuals appeared to express themselves and interact with me freely. In comparison to the more formal focus groups, informal conversational groups proved to be more fluid in nature and, in most cases, the participants themselves facilitated discussions to a greater extent. In this sense the participants and the researcher were more 'equal' in the exchange of questions and responses. A key strength of the method, then, is that the discussion seemed to flow naturally as in most cases the conversations built on, and emerged from, 'real' settings. However, a key challenge of the method is that informal conversations are naturally more convoluted with distractions and less relevant topics being covered. They therefore required patience and time for the researcher to follow a subject of interest. Depending on the nature of the group, data were collected by taking field notes and audio recordings.

3.5   Conducting Focus Groups and Semi-structured Interviews

Each focus group began by introducing myself as a PhD researcher investigating environmental health and well-being. This was important in order to clarify any ambivalences about the role I played in relation to Concern Worldwide (see section 3.8 on positionality). I explained the purpose of the study and the reason for asking individuals to participate. This part of the discussion highlighted rights and responsibilities in relation to participation and was used to seek informed consent to proceed. In the process of building trust and encouraging participants to contribute freely I assured them of confidentiality and anonymity; each participant is referred to by a pseudonym in research encounter extracts. Furthermore, because some villagers perceived me as a health inspector (see Chapter 5), I made it clear that I would not

judge participants in terms of their environmental health status.

In facilitating the focus groups I used a topic guide (Appendix II) to stimulate participants to contribute. I allowed the conversation to flow naturally but also checked the guide to make sure all topics were covered. Focus groups varied in duration from 45 to 122 minutes and the average duration was two hours with a short break divided into two halves. Participants were given a small payment (1500 to 2000Tsh (60-80 pence) as an incentive to encourage individuals to participate in the research. This is because individuals otherwise seemed reluctant to participate in the research. When I discussed the matter with the sub-village leaders (chairmen) they informed me that their people (villagers) normally are reluctant to participate in such meetings unless they are given some incentives or are threatened with legal action. However, to avoid getting only positive or pleasing responses, I was very clear at the beginning of the discussions to tell participants that they should not speak to please me. Having lived in the village for a considerable time I became familiar with participants and in this case individuals seemed open to expressing their views.

All discussions were audio recorded (using a digital recorder) and additional field notes were taken during the course of the discussions by the research assistant. As the facilitator, I was also noting down the highlights of the conversation in order to show that I was engaged with the discussion. Thispractice of note-taking seemed to encourage participants to contribute to the discussion and was interpreted by them as me taking a clear interest in what they were saying. Participants became more engaged and the conversation seemed more productive. I was also able to encourage

respondents to talk more by showing emotional support. For example, when participants expressed health-related problems I encouraged them by asking how they managed to keep themselves healthy under such challenging conditions. Immediately after each focus group I reviewed the notes in conjunction with the research assistant in order to see emerging themes and areas that required further probing during subsequent focus groups or semi–structured interviews.

Semi-structured, in-depth interviews were similar to focus groups, but subjects were interviewed individually. These interviews explored the key issues in more detail and facilitated probing of sensitive issues such as how ethnicity and religion are related to hygiene and sanitation. The topic guide which was used in the focus groups was modified to suit individual interactive discussions (see, for example, Appendix III). As with focus groups, the interviews were audio-recorded, and written notes were also taken. On average the interviews lasted for about one hour, with the shortest being 47 minutes and the longest 73 minutes. A total of 20 semi-structured interviews were carried out. Participants were recruited both from previous focus groups and from other participants, based on specific criteria, notably education (teachers), health-related officials (health professionals), social status (village leaders, religious leaders, senior individuals) gender, age and ethnicity (tribe). Table 3.5 provides a summary of the categories of participants for semi-structured interviews.

Table3.8 Categories of participants in semi-structured interviews

Category	Group	Number
Education	Teachers	2
Health-related officials	Environmental health practitioners	2
Social status	Village leaders	2
	Religious leaders	2
Age	Older people	2
	Adults	2
	Youths	2
Ethnicity (tribe)	Hangaza	2
	Ha	2
	Nyambo	2
Total		20

3.6   Data Analysis

Qualitative data in the form of field notes from field observation, and audio recordings and notes from informal conversational groups, focus groups and semi-structured interviews were compiled, organised and prepared for analysis. The process of analysis, which is undertaken as a means of making sense of such a large amount of data, first involved familiarisation with the data by repeated listening of audio-recordings, reading and re-reading field notes and the research diary and making initial preliminary interpretations of the findings. Then four focus groups and two semi-structured interviews were transcribed for the subsequent coding process (Appendix III). These transcripts were intensively coded line-by-line, sometimes word-by-word, to uncover the meaning grounded in the data (Appendix IV). After coding, categories were developed in order to find recurrent patterns that can be grouped into themes through the use of discursive interpretation (Cresswell,

2007; Fereday and Muir-Cochrane, 2006). By this I mean the data is organised systematically by the identification of topics that link together from codes into categories, and later developing meaningful and exclusive themes (Fereday and Muir- Cochrane, 2006).

The most important stage in the analysis of qualitative data is the process of coding which is a way of evaluating and organising data in order to unearth the meaning contained in the data. In the coding process I allowed the data to 'speak to me' so that I was able to see the strongest themes that characterised the data. Guided by the research questions two important themes arose as being important and these were perceptions of illnesses and health interventions; and the role of social relationships for individuals' vulnerability and resilience. Both of these themes were broadly linked to a social identity theme in which values and norms supersede the need for an individual to stay healthy by practising health behaviours. The data were explored from a weak constructionist socio-cultural perspective in which risks are considered as real but their meaning being framed by social and cultural contexts. More insights started to emerge as I became increasingly familiar with the empirical data and as I engaged more with the key literature. This research draws data from different sources of text-based materials (such as diaries, transcripts of interviews and focus groups) in order to achieve appropriate levels of rigourin the data. This is what in qualitative research is termed triangulation that ensures robustness and reliability of results (Cope, 2010).

3.7   Ethical Issues

As discussed in the introduction, prior to carrying out the PhD research I had been working within the same study area for a year with Concern Worldwide which had permission to carry out development programmes and social research in partnership with the local authority (Ngara District). The research proposal was approved by Durham University ethical committee and also Concern Worldwide granted permission to carry out research in a local area. At the beginning of my PhD fieldwork, I introduced myself to the key gatekeepers by firstly contacting Kasulo's village chairman who convened a meeting to introduce me to all leaders of Kumnazi and Nyakariba sub-villages. The village chairman then invited me to a village meeting where he introduced me to a wider community. During this meeting I introduced myself and described the purpose and nature of my proposed research.

Oral informed consent was used as part of which the following information was provided to participants: the purpose of the research, voluntary participation, and assurance of confidentiality. In addition, I treated the research participants with respect, I informed the participants of the expected duration of the meetings and I asked their consent to take notes and use an audio recorder. In order to ensure anonymity each participant was assigned a unique number to represent their real names. The numbers were easier for them to recall and also seemed neutral as I thought that some pseudonyms may provoke negative feelings. Using the unique number to each participant during each focus group was also important during transcription and analysis processes as it was useful to track contributions of a particular participant accordingly. Although I used unique numbers during focus groups, during discussion I changed those unique numbers to common names that

look like real names in order to give an impression of actual names common in the study area. In addition, during the course of discussions with research participants I had a responsibility to avoid causing emotional pain or distress (Piantanida*et al*., 2002) and to avoid 'doing them harm' through the research process. This is particularly relevant to my research because hygiene and sanitation practices proved to be sensitive issues as sometimes they were associated with a process of stigmatising individuals who seemed to be very 'dirty' as defined by villagers themselves. Finally, in terms of dissemination, I will share the research findings with local communities through village meetings, submitting a summary report to village authorities as well to Ngara District authority. Furthermore, I will share the information with the wider academic community through publishing it via Durham Research Online and through peer reviewed journal articles and international conferences.

3.8   Positionality

3.8.1   My positionality

Positionality relates to challenges associated with cultural difference that bring unequal power relations between research participants on the one hand and the researcher on the other hand (Ogborn, 2010). Skelton (2001:.89) defines positionality as:

> '*things like our "race" and gender...but also our class experiences, our levels of education, our sexuality, our age, our ableness, whether we are a parent or not. All of these have a bearing on who we are, how our identities are formed and how we do our research. We are not neutral, scientific observers, untouched by emotional and political contexts of places where we do our research*'.

Positionality challenges whether it is worthwhile for researchers to carry out studies where they are 'outsiders' such that their social positions might perpetuate the ways less powerful groups and cultures are represented by those in more powerful positions, for example those from the global North representing the experiences of people in developing countries (Madge, 1994; Radcliffe, 1994). Even though I am not from the global North, I recognize that I was in a powerful position and that I interpreted the responses of my participants through an educated lens and by applying theory that I have learnt. My experiences are different from those of the research participants but I have tried to be true to the meaning and perspectives that they gave to their spoken words.

The researcher's position may influence the willingness of research participants to provide information and they may therefore hold back from sharing their experiences to a more public gaze (Barnett, 1997). During the fieldwork research participants saw me as an 'outsider' and this was contrary to my expectation before starting my PhD research when I thought, as a Tanzanian carrying out research in Tanzania, I would not be considered an 'outsider'. Villagers considered me as different in terms of my social status, ethnicity, level of education, occupation and being an overseas student. These perceptions resulted in some participants becoming suspicious of me, thinking that I was a Government agent who was using the research as a 'cover up' for other, secret activities.

There are more than 120 different tribes in Tanzania and I belong to a Kurya tribe in the Mara region, which is different from the local dominant tribes (Hangaza, Ha and

Nyambo) in almost all aspects in terms of culture and vernacular language. However, I was able to communicate with the research participants using the national language, Swahili, which is spoken by the majority of residents. There was a widely held belief among the villagers that a person with university qualifications cannot stay in a rural area, as expressed by one participant:

How come a very educated person like you lives with us in the village? I live in this village because my parents did not send me to school. My brother, I think you can see our life is very poor and we live like animals. We are like 'mkweche' (a very old car), we are not sure if we can see tomorrow (Madonjo, young man, in-depth interview, Nyakariba).

During the time I was working for Concern Worldwide I was not living in the village but instead lived in urban area, Ngara district town. Therefore, when I moved to live in the village of Kumnazi for my PhD fieldwork it became difficult to disentangle my PhD project activities from those related to Concern Worldwide. Maintaining contact with Concern Worldwide staff who also came to the village for other activities also caused some confusion amongst the villagers. Some were insistent on making known their needs especially those related to water supply and sanitation.

Carrying out PhD studies in the global North also contributed to the 'outsider' effect and many people at the beginning of my research were suspicious of my motives, as expressed by one participant:

Many people find it difficult to believe that that you are studying in Europe. And if I were you I would not have come back home to continue living in this miserable life. I feel it is even better to be a dog in Europe. I was surprised to see when I visited you at your house that you do not have even a bed and you use 'koroboi' (local kerosene lamp) like us (Madonjo, young man, in-depth interview, Nyakariba).

However, as I continued to live in the village, people gradually began to build their confidence and trust in me as they saw me living with them and sharing with them different social spaces such as local bars, religious gatherings, local meetings, and weddings and burial ceremonies. I frequently avoided using transport offered by Concern Worldwide and instead used forms of transport which were common to many villagers including hiring a bicycle, '*bodaboda*' (motorbike), and '*samaki*' (saloon car).

Although I attempted to fully embed myself with life in the village I remained, in the eyes of the villagers, an 'outsider' with different needs. For example, on several occasions when I tried to share with them '*mlamba*' (local banana soft drink) and '*gwagwa*' (local banana brew) people attempted to stop me from drinking, maintaining that such drinks were unhygienic. In this respect one participant commented:

No please, that drink 'mlamba' is not good for your health, you will fall sick.

Just leave that for us because our stomachs are used to it [a man confiscates my 'mlamba' and instead he passes me a Coke]. Just take this my friend (Malaika, adult man, group conversation, Kumnazi).

Being Tanzanian and having worked in the study area for about one year I thought villagers would have accepted me as an insider. As Mohammad (2001) emphasizes, positionality does not disappear where we appear to be 'insiders', and that as long as we are engaged in research we are partly an 'outsider'. Other aspects of our own identities such as education, ethnicity, occupation, accent and dress can be markers of our own difference. Having spent many years in education, studying and living in developed countries these statuses also contributed to me being seen as an outsider.

3.8.2 Positionality of research assistants

The research was also affected by the positionality of the three field assistants who I engaged to help with collection of participant observation data. The field assistants were natives from each tribe who have lived most of their lives in Kumnazi village and their recruitment was based on the three important ethnic groups in the area: Hangaza, Nyambo and Ha. Although the field assistants were helpful in accessing information in areas or situations that proved difficult for me, I realized that sometimes the field assistants were tending towards expressing their own views and, at times, being overly positive about their own tribe's perspective. Daily meetings after fieldwork helped to minimise these effects.

I decided to engage field staff after realizing that it would be difficult for me to access some areas away from Kumnazi centre where villagers appeared to be more reserved and cautious towards outsiders. In addition, there was sometimes a language barrier where participants preferred to speak in their own vernacular language or did not know Swahili. Therefore, each field assistant was responsible for carrying out observations within the area dominated by his or her respective ethnic group. This is because the three important ethnic groups occupy different geographical locations in Kumnazi and Nyakariba sub-villages. However, Kumnazi centre is a more multicultural area comprising individuals of different ethnic backgrounds within the country.

With respect to gender, one field assistant was female and the other two were males. It was important to have both men and women because there are issues that women could not discuss with men and, similarly, issues that men would not discuss with a female researcher. Before the field assistants began engaging with the fieldwork, I spent three days training them in how to carry out field observations in the context of the objectives of the research. In terms of academic qualifications, two were secondary school leavers, and the other was a medical school undergraduate student (second year) who was on his study break. The field assistants worked seven days a week and I recruited them on the understanding that they would always be, in a sense, 'on duty' whereby at anytime that they might see or hear something of interest to the research they should document it. As they were local residents I expected that the research participants would accept the practice of them taking notes with notebooks and pens. However, villagers became suspicious when they saw them taking field notes and so I suggested that they use mobile phones to record key

points which they then had to expand on immediately they went back home. This method seemed to work well and minimised the suspicion raised by villagers. Each day after fieldwork we had a joint meeting to reflect on research progress. These sessions identified any problems which had arisen, and were used to find ways of overcoming such problems.

3.9   Conclusion

Using a socio-cultural approach, I used the following methods – observation study, focus groups, semi-structured interviews and informal conversations with groups and individuals to address my research questions. I have discussed my involvement in the study area, my positionality and that of the research assistants I engaged. As a researcher I could have personal prejudices in the collection and analysis of data. However, in order to minimize such biases, my approach tried to allow themes to emerge from the data collected in an inductive way with the reflexivity that a structured approach (deductive) would not support (Parahoo, 1997). Through the process of data analysis, transcription, coding and interpretation the following themes emerged: perceptions of illnesses and health interventions; and the role of social relationships in vulnerability and resilience. Chapters 6 and 7 discuss each of these themes in turn, and Chapter 8 deals with the policy implications of the data. In the next chapter I will discuss the context of my research in Tanzania on issues related to social and economic environments, conditions of environment-related diseases, and environmental health policies and interventions.

CHAPTER FOUR

RESEARCH CONTEXT

This chapter outlines the wider contextual environment of the study area presenting the social and physical environments in which people experience health risks and make sense of them. Broad physical characteristics such as climatic conditions and conditions of settlements are of general interest in terms of understanding livelihood opportunities and the ecology of diseases, whilst the social environment is used here to include economic, political and socio-cultural aspects that shape risks to health within the study area. These socio-cultural contexts will influence how individuals relate to one another and to their formal or informal institutions. In the present context environment related diseases are explored as diseases of poverty, an approach that becomes useful in understanding various livelihood strategies employed in the study area. A special interest is taken in the impact of refugees on the health and livelihoods of the host population. Since refugees stayed for fourteen years within the study area their legacy in shaping public perceptions and social relationships seem to be important. The chapter begins with a description of the contexts of country, District and the study area. Information used in the discussion of context primarily originates from a recent Tanzania Demographic Health Survey (TDHS, 2010).

4.1   Tanzania

Tanzania occupies 940,000 km^2 of which 60,000 km^2 are inland water. This is the largest country in East Africa, sharing borders with eight other countries: Kenya and Uganda to the north; Rwanda, Burundi, the Democratic Republic of Congo, and

Zambia to the west; and Malawi and Mozambique to the south (Figure 4.1). Generally the country is characterized by a long dry spell from May to October, followed by a period of rainfall between November and April. Along the coast and around Mount Kilimanjaro, there are two rainy seasons with the main season from March to May and short periods of rain between October and December. Rainfall is well distributed throughout the year but with the peak between March and May. Ngara, the study area is located in Kagera region which borders Rwanda and Burundi (Appendix V).

TANZANIA

Figure 4.1 Map of Tanzania (Source: TDHS 210)

Tanzania (formerly Tanganyika) achieved independence in 1961 from British colonial rule. In 1962 it became a republic, detaching itself from British influence but maintaining its membership of the Commonwealth. In 1964, the offshore island

of Zanzibar became independent after overthrowing the rule of the sultanate and subsequently Tanganyika and Zanzibar joined to form the United Republic of Tanzania (TDHS, 2010).Soon after independence Tanzania followed a one party system after banning other competing parties. However, from 1992, it resumed multiparty democracy following conditions imposed by Structural Adjustment Programmes (SAPs) (Wangwe, 2005). The president is the head of state and elections are carried out every five years, although the president can hold office for a maximum of two five-year terms. Administratively, Tanzania is divided into 21 regions, Zanzibar is divided into 5 regions and each region is subdivided into several districts. Tanzania has a mixed economy in which the service industry accounts for more than 40 percent of Gross Domestic Product (GDP) (TDHS, 2010).

Since 1961, Tanzania has carried out four population censuses. The first census was in 1967 and recorded a total population of 12.3 million. The preliminary report of the census in 2012 reported a total population of 44.9 million (NBS 2012). This increase has been attributed to high fertility rate and declining mortality rate (TDHS, 2010). The 2002 census (NBS, 2006) reported that life expectancy at birth was 51 years. The majority of people in Tanzania live in rural areas but there has been proportional increase of urban populations from 6 percent in 1967 to 23 percent in 2002. It was observed in the Tanzania Demographic and Health Survey (TDHS 2010) that fertility rate is negatively associated with educational attainment of the mother. In average women with education have fewer children (3 children per woman) than women without education (7 children per woman). The country is very low in regard to gender equity, ranked 138 out of 177 countries despite a slight increase in gender-related development index (GDI) from 0.410 in 2000 to 0.464 in 2005

(TDHS, 2010). The low GDI means that there are substantial gender inequalities in terms of literacy rates, school enrolment, access to health care and economic opportunities. Gender inequality and low education of women also have an impact on health as, for example, formal health promotion advice may be less easily understood by some women.

Education is an important determinant of lifestyle and provides social status to individuals. The attainment of education has also been reported to have an influence on reproductive behaviour, contraceptive use, fertility, infant and child mortality, morbidity, and attitudes and awareness related to family health and hygiene (TDHS, 2010). Specifically, for Ngara district recent census data show that the literacy rate was higher in males and in urban areas, and lower in females and rural areas (see section 4.2.1). Knowing the distribution of the literate population can help program managers, especially those who work in health and family planning, determine how to reach women and men with their messages.

4.1.1 Basic health services in Tanzania

Soon after independence in 1961, Tanzania planned to provide a health service that would ensure free health care to all Tanzanians. In response to this policy, many health facilities were built in rural areas. In 1978 the United Republic of Tanzania (URT) adopted the Alma Ata declaration that aimed towards achieving health for all (URT, 2003). However, while Tanzania made some progress in achieving these aims, the world economic crisis of the 1980s, as well Tanzania's war with Uganda in

1978, meant that the government did not have adequate resources to support such health services. The scaling up of health services therefore became a heavy burden for the government, limiting their capacity to support free health care services and to develop additional services in remote regions. The decline of government support resulted in a deterioration of health facilities, a growing shortage of medical supplies, and an inability to train and pay sufficient people leading to a reduced commitment of staff in the health sector. This situation led the government to institute health sector reforms (Mubyazi *et al*, 2007)

These reforms reconfigured the government health service delivery approach and allowed other players in the private and voluntary sectors to deliver health services. The reform involved decentralization of health services to district or municipal local authorities and Ministry of Health roles became improving the capacity for sector management, policy development, analysis and national planning, development of guidelines for national policy implementation, performance monitoring, evaluation, legislation, and regulation of service delivery and practice (MoHSW, 2007). Before devolution, the provision of health services was directly implemented by the central government through the Ministry of Health. However, after devolution, the local councils or districts are responsible for implementation of health programs and activities whereas the regional level is responsible for general supervision and monitoring of health services delivery.

Decentralisation of health services transferred responsibilities for implementation of health programs and the running of health facilities such as hospitals, dispensaries

and health centres from central government to the local authorities that are now responsible for the procurement of drugs and medical supplies, salaries, and staff training and development. In Tanzania the local authorities are the key players in the delivery of health services and acquire funds to provide health services from various sources, which include the central government, own revenues (taxes), donor agencies, and also from the community through user fees and the community health fund. Unfortunately, the transfer of responsibilities from central government to local authorities has been characterized by a lack of technical and financial resources to ensure smooth operations of health programs (Munishi, 2003).

Health sector reforms have led to diversification of health service providers and financing. A range of stakeholders such as central and local government, development partners, donors, NGOs, CBOs, faith-based health service providers, pharmacies, private hospitals and practitioners, traditional healers and village health workers participate in the delivery of health services. Since 1993, the government of Tanzania introduced several private financing mechanisms in the form of user fees in public facilities and private health insurance schemes with the aim of improving availability and accessibility of health care to rural and urban areas. In 2001 the National Health Insurance Fund (NHIF) for civil servants was introduced, and recently other financing schemes such as Social Health Insurance Benefit (SHIB), under the National Social Security Fund (NSSF) and private insurance have also been introduced. The Community Health Fund (CHF), introduced in 1999 to target the poor and those living in rural areas, aimed to facilitate people in the informal sector (sector not recognized as normal income sources) to pre-pay for their medical care with the goal of ensuring them access to health facilities throughout the year.

Although user fees and the Community Health Fund have increased the resources for health services, these reforms have been characterised by the inability of individuals to pay and a dissatisfaction with the health care provided (Munishi, 2003). The introduction of user fees has therefore led to a decline in access to health services, as many households, particularly in poor rural areas, are not able or not willing to pay (Munishi, 2003). Hussein and Mujinja's (1997) study on antenatal care in government hospitals in Tanzania showed a 53.4 percent decline in utilization of health facilities after the introduction of user fees. However, the government has partially responded to its goal of universal access to health care by introducing a system that provides free access to basic health care to vulnerable groups especially children under five, pregnant women and the elderly.

4.1.2 Health, sanitation and drinking water

Since water-borne diseases such as diarrhoea and dysentery are prevalent in Tanzania, it is useful to describe the nature of drinking water supplies. Increasing access to improved drinking water is one of the Millennium Development Goals proposed by the United Nations General Assembly in 2002 and Tanzania as a member has agreed and signed the agreement (UNDP 2010). Several factors affect quality of drinking water including source, accessibility to the source and home water treatment. Improved sources such as piped water, protected wells, public taps, tube-wells or boreholes, and protected springs are relatively free from pathogens as compared to unimproved sources such as unprotected wells, rivers or streams, and ponds or lakes, which are more likely to contain etiological agents (Table 4.1). Poor accessibility to a water source may limit the quantity of suitable drinking water that

is available to a household and lack of immediate access to the source may result in contamination during transport or storage. Women normally bear more of the burden of fetching water, especially when the drinking water source is located at some distance from the household. Home treatment of water, regardless of the source, can be effective in improving the quality of household drinking water.

Table 4.1Percent distribution of households by source of drinking water according to residence

Characteristic	Households	
	Urban	**Rural**
Source of drinking water: Improved source	80	47.9
Piped water into dwelling/ yard/plot	20.1	3
Shared tap/standpipe	25.4	4.6
Public tap/standpipe	12.4	15.4
Tube well or borehole	6.2	1.1
Protected dug well	9.9	13.9
Protected spring	4.9	9
Rainwater	0.9	1
Non-improved source	20	52.1
Unprotected dug well	9.2	26.9
Tanker truck/cart with small	5.1	1.1
Surface water	3.3	24
Bottled water	2.5	0.0
Total	100	100
Time to obtain drinking water (round trip)		
Water on premises	19.4	4.8
Less than 30 minutes	54.5	43.2
30 minutes or longer	25.7	51.9
Don't know/missing	0.4	0.1
Total	100	100

Source: TDHS, 2010

Access to adequate sanitation is another Millennium Development Goal that the country aims to achieve. Whilst 70.6% of Tanzanian households have their own toilet (not shared with other households) only 22.5% in urban areas and 8.5% in rural areas have improved toilet facilities (Table 4.2).

Table 4.2 Percent distribution of household sanitation facilities according to residence

Type of toilet/latrine facility	Households	
	Urban	**Rural**
Improved, not shared facility		
Flush/pour flush to piped sewer system	0.9	0.0
Flush/pour flush to septic tan	4.2	0.1
Flush/pour flush to pit latrine	10.2	1.5
Ventilated improved pit (VIP) latrine	1.9	0.6
Pit latrine with slab	4.2	6.3
Non-improved facility		
Any facility shared with other households	24.4	2.0
Flush/pour flush not to sewer/septic tank/pit latrine	2.1	0.1
Pit latrine without slab/open pit	49.8	71.4
No facility/bush/field	2.0	17.8
Other	0.0	0.2
Missing	0.1	0.0
Total	100	100
Shared/not shared		
Not shared	42.7	80.2
Shared with 1 household	12.9	12.6
Shared with 2-4 households	28.2	6.1
Shared with 5+ households	16.1	1.0
Missing	0.0	0.1
Total	100	100

Source: TDHS (2010)

4.2   Ngara District

Ngara District is one of the nine districts of the Kagera region of Tanzania. It is located in north western Tanzania and borders Rwanda in the north and Burundi in the southwest. The district covers a total area of 3,744 km^2 and is divided into four divisions, 17 wards and 72 villages. It is further subdivided into 359 sub villages (*vitongoj*i) (Kagera Region, 2009). In Tanzania, the village is a rural administrative division covering a wide area with people living in neighbour hoods. Anecdotal

information from research participants indicates that the river Ruvubu divides the district into two parts: Bugufi in the northeast and Bushubi in the southwest. This river also divides the major tribes of the district: the Hangaza live in the densely populated Bugufi area while the Shubi reside in the southwest.

Ngara is a mountainous region with much of the land over 1500m, and annual rainfall of 1000-1250mm. The district has four seasons: two dry seasons from June to September and January to February, and two rainy seasons, October-December and March-May. The weather fluctuates such that rainy seasons have lower temperatures (12°C-26°C) than the dry seasons (18°C- 30°C). This climate supports growth of bananas, beans, maize, cassava, sugar and coffee (IFAD and URT, 2003). Smallholder subsistence farming dominates the economy but others are able to supplement their income through sale of crops. The 2001 household national survey indicated that the district was among the poorest in Tanzania, with over 40 percent of households being frequently deficient in staple food supply and over 80 percent classified as poor with the median annual rural household income as TZS 801 000 (581 USD) (IFAD and URT, 2003).

The local language in Ngara is Hangaza, a dialect which is similar to Nyarwanda and Rundi the languages of Rwanda and Burundi, respectively. Tanzania's national and official languages are Swahili and English and it is common for the native Hangaza tribe to use Swahili and Hangaza languages simultaneously even when communicating amongst themselves. English is understood by very few people and its use is limited to official functions, offices and learning institutions In Ngara, there

are other important local tribes including Shubi, Nyambo and Ha that speak different languages but which sound similar to one another.

4.2.1 Population characteristics

This section draws on information mainly from the 2002 national population census as presented in a detailed analytical report (NBS, 2006) and from primary field data. This information will set out the role of demographic and housing characteristics on health and wellbeing. It is expected that there will have been significant changes in population characteristics since the 2002 census but this census information is the latest comprehensive population data source available. Tanzanian census data are collected every 10 years and, although a census was carried out at the end of 2012, only preliminary results have thus far been announced. Based on the latest available census data, Ngara district has 49,082 households with a population of 334,409, including refugees. The data indicate that the proportion of local people to refugees is 70% and 30% respectively (Table 4.3).

Table 4.3 Population census Ngara August 2002

Section	Male	Female	Total	Percentage
Local population	113,287	120,114	233,401	69.8%
Refugee population	51,490	49,518	101,008	30.2%
Total	164,777	169,632	334,409	100%

Source: NBS (2006): the 2002 census data

In terms of marital status, the relevant categories are: married (50 percent), never married (42 percent), widowed (4 percent), divorced or separated (3 percent) and living together (1 percent). Although anecdotal evidence from the study area show that women work more on farms than men, it is still believed that being married will lead to a better life than being unmarried, divorced or widowed because the need for labour is very high and families need to work together to provide sufficient food.

In the 2002 census, the literacy rate in Ngara district was higher in males (57 percent) than females (44 percent); and in the urban population (76 percent) than the rural population (49 percent). It was highest in Swahili only (45 percent) but lower in both English and Swahili (4 percent) and this has implications for the effectiveness of written health messages. These data showed improvement when compared with 1988 where only 38 percent of the population was able to read and write. Educational attainment, the highest grade completed within the system, is an important parameter in development and the data showed that 49 percent of females as compared to 36 percent of males aged 5 years and above had never attended school in Ngara District. The data showed significant disparity between rural and urban areas for individuals who never attended school, as it was 43 percent in rural areas and 21 percent in urban. Although there have been efforts to encourage villagers to send children to school, the quality of education is also important, where recently there have been discouraging situations where some students finish secondary education without knowing how to read and write.

When census data for Ngara district are compared across different years there is a continuous increase in household size (from 4.5 in 1988 to 6.8 in 2002). In the study area several socio-cultural reasons seem to be important in explaining the growth of family size alongside national economic growth as reflected by general increase in level of income achieved by the population or individual family. The number of children in a family is linked to social status, child survival and social security (Dyer, 2007). I also found that children are a symbol of wealth and status, and therefore it is felt to be prestigious to have many children. Perceptions of child survival also influence a desire to bear more children. Parents normally see children as vulnerable and as having fewer children as 'risky' when child mortality is high:

There are many diseases that make it difficult for a child to grow and only God saves the child to maturity. The family without children is like an empty tin. This is because they will never be happy as people will always despise them. You are respected if you have many children (Mwasi, adult woman, Kumnazi).

In addition, children are essential as sources of labour for the family and parents see children as security in their old age. One respondent showed that even when the level of income increases this can encourage larger family size as individuals feel that they have more capacity to raise more children. This respondent expresses his view by challenging the idea of smaller families:

I have heard that Obama [U.S President] has only two children. This is very unfair because he has the capacity to bring up more than ten children (Rashid, young man, interviews, Kumnazi).

Local views on family size have particular relevance for birth control campaigns which are aimed at improving the health and well-being of poor families.

4.2.2   Living conditions

Some respondents in the study area feel that significant progress has occurred within their community in terms of general living conditions. These improvements included better housing, more individual own means of transport, increased entrepreneurial skills, higher agricultural production and improved social infrastructures. I observed that there was relatively large numbers of people are able to build new houses with walls made of bricks and rooves covered by iron sheets. Ownership of motorized means of transport - in particular motorbikes, popularly called '*sekido*' or '*boda boda*' - has become increasingly common in Kumnazi and Nyakariba sub-villages, following the importation of cheaper brands from China that cost about TZS 1,500,000 (£600) compared to more expensive Japanese models. Motorbikes tend to be used for shuttling people between Kumnazi and Nyakariba sub-villages, and to Ngara town (Ngara Mjini). One villager in Kumnazi sub-village owned a saloon car which villagers thought of as an ambulance to take sick people to hospital in Ngara town. Although this villager makes a charge for the service, there are also signs of community support and trust with this arrangement, as some individuals are allowed

to pay in instalments or sometimes barter their crops for services. Finally, it has become common for villagers to own bicycles as commented on by one participant:

Our sub-village village [Kumnazi] is different now as you can see there are lots of motorbikes, good houses, a primary school, retail shops, and health centre. In the past those with bicycles were seen as rich but these days almost everyone has bicycles. Rich people nowadays own motorbikes and cars. Increased production of maize has improved life of many people in this sub-village (Marina, Adult man, interview, Kumnazi).

Kumnazi has witnessed increased entrepreneurship (as in the establishment of a local retail store), agricultural production of maize, and improvement of social services including a school and health centre. The retail stores sell a range of goods including groceries, stationery, kerosene and prescription drugs such as antibiotics. Kumnazi centre also has a local market, and recreation centres such as bars, local clubs (for local brews) and video show halls. People from Nyakariba also come to Kumnazi especially in the evening times for recreation and shopping

4.3   Kasulo Village

Kasulo village is an administrative division in which Kumnazi and Nyakariba sub-villages are located. The main tribes in the two sub-villages are the Hangaza and Nyambo. Anecdotal evidence from research participants indicates that the Nyambo from Biharamulo District were the first tribe to move into the study area in search of

economic opportunities, especially agricultural and grazing. Then later in the 1980s the Hangaza from Lugufi and, to a lesser extent, the Ha from Kibondo District, Kighoma region started to move into the area in search of agricultural land. It was further added that the arrival of the Hangaza and Ha in this area caused ethnic tensions that led to hostilities. The influx of refugees from Rwanda and Burundi worsened the tensions, including a higher level of crimes that forced many Hangaza and Ha tribes to re-locate to Kumnazi. Some participants talked of how the Nyambo who were living in Kumnazi harassed and attempted to displace the Hangaza. This led many people to move and live near the highway to Burundi resulting in the establishment of Kumnazi centre as illustrated by one respondent:

There were serious differences with the Nyambo as they were not happy to see us in this village [Kasulo]. They fought against us [Hangaza and Ha] and sometimes we used to hide in our houses when we saw them. We moved to Kumnazi centre so that we can live closer and protect ourselves against refugee attacks. But this caused conflict with the Nyambo who were living here. However, with time the hostility among ourselves decreased as the crimes caused by refugees increased as the Nyambo decided to collaborate with us to strengthen security against the refugees (Mwaka, woman, Interviews, Kumnazi).

Food insecurity in the study area has become common as most people keep little stock of maize because the larger part is traded shortly after harvest. In recent years maize has become an important cash crop as traders from outside Ngara district

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come to buy maize from the villagers after harvest. The presence of several buyers has increased competition and increased the price of maize after harvest and therefore has led to the overselling of maize shortly, leaving the villagers short of food for the following months. Some villagers consider the harvest period as their grace period - to celebrate and enjoy life with the money they have earned from the overselling of maize. Though alcohol consumption tends to be relatively high at all times of the year, during the period after the harvest the consumption of local brews among villagers peaks.

4.3.1 Housing conditions

Most houses in Kumnazi and Nyakariba sub-villages have pole and mud walls, earth floors, and grass rooves. The majority of individuals in the study area use firewood for cooking. This may have health risks as indoor smoke can predispose people to respiratory conditions (Kilabuko *et al*, 2007). It was observed that the majority of villagers cook indoors and only a few cook outside or in a separate kitchen. In Kumnazi sub-village the majority of villagers have immediate access to piped water and the rest obtain drinking water from unimproved water sources. In Nyakariba all villagers access drinking water from unprotected sources such as streams, ponds and springs. Regarding use and ownership of toilets, some individuals in Kumnazi especially those living at the village centre have toilets. However, in Nyakariba very few individuals do. Most villagers in the study area prefer using the bush or fields. The majority of villagers own open pit latrines but some cover their toilets using slabs which have been retrieved from the former refugee camps (Lukole camp).

4.4　Conclusion

This chapter has introduced the background context of the study area addressing the general social and physical characteristics. It has also addressed important elements for environment-related diseases such as literacy, sanitation coverage and status, source of drinking water, and living conditions. The broad setting of the study area, Kumnazi and Nyakariba sub-villages, has also been described.

The first four chapters (chapters one to four) have introduced the topic (chapter 1), reviewed the topic in broader literature (chapter 2), provided methods used in investigation (chapter 3) and set a scene for providing social and physical characteristics of the study area (chapter four). The next chapters are going to dwell on main findings in attempt to answer the research questions.

CHAPTER FIVE

THE MULTIPLE AND CONFLICTING RELATIONSHIPS BETWEEN REFUGEES AND HOST COMMUNITIES

5.1   Introduction

This chapter considers the relationships between refugees and the local community, as part of my overall approach to consider the social and environmental context of health, where it is argued that such factors have an influence on infectious disease (Collins 2002). At the initial outset of the research this topic was treated largely as part of the context and background to my study, in that refugees were an important aspect of the community before and during the research. However, following a more extensive review of the literature it became apparent that there was very little academic study of the impact of refugees on the health of local or 'host' communities. Rather, the literature focuses on the health and needs of refugees, and how these should be met, but not on how the presence of a large influx of people can increase the vulnerability (Blakie *et al*, 2004) of the local community to ill health while, at the same time and in specific situations, can also increase the resilience of the community (Folke, 2006). Thus, the chapter will have two sections: first treating the influx of refugees as background to my study, describing the complex social situation, drawing on what literature there is, and then reviewing the data I collected on how the refugee population influenced the health risks, treatments and attitudes to health in Ngara district.

5.2 Refugees as context to the study

The ethnic conflicts in Rwanda and Burundi between the Hutus and Tutsi in 1993 and 1994 forced thousands of people to cross the border into Tanzania to seek refuge in the western part of the country including Ngara District (Veney, 2006). This resulted in a dramatic increase in the population to the extent that refugees significantly outnumbered the local population. The United Nations High Commissioner of Refugees (UNHCR) and international non-governmental organizations responded to address the needs of refugees by providing food rations and other general humanitarian support.

5.2.1 Themes and gaps in the literature on refugee populations and host communities

Most of the literature on refugees focuses on the problems and experiences of refugees, with little analysis of their influence on the host communities. For example Ityavyar and Ogba (1989) consider the impact of conflict on the health of refugees, and Muecke (1992) raises issues of resilience in relation to refugees, but does not link this then to a study of resilience in the host community. Kalipeni and Oppong (1998) also consider the health of refugees, not the host community. This focus continues with more recent articles by Yasuo et al (2008) which considers the health needs of HIV positive refugees from the Congo, but does not discuss the implications for the health of the host community. Work by Witter et al (2012) also focuses on the health problems of countries experiencing conflict, rather than the conflict and problems that can emerge in host communities.

There is also literature on the impact of conflict on people's vulnerability and resilience, including the negative impact of ethnic conflict on health. Kruk et al (2010) discuss the need for better health services in countries experiencing conflict such as Rwanda, and argue that better health contributes to revived state building. Pedersen (2002) considers the ways in which ethnic conflict leads to increases in poverty and food insecurity while Kalipeni (2000) argues that countries experiencing conflict are vulnerable to poor health outcomes. The literature on ethnic conflict is relevant to my study as I also found that there was conflict both between the tribes and between the original tribes and the refugees that contributed to increased vulnerability. This is discussed in the next section, along with a more novel outcome, in that I found that such ethnic tensions could also increase resilience and social capital within some of the groups.

Grove et al (2006) consider the impact of refugees on the host community in Australia. While the context in Australia is very different to that in Ngara, what is relevant is their finding that refugees are treated as 'the other' who appear to cause some difficulties to the livelihoods of local populations. Alix-Garcia and Saah (2012a) consider the impact of refugees on the host community in Tanzania and argue that food prices increase, which makes it difficult for host communities, but that food aid improves the situation. Overall, they argue that the presence of refugees is positive in nearby rural areas, but negative in urban areas. Maystadt and Duranton (2013) also argue that overall, the impact of refugees in Tanzania is positive on the host community, where refugees act as a driver for wider

development such as learning of agricultural practices and building of social capital among the local population. Alix-Garcia and Saah (2012b) consider the impact on a host community in an urban setting in Sudan, and suggest that one needs to consider such aspects as displacement of the local population, subsequent flows of aid, changes in commodity prices and changes in livelihoods.

While both the academic literature, and actions on the ground, concentrated on the problems of the refugees, less attention has addressed the effects of refugees on the health and well-being of the host population. Therefore, this chapter now turns to my research data, and focuses on the varied impacts that large numbers of refugees had on the health and wellbeing of the local community. In this section I will draw on my discussion of social capital, vulnerability, and resilience which were introduced in Chapter 2. Chronologically, this section addresses the effects of refugees before and after establishment of refugee camps as well as the continuing effects following closure of the camps and repatriation of refugees. This later period – the time of my research - is quite important as there is very little information or studies on how host-communities re-organise and re-establish a sense of community after the majority of refugees have left. It is particularly important to understand the socio-economic and ecological influences that shape vulnerability to health-related risks, as well as understanding the ways in which engagement with refugee populations has an impact on building resilience and leading to wider development activity.

5.3   Refugees moving into Ngara district

Initially, the refugees came across the border into Tanzania, and stayed wherever they could find shelter and/or land to farm. Such a sudden, large number of people in the area posed serious social, economic and environmental problems to the local community particularly in terms of food security and water sources, as was found in the study by Pederson (2002). Initially, the villagers shared their dwellings and limited food reserves with refugees. The local community considered the refugees as 'relatives' who are in desperate need of support and therefore happily shared with them whatever they had. It seems that the host population was motivated to extend their support to refugees and share, as indicated by the following extract:

> *Those were our brothers and sisters, thus it was not easy for us to see them die. Within that period before settling them in the camps, our food store dried up and nothing became available to feed the children and us (Molemo, adultman, Kumnazi).*

Some local villagers reported that there were thefts of crops but that they continued to sympathize with the refugees:

> *When refugees came they invaded and cleared all the cassava in my farms. I cannot complain about that because these people were hungry and had nothing to eat. I think in that situation anyone can do that (Majaliwa, oldman, FGD, Kumnazi).*

With time, however, as more refugees arrived the local community became more concerned, and in particular commented that their sources of water were becoming polluted. The refugees, perhaps due to pressure of numbers and their own extreme situation, were not observing local traditional ways of using sources of water, such as natural springs and streams. Since the influx of refugees posed serious competition for limited resources such as food and water, and thus potentially threatening survival of both refugees and host communities, the international community responded by settling the refugees in camps.

Following their settlement in the refugee camps their basic needs for food and shelter were addressed but tension and conflict with the local population continued. These issues will be discussed in terms of natural resources, socio-economic impacts, and food insecurity.

5.3.1 Natural Resources

The host community with perceived the refugees as intensifying pressure on exploitation of their already limited natural resources including water, forestry, and even land hence this situation contributed to increased vulnerability amongst the host population, as explained by one man:

> *The situation was very bad during refugees. They started to destroy our forest, and then they polluted our water. They caused backwardness in our lives (Magadula, adult male, FGD, Kumnazi).*

The impact on the natural ecology was so severe that it called for attention to protect the environment, and UNHCR in its capacity extended support through local NGOs such as REDESO with programmes that focused on environmental education and protection in order to ensure sustainable exploitation of resources (Veney, 2006; REDESO, 2013). It has been reported that the activities of refugees generated pressure on forestry resources as they required more firewood than the local populations, rarely putting out fires between meals and taking longer to cook their dry rations (Whitaker, 1999). Anecdotal evidence from the fieldwork revealed that REDESO and other organisations such as CARE established projects such as reforestation and use of energy-saving stoves as well as advocacy such as impact of bush fires. Field observations indicated the potential success of at least some of these projects with one area that appeared to be under threat of desertification subsequently recovering (Research diary, Kumnazi, August, 2010)

5.3.2 Socio-economic impacts

There were both diverse and conflicting impacts in relation to the social and economic implications of the arrival of the refugees into the area. For example, while some villagers talked of an increase in crime and food insecurity, and conflicts became more common (as found by Pederson 2002), it was also the case that the range of problems gave impetus for the various ethnic groups to come together and to share solutions.   In addition, the local community also benefited from the international attention given to the region (Maystadt and Duranton 2013). These implications are discussed in detail in this section.

The dynamics of social relationships shifted after the influx of refugees into the study area. Some participants talked of increased levels of crime leading some, mostly Hangaza, to migrate into Kumnazi with the security of a nearby police post, originally meant to protect refugees in Lukole refugee camp:

We moved to Kumnazi from marginal areas where we felt insecure because of refugees. Kumnazi was a good place for us because we were able to get protection from security guards from the nearby post (Kasheshe, adult man, FGD, Kumnazi).

This type of support that villagers received from the police post can be regarded as an example of linking social capital (Woolcock, 2001) where individuals receive support from a hierarchical authority with different power relations.

Those who did not move to Kumnazi subsequently organised communal security groups in an effort to improve protection for their families and property against refugees as illustrated in the following quotation:

We were sleeping outside, only children in most cases were sleeping in the house. We constructed a dug out where we spent our nights sometimes with our families. We had a guarding shift throughout the night where we were doing security in a big group using traditional weapons (Kwiki, adultman,

The Nyambo in this way appeared to have a strong sense of solidarity with the formation of these communal security patrol groups. All men, both young and old, were involved in the formation of these groups. In demonstrating a sense of resilience towards refugees the Nyambo also show an important example of bonding social capital (Putnam, 2000) where individuals from the same ethnic group organised themselves for the security of their immediate family members and close community.

The conflicts between host communities and refugees marked a return to previous ethnic conflicts between the tribes in the region. Some villagers claimed that historically the first group to reside in Kasulo village was the Nyambo when, in the 1950s, they moved there from the bordering Biharamulo district. In the 1990s the Hangaza started to move into the area in search of agricultural land. This resulted in territorial inter-tribal rivalry with the Nyambo. Some Hangazas reflected on this as a 'war-like' period with the Nyambo stealing from their houses as indicated by the following quotations:

> *It was like a war, that it was even risky to walk alone at night. The Nyambo were like hunting us. Therefore, people tried to come home earlier during the day time before sunset (Kagosi, FGD, adult man, Kumnazi)*

One day a youth from the Nyambo tribe went to one house of the Hangaza in bright daytime and stole a goat. Then children who were at home during that time, cried for help but the young man seemed not to care about that at all. When people arrived at home, they saw the young man carrying the goat on his shoulder. People became very furious and stoned him to death (Mahue, woman, FGD, Kumnazi).

Ethnic composition in Kumnazi changed following migration and concentration of the Hangaza. Larger movements of Hangaza into Kumnazi initially intensified civil conflict with the Nyambo residents but subsequently the two tribes resolved to collaborate with each other in order to and act against the refugees as illustrated by one respondent:

There were serious differences with the Nyambo as they were not happy to see us in this village [Kasulo]. They fought against us [Hangaza and Ha] and sometimes we used to hide in our houses when we saw them. We moved to Kumnazi centre so that we can live closer and protect ourselves against refugee attacks. But this caused conflict with the Nyambo who were living here. However, with time the hostility among ourselves decreased as the crimes caused by refugees increased as the Nyambo decided to collaborate with us to strengthen security against the refugees (Mwaka, woman, Interviews, Kumnazi).

It appears that the presence of refugees resulted in two dominant tribes occupying arbitrarily different locations, with the Nyambo occupying the periphery of Kumnazi sub-village and the Hangaza and other smaller tribes occupying the centre of the sub-village. Thus they became spatially split, each tribe occupying a different and distinct area of the sub-village. However, the presence of refugees also had a further impact, changing the social dynamics between the original tribes of Ngara district, as they began to cooperate together in the light of their shared problems in coping with the arrival of the refugees. Although the previous intense rivalry seemed to make cooperation between these two ethnic groups difficult thus limiting their social capital (Field, 2008), having a common 'social evil', the refugees, encouraged them to cooperate. In this, the refugees were seen as 'the other' (Grove et al 2006) and their presence resulted in the other tribes finding a new solidarity.

In addition, the refugees brought a lot of attention to the area. Ngara, once a remote and marginalized region, now had contact with many different tribes, and with international agencies and delegations. Communities closer to the camps including the two study sub-villages of Nyakariba and Kumnazi, interacted extensively with the refugees and formed friendships where they shared social functions like weddings and funerals. Villagers informed me that there were also intermarriages where men from the host community took wives from the camps and in a similar manner some men from the camps married women from the host community. Thus, the area that had been remote and with little contact with the outside world became more diverse, with new influences on their economic, social and cultural lives.

While socially, the various population groups were mixing, the focus of the international aid was firmly on the refugees. While the area became popular with the international community, the improvement of well-being of local population was de-emphasised, and a lack of recognition of their problems lead to the local villagers becoming more vulnerable, as one older man explained:

> *One time we had a meeting with the Government officers and we asked for food assistance as we had a serious food problem. We were surprised to see the Government officers did not listen to our request. So we asked ourselves, why do these officers support refugees but they ignore our concern? We thought it might be that refugees have taken up our citizenship rights (Malembo, elderly man, FGD, Kumnazi).*

5.3.3   Food insecurity

Agriculture is the primary occupation in the study area and employs the majority of the residents in Kumnazi and Nyakariba sub-villages. Most villagers in these sub-villages depend to a large extent on agriculture for their own food supply and therefore land becomes an important asset for ensuring food security. However, an increased population made suitable agricultural land even scarcer, more expensive and harder to access leading to increasing food insecurity. The presence of large numbers of refugees therefore led to an increase in poverty, as reported by Perdesen (2002).

The presence of refugees further intensified competition for ownership of agricultural land, with refugees negotiating for land with the local community in order to grow their own staple crops and sell the excess to the villagers. Some villagers rented their farms in this way in order to raise their income. Villagers then had further to travel to farm other land. Participants talked of how refugees would sometimes requisitioned and farmed fields that were being purposefully rested for rotational agricultural systems and thus not actively being utilised.

Food rations received by refugees did not include staple foodstuffs such as cooking bananas, sweet potatoes and cassava, and there was therefore a continued reliance for food supply on the local community. The increased demand for food produced by the local community resulted both in increased prices for staple foods and in increased food insecurity, as illustrated by the following respondent:

> *We suffered a lot after arrival of refugees because we did not have enough food to feed our families and ourselves. Refugees caused price of banana [cooking banana] to go very high and they were buying even immature bunches of banana (Sadiki, male, FGD, Kumnazi).*

At the same time, however, the presence of the refugees offered opportunities for villagers to improve their crop production by providing cheap labour and agricultural skills. Villagers commented on how the refugees provided local farmers with cheap labour for activities such as bush clearing, tilling of land, and weeding. Villagers spoke of how they preferred hiring refugees because they appeared to be more

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reliable and hardworking as compared to local labourers.

However, despite the benefits of refugee labour, many villagers blamed the refugees for the theft of crops and how this contributed to hardship for local villagers:

> *Things were very bad as refugees were stealing everything from us. If you sell a bunch of bananas in the daytime, the same refugees or their friends invade your house looking for money paid to get bananas (Akili, female, FGD, Kumnazi).*

Participants explained how this behaviour created dilemmas for them in terms of hiring labour:

> *Refugees helped us a lot in farming but some of them were not honest. Dishonest ones scouted while working for a mature bunch of bananas and later at night come back to steal it. But we kept on hiring them because you cannot know who is good or bad (Masalu, adult man, FGD, Kumnazi).*

This perception of dishonesty amongst the refugees also extended to views on trading practices:

Refugees were very clever and it was not easy for you to deny their tricks. They used sweet words to convince us to sell foodstuffs to them from the citizens and later on selling them back to us in smaller units at higher prices. These people were very good in doing business (Sonda, female, FGD, Kumnazi).

The presence of refugees thus created a market for the host community to grow more bananas for income that could be used for coping in times of food scarcity. Whilst this practice generated additional income some villagers indicated that good prices tempted them to sell their bananas at wholesale prices but that subsequently they found themselves going to the camps to buy bananas at profitable retail prices.

The increased attention of the international community led to an increase in relief operations and an increase in the cost of living for the local population. Thus, Whitaker (1999) found that the increase in relief operations caused an economic boom, with the relief agents offering lucrative salaries and staff who were able to afford high prices. She added that increased demand and some people with more income meant that the cost of the most basic items such as kerosene, salt and soap rose steeply, adding pressure on local communities' ability to manage financially. Garcia and Shah (2012a) also found in Darfur, Sudan that the cost of food increased for the host community, and this was also the case in Ngara.

In addition to the complex influences on natural resources, livelihoods and social

interactions participants also talked of their interactions with refugees as being the source of an increase in the incidence of environmental illnesses such as malaria and diarrhoeal diseases, as well as the emergence of new diseases. These aspects of the research are discussed in more detail in Chapters 6, 7, and 8 where vulnerability and resilience to such diseases is considered in more depth.

5.4   Repatriation of Refugees and Closure of the Camps

By July 2008 all remaining Burundian refugees in the camps were repatriated back to their home country. However, many refugees remained in Ngara district, either because they had married, or because they chose to stay and farm or run businesses in this area. The closure of the refugee camps saw additional socio-economic changes within the host community, many associated with general improvement in the standard of living for some of the villagers; such positive changes included improvements in agriculture, the establishment of small businesses, and the strengthening of social relationships. Through interaction with refugees, villagers had learned new agricultural skills notably the growing of vegetables such as tomatoes, cabbages, carrots, capsicum (green pepper) and spinach. Although the area is still food insecure, such vegetable production seems to have contributed to improving the overall diet of the host population, improving their resilience to illness.

The influx of refugees transformed economic opportunities in the host community, with commodity exchanges expanding. Kumnazi developed into an important business centre with a daily market, and local retail shops and restaurants. Refugees

appeared to have better business skills and experience than the local population. They traded commodities received from relief agents such as vegetable oil, soybeans, flour, plastic tarps (*shitingi*), bednets (*miseketela*), and blankets in order to buy local foods. Therefore, having learnt these trading skills from the refugees, the host community continued to carry out similar business after the repatriation.

Gradually, before total closure of the camps most of the international organisations began terminating their operations (Veney, 2006). Concern Worldwide, however, maintained an interest in working in marginalized communities including those affected by the presence of refugees, and, exceptionally they remained in Ngara to continue providing services, including improving the water supply, providing sanitation facilities and promotion of better hygiene practices. These projects may therefore have an important role in the region in terms of contributing to the prevention of environmentally related illnesses, thus improving villagers' health and their resilience at large.

Villagers referred to how, following repatriation of the refugees, they have been keen to improve their living standards. One way in which this is manifested is through maize production and trade. Competition amongst traders for maize has increased its demand and incomes have subsequently improved:

> *Since closure of the camps people are doing a lot to improve their life as you*
>
> *can see people are working hard in the field to grow maize so that they can*

roof their houses with iron sheets and buy 'boda boda' [motorcyles]

(Magida, woman, FGD, Kumnazi)

There was also a feeling amongst a number of participants that the presence of refugees 'slowed down their development'; a process which they now feel needs compensating for:

We were not able to buy good things when refugees were here because of two things. One, refugees were stealing our crops in the fields so we used to harvest very little. Two, there was high level of crime as refugees used to invade our houses and steal whatever they can find in houses. Now, people are very motivated to work as they benefit more from their efforts and they are also trying to close a gap in development caused due to presence of refugees (Mwasha, adult man, FGD, Kumnazi)

5.5 Learning from the research: a study of interactions, vulnerabilities and building resilience

In concluding this chapter I draw on my research data and my interactions with the people of Ngara to summarise the nature of the interactions between refugees and host communities, and the legacies that are left behind. It is also an exploration of the insider-outsider tension (Madge, 1994), where villagers requested me to step out of my role as 'researcher' and to work with them to address a specific community issue: the formation of burial groups.

Relationships between refugees and host populations were complex and diverse as illustrated in the chapter. Villagers' perceptions relating to crime were particularly notable and this concern generated declining hostility between the resident Hangaza and Nyambo tribes. These formerly rival groups thus strengthened their own social relationships in order to increase their capacity to counter refugee challenges. Gradually, relationships with refugees improved, more food was grown, refugees had goods to trade and/or sell, and local markets were performing better. After the closure of the camps, when many refugees were repatriated the Nyambo and Hangaza continued to attempt to co-operate with each other and considered the idea of forming joint social groups. One such group included a burial group to involve members of both tribes, as they had observed in the nearby sub-village of Kigando. This would be an opportunity for the tribes to work together and to cement cooperative social relationships. However, the idea was met with resistance from some members of the community, as one respondent illustrates:

> *We as Hangaza have a lot of problems because everyone pretends to be "much know"[very knowing]. We are very arrogant and we do not seem to value other people. That's why you can see people did not want to join the burial group formed by the Nyambo. In fact, we suffer a lot when a member of our family dies because we have to feed all of the people who come to console us at home. Therefore, after the mourning period a household remains without food. I think as you are an expert you can help us to form a burial group (Mateso, adult man, FGD, Kumnazi).*

It seemed that the socio-cultural differences around death and burial between the two

ethnic groups resulted in failure to unite and form a joint burial group. The Nyambo traditionally spend 6 to 10 days mourning with the deceased family to convey emotional support. In the case of the Hangaza, people who are not close-knit are not used to staying with the deceased's family for emotional support. It is common for all tribes that after the burial event is complete, people are asked to gather at the deceased's family home to share food prepared by the family. It is the sole responsibility of the deceased's family to feed everyone who attends the burial. It seemed that the Nyambo tried to compromise with the Hangaza by accepting half the number of mourning days but that the Hangaza maintained that they would not collaborate with the Nyambo.

Following the death of the village chairman (originally from the Nyambo), problems were experienced in meeting burial costs and subsequently the Nyambo subsequently decided to form a burial group leaving out the Hangaza. Some of the Nyambo persevered with the idea of including the Hangaza and other ethnic minority groups such as the Ha in the burial group although this was unsuccessful. Although the Hangaza seemed to appreciate the importance of joining the burial group, with one Hangaza sub-village leader commenting that "*our neighbours have a very good burial group*", it seems that their cultural differences dominated. Eventually the financial arguments in favour of establishing a burial group convinced the Hangaza to establish their own such group.

This example demonstrates the tensions between ethnic characteristics that can act against social bridging (Adler and Kwon, 2000) such as the importance placed on

cultural differences, and issues that might otherwise work towards encouraging social groups (Portes, 2000) such as experiencing the same approaches to death and related ceremonies while in times of economic constraint. The issue surfaced again during my fieldwork in 2012 when, during a focus group discussion I asked participants to tell me about the ways they supported each other and whether they had groups for specific purposes. This group included the sub-village leader, some influential people in the community and an eloquent speaker who had moved there from a neighbouring district, Karagwe. This person commented on groups in his home village:

Groups in Karagwe are very common and have been there for a very long time. Since I was born, I have seen many successful different groups involved in dairy, coffee production, and burial activities. When I grew up and got married, I was obliged to join the burial group after the death of my first born. Certainly, the groups are very supportive when you get problems (Namas, young man, Kumnazi, FGD).

During the course of the discussion the participants (Hangaza) told me about their attempts to form a joint burial group, and asked me to convene a meeting in the village and to discuss and encourage the formation of such groups. Participants revealed that our discussion about groups, especially burial groups, had awakened a need to form their own social group:

We thank you very much for your knowledge about the groups. But as you can see we are only few who have been sensitized (to the need for such groups), many people are out there. I wish they were here, they need to be convinced too. I think, our sub-village chairman who is here should convene a meeting and invite you to address importance of the groups (Makori, adultman, FGD, Kumnazi).

I attempted to encourage the participants to initiate the burial group themselves and the sub-village leader offered to convene a meeting to discuss the financial benefits of burial groups:

People normally come to eat at your house when death occurs. After burial ceremony all of your food is eaten up and you could have also been borrowed some money to accomplish that event. Therefore after burial event people are left bankrupt and poor (Mgosi, FGD, village leader, Kumnazi).

The village meeting was subsequently held and Hangaza formed their burial group. The death of a young girl was the first death that the burial group dealt with, and the villagers seemed to be pleased with the way in which the burial group had operated.

While the villagers wanted me to take a more active leadership role, I was able to build their confidence and allow them to take the lead 'as pioneers'. It seems, then,

that the nature of the discussion which took place as part of the focus groups actively prompted participants to reflect on and act to set up shared groups, thus demonstrating the potential impact of 'doing research' and the lived experience of being a participant in that research.

5.6   Conclusion

This chapter has attempted to continue with the background and context to my research by exploring the relationships between refugees and local, 'host' groups in Ngara district. Most existing academic literature focuses on the plight of refugees, their needs and services, and very little has been written about the impact of large numbers of refugees on host communities, their needs and services. I found that the arrival of refugees had a significant impact on the lived experiences, livelihoods and wellbeing of the villagers, for example, with an increase in environmental problems, food insecurity, crime and theft, and strained social relationships. However, I also found that having contact with the outside world, in terms of new ethnic groups, international agencies, and NGOs meant that there were also positive impacts on the local villagers, including learning new agricultural techniques, introduction of new crops such as vegetables, new entrepreneurial ideas, and the growth of a lively local market and small businesses. I have supported this new knowledge with quotations from individuals and focus group discussions. While there were both positive and negative effects, the host population did become more vulnerable and their concerns and problems were given less attention than the, at times, overwhelming needs of the refugees. Even government officials were very busy dealing with refugee issues. This situation caused many complaints, as the local villagers felt their problems were being ignored. Resilience was developed, but out of adversity and through their own

efforts. The impact of refugees on host communities is an under researched area and needs more study, and both governments and NGOs should be more aware of the increased vulnerability of host communities.

PERCEPTIONS OF ILLNESSES AND TECHNOLOGIES: KNOWLEDGE AND PRACTICE

6.1 Introduction

Whilst objective risk refers to risk as defined and measured by 'experts', for example through experimental studies, epidemiological surveys or probabilistic risk analyses, subjective or perceived risk refers to non-experts or lay perceptions of that (objective) risk (Bickerstaff, 2004). Such discrepancy between subjective and objective understandings of risk has been explained as public ignorance of science and technology, a situation that has been called a 'deficit' model of public (mis-) understanding of science (Irwin, 1995; Burgess *at al*., 1998). Research on public risk perceptions attempts to understand (close) the gap between expert and lay perceptions of risk and has been characterised by substantial variations in theoretical and methodological approaches (Bickerstaff, 2004). Further Bickerstaff (2004) asserts that the socio-cultural perspective sees perceptions of risk as contextual and grounded in the social and cultural experience of everyday life and this perspective has been one of the theoretical frameworks which has influenced risk perception research in geography. Research shows that a significant challenge to health-related interventions or technologies is attributed most to a 'knowledge gap', the failure to translate knowledge into appropriate actual practice (Kinug'hi *et al* 2010 and Mboera *et al* 2010). However, Mubyazi *et al* (2007) argue that the key attribute to failure to achieve expected success from health programmes is failure to understand the perceptions about health that individuals hold. They argue that these perceptions

are based on villagers' values which seem to be ignored or not given any priority by health experts. As a result villagers feel little trust in the authority implementing health related interventions as they feel that the authority ignores their values and priorities. Therefore, individuals' perceptions need to be understood in their context in order to understand why and how these villagers respond to a particular health-related programme in a particular way. This is important if the intended success from such programmes is to be achieved.

As stated above, the discrepancy between 'expert' understanding and lay perceptions of risk has been characterized as a 'deficit model' (Irwin, 1995 and Burgess, 1998). A key limitation of this model is that it centres the analysis of risk on individuals while neglecting the wider social and cultural environments in which individuals practise their behaviours. This failure of the model to consider specific social contexts seems to lead to a misinterpretation of public understanding of risk. In the present context, then, health-related behaviours are not only subject to an individual's dispositions but are also shaped by wider social and cultural factors that modify them in particular social contexts. In this research I use a socio-cultural perspective to uncover the complexities in village residents' perceptions of risk related to illnesses and technologies (public health interventions) focusing on malaria and diarrhoeal diseases.

The challenge in facilitating behavioural change appears to be that epidemiologists (scientists) and policy experts have been using a 'deficit' model that emphasises technological interventions and raising individuals' awareness of health risks

through public health education and promotion. Therefore the limited successes of health interventions have been associated with an individual-based perspective and a biomedical model, which does not sufficiently acknowledge the context in which health behaviours or risky practices occur. In this respect, this chapter draws on my research data and starts by discussing individuals' perceptions of preventive health interventions against malaria and diarrhoeal diseases, and then moves on to a discussion of how individuals in their context analyse and give meaning to the health risks they experience which then become the basis for their thoughts and actions. This then begins to bring explanatory traction to the puzzle of individuals' continuing, apparently risky behaviour in the context of interventions aimed at confronting specific health challenges through the extension of education and various technologies.

6.2 Malaria and public health interventions

Malaria is endemic and is regarded as the leading public health problem in the research site and in Tanzania as a whole and it accounts for 40 per cent of outpatient consultations (Greenwood and Mutabingwa, 2002). In recent years, there has been increasing interest in the control of malaria where resources inside and outside the country are mobilised in order to set up interventions to protect individuals from mosquito bites. Within the study area the Tanzanian Government, in collaboration with partners in development, is implementing a series of such interventions. These include insecticide treated bednets (ITNs), indoor residual spraying (IRS) and repellent plants (Lantana). Table 6.1 provides a summary of the various interventions, and each is discussed in turn below.

Table 6.1 Malaria interventions in the study area

Intervention	Implementation time	Institution involved	Sub-villages	
			Kumnazi	Nyakariba
Lantana plants	March 2009	Concern Worldwide[®1]	√	X
IRS	Sept 2009 and October 2010	Government	√	√
ITNs	April 2011	Government	√	√

[1]Concern Worldwide[®] is an international humanitarian non-governmental organisation working in poor rural communities with a focus on health, hygiene and sanitation, and livelihoods.

6.2.1 Repellent plants

Principally, the use of repellent plants as a public health intervention is a research trial designed to test the efficacy of *Lantana camara* in repelling mosquitoes that transmit malaria. This plant is native to tropical and sub-tropical regions of Central and South America and was first introduced into Australia as an ornamental plantbut later spread into the wild and thrived under the favourable tropical, sub-tropical and temperate regions where it became a potential weed in agriculture (GNSW 2014). In tropical and sub-tropical countries about 150 species of *Lantana* have been recorded (Innocent *et al*, 2008). Various species of the plant have been used in different ways including medicines (chewing leaves), animal feed for goats and sheep, and use of its fruit as famine food (Innocent, 2008). One significant drawback in its use as a mosquito repellent is that it is a noxious weed that competes with agricultural crops for nutrients and therefore impedes agricultural production (Mng'ong'o *et al*, 2011). The intervention to evaluate the potential of *Lantana camara* to reduce mosquito

house entry was funded by Concern Worldwide and implemented by them in collaboration with Ifakara Health Institute. The trial research took place between March 2009 and November 2011 in Kumnazi sub-village where I was involved in all stages of the research process – planning, data collection and analysis; I was also involved in publication of the results via a scientific paper (Mng'ong'o *et al*, 2011). Scientific findings showed strong efficacy of *Lantana* in reducing mosquito house entry (Mng'ong'o *et al*, 2011) and this section of the thesis explores local villagers' experiences and perceptions of the intervention. As the following section describes, the scientific identification of *Lantana* as an effective mosquito repellent does not lead to its wide uptake, for reasons that are grounded in the wider social context of people's lives.

6.2.1.1 Limitations of repellent plant programme

Several research participants reported that *Lantana camara* has become a troublesome weed, growing quickly and spreading rapidly in their fields. This situation seems to discourage many villagers from using the plant for malaria control since it necessitates additional labour for weed control, and resulting in a decrease in agricultural yields, as one participant reports:

> *These plants spread so fast in our farms and compete with our banana crops for fertility. The plants cause banana trees to become thin and tall, and as a result our crops produce poor yields (Kaketi, young-man, in-depth interview, Kumnazi, Aug 2011).*

Banana is the main food and cash crop in the study area and is also a traditional staple food for the dominant ethnic groups – the Hangaza and Nyambo. As revealed through informal conversations, many villagers talked of how banana is a prestigious staple food and most people eat banana almost every day. Some even claimed to feel uncomfortable when bananas are not included in their meals and consider those who prefer to eat other foods like '*ugali'*, a staple food in Tanzania that is made from maize flour, as food insecure. Therefore to these citizens a decrease in banana yields results in apparent food insecurity due to their food preferences.

Several participants reported that plant diseases discouraged them to grow the repellent plants around their houses. They explained that there are pests that infest these plants to the point of killing some of them. My own field observations revealed aphid-like pests swarming the plants and feeding on the plant leaves. When this observation was brought to the attention of Concern Worldwide's field staff they subsequently advised villagers to spread ashes over the leaves in order to control the pests. However, despite adopting this practice people found that the plants did not recover, as one participant illustrates:

We do not know what to do because our 'maua' (the plants) die because of diseases. Although Sabas and Jawadu (Concern Worldwide field staff) told us to use ashes, that treatment did not help at all. We feel very sorry to see

our good 'maua' (plants) dying without help. Please try to find ways to save

our plants (Joti, adultman, FGD, Kumnazi, Aug 2011).

This participant also echoes a sense of ownership of the repellent plants which seems to be an indication of acceptability of the intervention and that itself may help in achieving sustainability of the intervention programme. Therefore, in this case it is important to ensure control of plant diseases that otherwise seem to disappoint villagers in their efforts to grow and keep the plants around their houses.

Management of plants and in particular pruning posed another challenge for villagers. The field staff from Concern Worldwide informed the villagers that pruning was their (Concern Worldwide's) role and citizens were not allowed to do it by themselves as they would not do it correctly. Field staff explained that since they were interested in maintaining a certain size of plants to test their efficacy in repelling mosquitoes, shifting that responsibility to villagers might have interfered with the study. However, many participants complained that the field staff were sometimes not pruning the plants on time thus leaving the plants to overgrow causing inconvenience to villagers as one participant explains:

I uprooted the plants because they were causing darkness inside my house or

sometimes they were restricting me getting into my house. The problem was

these guys from Concern® [Concern Worldwide] who were leaving the plants

to overgrow without pruning them (Magida, adult woman, Kumnazi, FGD).

Villagers also talked about their lack of skills to grow and manage the plants and how they therefore depended entirely on support from Concern Worldwide's field assistants. Concern Worldwide staff were responsible for nursing of seedlings and they supplied the seedlings to the households in Kumnazi. Although the field staff felt that the timing of the intervention was appropriate, the villagers claimed the timing was wrong because establishment of the plants coincided with a dry spell (about one month) during the rainy season and this meant that extra labour was required for watering as indicated by one participant:

Many plants died because they grew then stopped for a while. I tried to replace dried plants but I did not manage because Concern did not teach us how to (Habib, Adult male, FGD, Kumnazi).

6.2.1.2 Perceptions of repellent plants

The empirical findings show that participants generally accepted the repellent plants intervention but there are several dimensions which shaped the notion of their acceptability. Most participants showed a willingness to continue growing the plants around their houses as they found that after the establishment of the plants the number of mosquitoes inside their houses was substantially reduced:

In the past we used to burn plants [Ocimum spp] in order to repel mosquitoes at night. We used also lemon grasses to repel mosquitoes inside houses where the plants were being soaked, then squeezed and their contents splashed inside houses to repel mosquitoes. In doing so we were able to get a good sleep as mosquitoes were chased away. We stopped doing that after we had grown these plants [Lantana spp] (Maganga, male, FGD, Kumnazi).

Some participants added that the incidence of diseases especially amongst young children had also been reduced following establishment of the plants.

Most importantly, the findings show that there are other reasons, unrelated to malaria and mosquitoes, which contribute significantly to the general acceptance of the plants as the following participants indicate:

I am not sure if these plants keep mosquitoes away from our houses. However, my wife and I just like them as ornamental plants. This is because when well managed they make your house to appear beautiful (Ali, male, FGD Kumnazi).

'Maua'[the plants] are very good ...when well maintained they provide a good hedge where we can hang our clothes to dry (Maria, adult woman, FGD, Kumnazi).

The plants are very good as they provide cough relief. We are still doing more searching to find out other important uses (Amani, male, FGD, Kumnazi).

I like the plants because our goats prefer to feed on them. I have also found that their fruits also taste very nice (Mayu, FGD, adult man, Kumnazi).

Therefore other reasons for having the plants include the fact that the plants are seen as ornamental, as a place to hang clothes, which the plants can provide medicinal treatment, and have also been used as animal feed. The plants are thus seen as a 'good thing', not because of their use to combat malaria, but because they have uses related to villagers' everyday lives and livelihoods. Despite this general acceptance of the plants, however, there are also uncertainties and ambivalences over their effectiveness in repelling mosquitoes as the following participants illustrate:

I think if the plants can kill or repel mosquitoes [insects]; why do we see other insects [aphid-like] eating these plants to death? I think they are just there to beautify our homes (Kalenje, adult man, Kumnazi).

Nowadays mosquito nuisance has decreased so much but we are not certain whether it is the plants or sprays [IRS] which has caused this situation (Grace, adult woman, focus group discussion).

I am not sure what has caused reduction of mosquitoes and illnesses because a lot of things have changed. When we came here in this sub-village bushes were everywhere ... But with expansion of the village [Kumnazi] that involves building new houses and establishing agricultural farms, there has been a loss of the bushes around the village. Now how can you know what has brought that effect when you have plants, bednets and sprays altogether? (Franko, man, FGD, Kumnazi).

So, people have their own logic that they apply to the situation. For example, the first respondent felt that if the plant was really killing mosquitoes then it would also be able to kill the aphids. The second respondent feels the reduction in mosquitoes is a result of IRS and not the plants and the third feels the reduction in mosquitoes is a result of the clearing of the bush. The second and third quotations raise an important issue: that several interventions (clearing the bush, IRS and introducing the plants), were introduced at the same time, thus raising the point that it is difficult to say categorically which specific intervention has caused the reduction in mosquito numbers.

Interest in growing *Lantana* has spread beyond Kumnazi sub-village and people in neighbouring sub-villages such as Nyakariba and Kigando were reported to have tried growing repellent plants themselves. Some participants also reported expressions of interest from people from other parts of Tanzania. For example, one participant explained that a person from Kahama (Shinyanga region) about 250 km away, came to ask for the plants because he had heard that people in Kumnazi had

plants which prevented mosquitoes entering houses as the following participant explains:

These plants have become very popular these days. Our neighbours [in the sub-villages] are also looking forward to getting these plants ... Also one day some people from Kahama came to ask for plants as they had heard about the importance of these plants in repelling mosquitoes (Kaduma, FGD, adult man, Kumnazi).

Interpretation of the qualitative data shows how participants' perceptions of the plants in relation to the reduction of mosquitoes and diseases are linked to three inter-related issues. First, the issue of having several interventions at the same time (IRS and the plants). Secondly, villagers also related the reduction of mosquitoes to the reduction in population following closure of the refugee camps, as expressed in the following quotation:

We thank God our health situation now is better because the situation was very worse when refugees were here. You know, refugees caused a lot of diseases because they were so many and were scattered all over our places (Maua, adult woman, FGD, Kumnazi).

Thirdly, villagers wanted to maintain a good relationship between Concern Worldwide and themselves. Villagers were thus unwilling to criticize the research being carried out on repellent plants in order to maintain these relationships. This seems to be because villagers received useful services from Concern, including a piped water system following the arrival of the refugees. Villagers noted that because the IRS application and introduction of repellent plants in 2009 (Table 6.1), and the closure of the refugee camps (June 2008) all happened around the same time, it was difficult for them to single out the contribution of the plants to the perceived effect on reduction of mosquitoes and illnesses. However, when Concern staff were carrying out research on the efficacy of the plants in relation to malaria, the villagers were generally positive, even though they had doubts, because they wanted Concern to remain and continue to provide services to them.

The general acceptance of repellent plants by villagers seems to be associated with their importance in dealing with health risks as well as other social, cultural and economic influences. According to the research participants these influences are related to different ways in which the plants are being used, such as for ornamental purposes, medicines (relief of stomach ache and as a cough expectorant), animal feed for goats, and as hedges for drying clothes. It seems, then, that other factors, unrelated to the perceived effectiveness of the plants to repel mosquitoes (not related to health risks), have become more important for some participants. Thus, while health professionals or experts may link the general acceptance of repellent plants to perceived medical benefits - the reduction of mosquitoes and illnesses or objectively related to health risks - research findings show that the public view of health risk is

subjective and based on respondents' experiences of their wider social and cultural context or values.

6.2.2 Indoor Residual Spraying (IRS)

IRS is the application of a residual insecticide to the interior walls of human dwellings where it targets mosquitoes that rest on the wall after their blood meal. After biting, then, when mosquitoes rest on walls to digest the blood meal, they absorb a lethal dose of insecticide. Implementation of the IRS programme in Tanzania is led by Research Triangle Institute (RTI) International (an independent, non-profit American institute which provides research, development and technical services to government and commercial clients worldwide) in collaboration with the Ministry of Health (MOH), the National Malaria Control Programme (NCMP), USAID, the Centers for Disease Control and Prevention (CDC) and other local and regional partners.

6.2.2.1 Perceptions of IRS programme

Research participants reported that there were two phases of application of IRS within their sub-villages. The first phase, carried out in September 2009, included most households from both Kumnazi and Nyakariba since villagers allowed their houses to be sprayed with insecticide. In contrast, a second phase of the IRS, carried out in October 2010, saw many participants dropping out because they complained that IRS was causing a significant increase in nuisance fleas as illustrated by the following participant:

Fleas...fleas...fleas...brings fleas, oh my God! We were not able to sleep at night after spraying our houses (Chausiku, adult woman, FGD, Kumnazi)

In order to avoid participating in the second phase of the IRS programme, villagers used different strategies such as locking their houses and bribing programme officials as illustrated in the following quotation:

No, no, no, please do not discuss about that spray at all...it brought a lot of fleas inside our houses. I told those people [who were spraying] that they should not spray inside my house. I just bribed them then in turn they marked my house to indicate having sprayed so that I cannot be penalised by the Government for rejecting to participate in the programme (John, young man, FGD, Kumnazi).

During informal conversations, some individuals talked of how the nuisance created by the presence of fleas resulted in some children not attending school as they slept in until late morning following their inability to sleep at night. Adults also expressed concerns about sleepless nights which affected their capacity to participate in economic activities such as agriculture.

Taking a wider perspective the presence of other interventions seems to contribute to the rejection of the IRS programme as villagers appear to be satisfied with the impact of other interventions particularly repellent plants (Section 6.2.1). In other words, the unpopular IRS programme may have contributed to the general acceptance of repellent plants. What this shows is that multiple interventions to achieve the same end may work against each other, with the perceived success (or acceptance) of one causing the relative failure of another. Furthermore the reasons for (relative) success or failure may be misconstrued, for example, as discussed in the previous section where plants were valued for their wider household uses and not necessarily for a reduction in mosquito numbers.

6.2.3 Insecticide-treated nets (ITNs)

6.2.3.1 Introduction

In the past decade the Government of Tanzania has been carrying out a national programme to distribute insecticide-treated nets (ITNs) throughout the country with the aim of ensuring that all sleeping places in individual households have access to treated bednets. The Ministry of Health in collaboration with local authorities oversees implementation of the programme. Prior to each bednet distribution operation, programme facilitators are recruited and become responsible for registering all sleeping places in each household and the subsequent distribution of bednets based on the number of sleeping places available. Public media such as radio and television, and local meetings are used to inform people about the programme and also to 'sensitize' individuals to participate in the process. According to the research participants, the programme is designed such that each household receives

vouchers that correspond with its actual number of sleeping places. Each voucher is then exchanged for a bednet at the stage of bednet distribution.

6.2.3.2 Limitations of the ITN distribution process

Villagers expressed significant concerns relating to the bednet distribution process, with many reporting that they received fewer bednets than the number of vouchers, as expressed by one participant:

> *It is true they tried well to distribute them [bednets] to 'wananchi' (common citizens). However, the problem was that there were not enough bednets. Imagine, some people with three or four rooms [sleeping rooms] received only one bednet. Therefore, they [facilitators] were not fair because they did not provide us bednets according to the vouchers. 'Wananchi' have not been satisfied with the process and we still have a lot of complaints (John, adult male, FGD, Kumnazi).*

The relationship between the facilitators and villagers as well as the attitude of facilitators towards villagers seemed to constrain the achievement of the programme in the study area. Many participants felt that facilitators were not cooperative and did not execute their functions effectively. There were complaints that some households were not registered because family members were not available at home when a facilitator visited a household for registration. And when these households approached facilitators for registration, facilitators ignored their requests. Research

participants interpreted this situation in two ways: first, that the facilitators were overwhelmed by their responsibilities because they were too few in number and second, villagers felt that facilitators were not respectful to them, a situation that made villagers feel devalued. The latter situation was interpreted in that way because the facilitators came from urban areas and appeared to 'look down on' people in rural areas. These problems are reflected in the following comments from villagers:

You know some of us missed bednets because we were not at home when facilitators came to do the registration. Later, when we asked for registration, the facilitators were very arrogant and did not want to listen to us. They were saying, 'it is over we cannot go back'. I think facilitators were not well sensitized during their recruitment seminar on how to be fair to villagers (Maggid, male, Kumnazi, FGD).

I can say generally the exercise of distributing bednets went well. But, the problem was that very few facilitators were assigned to distribute the bednets. For example just one facilitator was involved in carrying out registration in three sub-villages. Actually, it was a very difficult task for them. I think if that task of distributing bednets was given to 'mabalozi', it would have been better (Mwajuma, female, FGD, Kumnazi).*

*   ** 'mabalozi' (plural) means local cell representatives.*

Some participants also felt that facilitators showed favouritism to individuals who were known to them, as expressed in the following quotation:

I can say that those who were involved in distribution of bednets were not fair because they issued more bednets to people who they knew. I think they were supposed to do their job without favouritism. Just imagine, a poor man like me who cannot afford a bednet, how can I be protected against malaria? (Maduhu, male, FGD, Kumnazi)

6.2.3.3 Perceptions of bednets

The empirical findings show a range of different perceptions that villagers expressed in relation to the use and ownership of bednets. In terms of their own health some villagers felt that bednets had contributed to a reduction in malaria, others felt that bednets posed a potential risk with respect to other health problems, and finally some did not see any association between the use of bednets and mitigation of health problems. That said, in general many villagers perceived that bednets had had a significant influence on the reduction of mosquitoes and the prevalence of malaria especially among children, as the following participant expresses:

I have experienced few cases of malaria since my children started to sleep under bednets. I can say bednets have relieved our children of diseases so much (Banzoka, male, FGD, Kumnazi)

Some felt that a reduced frequency of illnesses, especially among children, has helped to sustain the household economy by saving the financial burden incurred while seeking medical care, as one villager expressed:

It is a long time since I took my children to a hospital. Since they started to sleep under a bednet diseases have gone down. In the past, almost every week I used to take my children to the hospital for medical services. Frequent sufferings of children increases so much our daily expenses due to costs incurred for hiring transport, and buying drugs from local stores (Masheli, adult man, FGD, Kumnazi).

Although many villagers talked about the usefulness of bednets in the prevention of diseases, some commented on how they did not use the bednets as recommended but, instead, used them for other purposes. The research findings show that some individuals sold them whilst others used them for other purposes such as fishing, keeping of chickens, collection of flying termites and threshing of maize:

Although many people received bednets, you would be surprised now that some of them do not have any. For example some people used bednets to thresh maize (collective laughter*). Others used them to catch 'kumbi kumbi' [flying termites]. Yes, let me be frank; we should not hide anything (Mayongela, male, FGD, Kumnazi)

* The collective laughter is an indication of group agreement or consensus

The research findings point to the importance of appropriate timing for the intervention in order to engage villagers and avoid interference from other influential social factors or events. Some research participants commented on how bednet distribution coincided with a period when the nuisance caused by mosquitoes was perceived to be low and a period of crop harvest (particularly maize). Bednets were therefore considered to be less useful during this period since villagers are able to sleep, with less nuisance from mosquitoes. For these villagers, then, lack of sleep caused by the physical nuisance of mosquitoes was a significant motivation to sleep under bednets, as one participant indicates:

You know brother, some people have never ever used bednets in their life. Then, you give someone a bednet when there are no mosquitoes; what do you expect? That's why you see many people decided to use bednets for threshing maize. I think the Government did not plan that well (Kalusha, male, a teacher, interview, Kumnazi).

As observed in the case of IRS, multiple interventions for mosquito control were reflected on by villagers. Some participants commented that the presence of other interventions, such as repellent plants and IRS, was sufficient and therefore for them it seemed unnecessary for the Government to carry out yet another intervention, as shown in the following extract:

Nowadays at night we sleep very well because there are very few mosquitoes at night. In the past before having the plants and sprays, mosquitoes were so many at night and produced sounds as if someone keeps a beehive inside the house. Therefore, we think bednets are not so important as they appear to be unnecessary extra malarial protection (John, male, FGD, Kumnazi).

Several participants talked of a number of negative experiences with their usage of bednets. Thus, through informal conversations, participants said that when they sleep under bednets they become uncomfortable, feel warm and experience difficulty breathing. For these villagers, then, having a good night's sleep is more important than the future risk of becoming ill. It was further added that bednets could cause a sense of insecurity, particularly for men who feel 'trapped' when they sleep under a bednet. They explained how bednets can make them feel less effective if they needed to defend their families against intruders such as burglars or wild animals entering their houses. This fear is amplified because of villagers' previous experiences of interacting with refugees. Villagers talked of how refugees with firearms used to invade and rob their houses sometimes inflicting injuries or even killing them. This resulted in some villagers sleeping out at night in hideaways (caves built for concealment) in order to avoid attacks from refugees.

Rather differently, some participants felt the bednet to be a covert birth control strategy where they were associated with impotence in both men and women, as illustrated in the following pair of quotations:

I cannot use treated bednets because I feel that the Government supplies them mainly for birth control purpose. This is simply because the Government has failed to convince people to take up family planning methods. Instead, they [the Government] have decided to treat bednets with birth control medicines in order to reduce male and female 'mbegu' (sex cells). Therefore, bednets are not good at all (Mahanje, male, FGD, Kumnazi).

People say that they cannot use bednets because they reduce male and female sexual desires. Therefore they do not like to keep bednets within their houses (Makoba, adult male, FGD, Kumnazi).

Further, lack of knowledge on the 'proper' use of bednets seems to limit their use and their impact in terms of prevention of illnesses. A number of villagers felt that ownership and use of bednets has little appreciable significance in terms of the occurrence of illnesses as the following extracts indicate:

I do not think that bednets help to reduce malaria. Can you tell me why some people who use bednets suffer from malaria? (Jomba, adult male, FGD, Kumnazi).

Thank you very much for showing me how to hang a bednet. But how can I get in and out of that bed? I would like to know more about how to use bednets (Kaziga, research diary extract, Kumnazi).

This section has uncovered some of the social and cultural reasons why many people do not use bednets. These include a lack of knowledge about how to properly use bednets, seeing bednets as a hindrance to a good night's sleep, as a potential security risk, and as having an influence on sexual activity and reproduction. The research findings also serve to challenge the strategies which underpin nationwide programmes that seem not to consider the different contextual characteristics of different places and which people who have never used bednets in their lives are expected to embrace the technology. From the empirical findings it seems that little was done to sensitise villagers to effectively engage them in the bednets programme. The findings also demonstrate different views on risk and on related health interventions. To villagers, livelihood demands are always important and if it is felt that interventions designed for health (ITNs) are useful in other contexts such as farming, then they will be used for this purpose as well as – or even in place of – their designed use. This suggests that experts view illness as the main risk, while the public (the villagers) see the risk in terms of livelihoods. In addition a lack of adequate knowledge on how to use the bednets significantly influenced decisions on whether to use them or not. In other words, this section shows how social values, rather than medical reasons for protecting individuals against illnesses, significantly influence individuals' judgement about the use of technologies like bednets.

For villagers, daily livelihood risks are perceived to be more important than potential future health risks. Their cultural beliefs, their social relationships with government and health officials, and how they interpret the role and efficacy of interventions, as well as their preoccupation with daily tasks prevents them from adopting a particular

technology on a regular basis. Table 6.2 provides a summary of how different health interventions were perceived among the research participants.

Table 6.2 Perceived benefits and limitations of public health interventions against malaria

Intervention	Benefits	Limitations
Repellant Plants	Indoor mosquito repellent, ornamental, animal feed and hedges	Crop weeds
IRS	Indoor reduction of mosquitoes	Apparent multiplication of fleas and nuisance
ITNs	Protection from mosquito bites	Difficulty breathing, impotence and loss of libido, personal insecurity and secondary uses (such as threshing of maize, keeping of chickens, fishing, and collection of flying termites)

The socio-cultural perspective adopted here helps us to understand health risks in a holistic way, as being embedded in everyday, lived experiences. It should not be considered that perceptions of villagers are irrational as they are founded on logic that combines both expert knowledge and their own traditional/experiential understandings. Citizens seem actively to combine both types of knowledge, leading to a hybrid form of knowledge that will be discussed further in section 6.4.

6.3 Diarrhoeal diseases

6.3.1 Introduction

The most common hygiene and sanitation practices for the prevention of diarrhoeal diseases which are emphasised by health officers within the study area are handwashing and use of toilets. Althoughthere was no on-going intervention related to hygiene and sanitation during the fieldwork period, villagers talked about how they have been receiving health education and promotion on hygiene and sanitation practices through village visits from health officials, public meetings, health centres and the mass media. Therefore, sharing of information between professionals and villagers appeared somewhat fragmented and less organised.

6.3.2 Limitations of promoting hygiene and sanitation practices

An important observation in terms of hygiene and sanitation practices are villagers' perceptions of health professionals or experts. Local people often see the role of health professionals as health inspectors and not as health educators or promoters. In this way health professionals are regarded less as people with special skills and information, and more as people seeking to earn income through specific occupation (health education/promotion). Villagers described health officials as inspectors because of their occasional tendency of visiting sub-villages to inspect ownership and use of toilets in each household especially when there are threats of outbreak of diarrhoeal diseases. Villagers reported how those found without toilets are required to pay a fine, and when they fail to do so local auxiliary police take them to police posts where they may later be sent to court for further action. Understandably, many

villagers preferred that the matter did not reach the court of justice and instead paid the fines at the police posts.

6.3.3 Perceptions of hygiene and sanitation practices

As I personally observed, ownership and use of toilets among research participants was inadequate. Many families in the study area do not have toilets, and those few toilets available appeared to be poorly constructed. Structurally, the toilets are traditional ones where two logs overlay tops of latrine pits to provide support for someone squatting over. The logs are not normally covered with soil, and the toilets have flimsy walls that hardly ensure adequate privacy.

It seemed that ownership and use of toilets was influenced by the physical characteristics of a place, a fear of health inspectors, and villagers' socio-economic values. Geographically, Kumnazi and Nyakariba sub-villages have different physical features; while houses in Kumnazi are built closer with little space in between, those in Nyakariba are spaced far apart being surrounded by banana farms or being closer to bushes. As illustrated by one participant, such micro-spatial differences appear to influence the different perceptions of hygiene and sanitation practices:

> *Here at Kumnazi [centre] it is very difficult to defecate on the farms because*
> *we live so close to one another. Therefore, it is difficult to get a place where*
> *you can dig a hole and help yourself. But for those living over there [in*
> *Nyakariba] to them toilets are not important since they have a large area*

around their houses that can be used to dump their body wastes (Chausiku,

woman, FGD, Kumnazi).

It seemed that social dignity and values are also important as some people own toilets in order to offer privacy for guests especially those who come from urban areas. Participants commented on how it was embarrassing to ask a guest to defecate in the bush or farm. Ownership of a toilet therefore gives dignity to their guests, as one participant indicates:

You know toilets are very good. Just imagine when you get a guest at your

house. Can you tell the guest to take a hoe and go out to relieve him/herself

in the farm? No, that is very embarrassing not only to the guest but also to

you (Mazinde, Adult man, FGD, Kumnazi).

However, some villagers contended that going to defecate on the farms also has a utilitarian function. Participants explained that in doing so they fertilise their farms and thus increase the productivity of their crops. Therefore, their choice is seen to have an economic value, which may be regarded as more important than the health risks associated with not using a toilet, as one participant emphasised:

There are benefits in defecating in your farms because you fertilise the farms. Then, when you grow crops they flourish very well. Therefore, if you use a toilet you lose fertiliser (Kazembe, Old man, interview, Nyakariba).

My empirical findings also show that perceptions of handwashing as a practice are linked to social and cultural values related to nutrition, religion, social norms and modernity. Most participants claim that diarrhoeal diseases are food-related problems that occur when an individual's stomach rejects the food. In the view of the respondents such situations include repetitively eating the same type of food, excessive feeding of children, and poor nutrition. The most commonly consumed food in Kumnazi and Nyakariba is cooked banana with beans. Many villagers believe that if someone always takes the same type of food the stomach finally rejects that food and diarrhoea sets in, as the following quotations illustrate:

If you tell people that stomach problems [diarrhoeal diseases] are caused by something other than food they will not understand you. Since we eat the same type of food always, people believe that this is the main cause of stomach problems (Manjori, young man, FGD, Kumnazi).

Eating one type of food for a very long time causes diarrhoea, in both children and adults. It is good to change the type of food in order to avoid diarrhoea (Furahisha, young lady, FGD, Nyakariba).

Some participants explained how they felt that over-feeding children is a cause of diarrhoeal diseases whilst, in contrast, others mentioned malnutrition as the cause of diarrhoea especially among young children:

> *Child diarrhoea is caused by food. As parents we know that, if you do not set a ration of food to your child, he/she may get diarrhoea. Therefore, parents are always careful to avoid overfeeding their children because there are children who eat a lot and can finish even two plates [a plate is a standard meal for one adult person] (Zainab, woman, FGD, Kumnazi).*

> *One condition called 'Nyamagoma' is believed to cause diarrhoea to our children. That problem is characterised by body weakness, enlargement of abdomen and a body pits like 'Kiazi kilichoiva' [grilled sweet potato] when pressed down (Mwakeye, interview, Kumnazi).*

Some villagers felt there to be no health risks when someone eats without first washing their hands. The practice of hand-washing was perceived as a modern, new idea and unnecessary:

> *I have been eating without washing my hands since I was born ...that is our normal practice. Therefore it is not true that failure to wash hands can cause diarrhoea (Mwanaasha, adult woman, FGD, Kumnazi).*

It was evident from conversations with local people that some argued against the advice from health experts that they should wash their hands every time they go to the toilet. Individuals felt this practice was not important for them because when they defecate they use soft fresh grasses or banana leaves as 'toilet tissue' and they don't

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touch the faeces. However, some participants referred to the practice of washing hands as being important to Muslims who have a ritual of cleaning their hands and bottoms after defecation:

> *People say that they cannot wash their hands since they have not touched dirt. For sure I can say that almost all people do not use water. Many people say that they cannot wash their hands after attending toilets since they are not Muslims (Zakayo, young man, FGD, Kumnazi).*

This is a ritual practice not shared by Christians. Thus the washing of hands – mainly performed by Muslims – is done regularly because it is part of a religious ritual and not because of a scientific link with health, and cleanliness. This is an example of the distinction between lay understandings (subjective) and the expert view (objective) of the practice of washing hands (Bickerstaff 2004).

Some participants even went so far as to suggest that the practice of using water after defecation is 'unhygienic' and risky to health as it contaminates someone's hands with faecal material that may lead to a sort of stigma as one participant explains:

> *If I know someone who uses water to clean him/herself after defecation, I do not wish to shake hands with that person or dare to share food together. But if we are obliged to share food together, I will make sure he/she must use a spoon (Luduvi, Youngman, FGD, Kumnazi).*

On the other hand some individuals, especially Muslims, felt that cleaning yourself by using water was very effective as it removed all the dirt:

I think many people do not know that they walk around with dirty bodies because they do not clean themselves well after defecation. Actually, this causes some individuals' trousers to have a narrow strip of faeces inside. Therefore, I can say people are 'very dirty' and do not care about that at all (Magadi, adult man, interview, Kumnazi).

Some participants, especially the more educated ones, felt negligence of hygienic practices such as hand washing to be a significant cause of a higher incidence of diarrhoeal diseases within the community, as illustrated by one participant:

The problem of diarrhoea is very big in our community because of negligence. For example despite people being educated to wash their hands they do not take it seriously. People behave as if they do not have knowledge of the importance of hygiene to their health (Muchunguzi, Old man, KFGD, Kumnazi).

This section has shown that villagers perceive food – its quantity and variety – as the main cause of diarrhoea within their community. Use of toilets and washing of hands seem to be less important to them in terms of transmission of diarrhoeal diseases. However, some people are also influenced by health advice from 'experts' and their new experience is that their children and families have less illness when they follow such health advice. People are not familiar with scientific explanations (for example the existence of bacteria which they cannot see) embedded in medical advice, so they base their views primarily on what they see and experience. This underpins how they cope with the risks they experience in their daily life by using their traditional experiential knowledge, sometimes combined with 'expert' knowledge to form what may be referred to as hybrid knowledge (Muela *et al*, 2002; Nyamongo, 2002). The

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next section will discuss further the strategies that individuals use in making decisions in relation to health risks. But before turning to this issue, it is important also to highlight a set of issues raised by the discussion above about why there is a knowledge gap between the science of hygiene and local views and practices. This is fundamentally related to the perceived role of health professionals in the study villages. Rather than being trusted as knowledgeable and trustworthy people working in the interests of the villagers they are, instead, seen as agents of the state and, more particularly, associated with the police. This changes the relationship and plays a large part in undermining the health messages that are communicated. These ideas are discussed in the following section, Section 6.4.

6.4 How people combine and make sense of different knowledges

Developing the previous paragraph, a significant challenge to public health campaigns seems to be a 'failure' of individuals to adhere to health messages in an 'objective' and 'logical' manner. Of key relevance here are situations in which experts do not consider the social and cultural contexts in which public perceptions are embedded (Lupton, 1999b). People's decisions are influenced not only by the knowledge they possess, but also by numerous cognitive, emotional, psychological, social, cultural and environmental factors that interact in complex and dynamic ways (Lupton, 1999a). Therefore as has been seen in previous sections of this chapter, the behavioural response of citizens is complex since behaviours are intertwined in a complex web of social, cultural and economic factors in which they occur. Table 6.3 provides a summary of the previous two sections, 6.2 and 6.3, on how villagers' own experiences and their own 'medical' understandings are used to make sense of a

particular health risk or intervention.   The table also demonstrates how the interpretation of one intervention can influence the interpretation of another intervention.

Table 6.3 Summary of how villagers combine personal and 'medical' understandings of health related interventions

Health-related Intervention	Public views	'Medical' views
IRS	Increase fleas Irritation	Uncertainty about diseases caused by fleas
ITNs	Restrictive (intruders) Family planning control Alternative uses: threshing of maize, collection of flying termites Difficulty breathing	Uncertainty: Those who use bednets also fall sick Not easy to avoid mosquito bites
Toilets	Pride (guests) Added value (housing) Spend most of their time on farms	Not possible to use toilets all the time since villagers spend more time in the day on farms
Hand washing with soap after using toilet	For educated and urban dwellers Inconvenience: Slippery hands Expensive	No contact with faeces

In chapter seven I will discuss how networks of social relationships influence health-related behaviours. The following section explores different ways or strategies that the participants use to make sense of the different health risks and perceptions of

disease interventions. Drawing from the typology developed by Bickerstaff *et al* (2006) such strategies include comparative judgement, fatalism and internalising risks.

6.4.1 Comparative judgement

Bickerstaff *et al's* (2006) research in Lancashire on public perceptions of different technological risks found that individuals use a comparison strategy in order to make sense of the various risks they face, by comparing a specific risk with another risk or event. The use of comparison enables individuals to judge a risk relative to some meaningful issue or idea. In making a comparison people may use an important object in their surroundings, the views of fellow members of the community, or an interpretation of events or situations that happen within their community. Application of this approach is useful in explaining how individuals in the study sites collect and sift different information to make decisions.

During informal conversations, it transpired that many participants felt that as rural citizens they are more resistant to diseases than those living in urban areas. For example, many felt that hygiene practices promoted by health professionals are more appropriate for educated, professionals and urban dwellers than for themselves. Many villagers feel that they are stronger in resisting diseases than are their counterparts in urban areas who are seen as 'weaker' and hence required more means of protection from illnesses. In addition many see hygiene messages such as hand washing with soap as inappropriate in the contexts in which they live. Some shared

their experiences of how it is common for urban dwellers to suffer from diseases when they visit rural areas. This can be related to scientific knowledge based on the adaptation of individuals to their environment where diseases are endemic. For example one participant compared their resistance to illnesses with that of *'wazungu'* (white Europeans and Americans) and likened it to that of animals:

> *It is true Africans cannot die by eating dirty things because their stomachs are used to dirty things compared to 'wazungu'. For example just consider how dirty the food of animals - pigs, warthogs or buffalo - is like! Even water that these animals drink is not boiled. Now ask yourself, why don't they die? Therefore, like animals our stomachs are used to dirty things (Magegi, oldman, FGD, Kumnazi).*

Another example observed in which individuals apply comparative judgements is that many people link their perceptions of risks to what other members of the community do. For example citing people who have lived to an old age without adopting new hygiene and sanitation health messages:

> *Here in our village when you ask people to wash their hands, you will become a laughing stock. People will challenge you by questioning: if washing of hands was that necessary to prevent deaths, why do people survive to an old age without observing that [hygiene and sanitation measures]? (Kasemwa, Young man, Nyakariba).*

6.4.2 Fatalism

Another way individuals deal with the health risks and influence of expert knowledge is to adopt a fatalist position. When individuals at risk face a situation where management of a disease is beyond their control, fatalism can bring psychological comfort to them (Bickerstaff, 2006). For example, some villagers reflected on how it was difficult to prevent diseases in Kumnazi centre because houses are located very close to each other. Therefore, people deliberately ignored health messages as they saw themselves living in a very high risk area where diseases were inevitable, as one woman illustrates:

Having a good toilet does not guarantee prevention of diseases. This is because we live very close to one another and houseflies may come from my neighbour's poor toilet to my house and can contaminate my food or dishes. Then unknowingly, a member in my household may get ill because of contamination caused by flies that came from my neighbour. This is a very common situation here; therefore it is very difficult to avoid diarrhoeal diseases ... we survive only by God's mercy (Mwasiti, FGD, Kumnazi).

Many participants made references to how high levels of crime and insecurity following the arrival of refugees led to the original establishment of Kumnazi sub-village. They reported that because refugees frequently attacked them they decided to vacate their original homes and moved to Kumnazi for security. Many people felt Kumnazi was a good area for settlement because of it being located closer to a police

post that was responsible for providing security in the refugee camps. Therefore, living closer to the post was a coping strategy to assure them with a greater sense of physical security. The risk of crime was seen as more important than any health-related issues, and thus a sense of fatalism is used to cover any concerns about health. In this way villagers have remained living in areas which are regarded as having a higher risk of contracting illnesses through living in close proximity to others. When asked why they have remained in an over-crowded area, even after the closure of the refugee camps, participants kept emphasing the inevitable nature of diseases:

Brother, where do you expect us to go? You can never run away from diseases. No matter where you could be, if God allows illnesses to befall on you then no one can prevent that (Magadi, young man, FGD, Kumnazi).

A fatalistic approach is also used to safeguard important local social and cultural norms and values. Many participants seem to have a sound knowledge of hygiene and sanitation practices, but suspended or erased that knowledge where it seemed to jeopardize important socio-cultural practices, as one participant illustrates:

You know when we drink our local brew, we enjoy sharing drinking straws where 50 people sometimes share one drinking straw. In addition, drinking containers used in our local club are very dirty…. We know that it may be

causing problems to our health, but there is no way to escape this situation

because that is our life (Masebo, young man, Kumnazi).

This quotation demonstrates how social relationships and continuing with established ways of life are more important than risks to health. Villagers feel that they must preserve their cultural practices, while being fatalistic about any health risks. They will therefore subject themselves to risky health behaviours in order to ensure social unity and communal harmony.

6.4.3 Internalising risks

Another approach to dealing with multiple risks and competing knowledge about those risks is to internalise the risks. Wynne *et al* (1993) argue that when individuals or communities are exposed to chronic risks either they suppress an explicit recognition of the unsatisfactory situation with which they are faced, or they create boundaries around familiar and secure areas of experience, excluding anything which could cause an unsettling psychological disruption to their daily life. In the study area, malaria and diarrhoeal diseases occur throughout the year with peak prevalence during the rainy season. These diseases are among those with the highest morbidity and mortality, especially in young children and pregnant women. However, many villagers feel that they are less vulnerable to health problems and consider them to be 'normal' and manageable as one participant illustrates:

> *There is no problem [with malaria] because when you get a disease you use 'mubilizi' [local herbs] (Magegi, old man, FGD, Kumnazi).*

Although some participants referred to *'mubilizi'* as being less effective many still rely on these herbs for the treatment of malaria. Some villagers challenged those who look down on traditional medicine and explained that it is not surprising that *'mubilizi'* sometimes fails because even modern medicines fail too:

> *Everyone uses 'mubilizi' when suffering from malaria. When 'mubilizi' fails we go to hospital for further treatment. This is how we do it! You know even drugs from hospitals fail, therefore I think it is better to use 'mubilizi' at first (Magandi, young man, FGD, Kumnazi).*

It seems, then, that participants develop a range of meanings and interpretations from their observations of their everyday life so as to internalise a risk. For example, during an informal group conversation one respondent commented that if they drink boiled [treated] water they might fall sick since their bodies are not used to 'clean' water. He explained that treated water washes the stomach and removes the dirt accumulated inside the stomach. Therefore, the person who drinks treated water regularly clears his or her body's defence from the stomach and therefore the body becomes more susceptible to health risks. A similar example can be drawn from my own personal experience in childhood when I spent some time with my grandparents in a rural area. My grandmother used to mix water and soil taken from the entrance

of the host's house, and then give me the mixture to drink, when we intended to stay away from our home for more than two days. This was believed to be a means of adapting the body in an unfamiliar environment so as to withstand the health challenges present in that new environment. Although these views might be seen as irrational and risky practices from a public health perspective, such practices may have some scientific support. These views could, for example, be explained based on the body's immunity. That is, if a body has prior exposure to a disease-causing agent (aetiological agent) at a non-infective level or trickle infection (Pemberton *et al,* 2012) they may be more immune than someone with no prior exposure. Thus the difficulty for many of my research participants is managing daily risks by developing some immunity, given the many circumstances that are beyond their control, while at the same time moving towards a cleaner environment where traditional approaches are no longer required. In balancing this dilemma – and it is important to emphasise that it is a *process* – people continue to assess and apply a range of perspectives, including introducing new practices when this seems possible and realistic.

While fatalism is recognising a risk and seeing it as 'inevitable', internalization is denying that the risk exists. Thus, to a certain extent it is a denial of scientific and medical knowledge, and a retreat to a 'safe zone' that privileges local knowledge and traditional practices. While this approach gives psychological comfort, it often does not deal adequately with the challenge of the risks faced by people. On the other hand, if people do not have the resources to deal adequately with the risks, then such an approach at least offers something to them.

6.5 Conclusion

This chapter has drawn on a socio-cultural perspective in order to analyse public perceptions of health risks, and how they are based on complex interactions between the social and cultural dimensions of particular place. The chapter started with a discussion of the socio-cultural perspective and a brief review of perspectives on risk, and then moved on to a discussion of how different health interventions related to malaria and diarrhoeal diseases are perceived by the recipients of those interventions. The chapter argued that such perceptions of illness and modern health technologies are based on hybrid knowledge, an act of combining both local and expert knowledge.

In terms of the data in relation to the three interventions directed at controlling malaria, villagers show a general acceptance of repellent plants as the plants had other uses that seem important as well, including the ability to relieve chest problems, hedges for drying clothes, and decoration (ornamental plants). However, there is a significant limitation in that the plants grow quickly and spread to farms, thus competing with food crops. Contrary to repellent plants, IRS proved to be unpopular, and most participants did not support the intervention as it was perceived to cause an increase in fleas, causing irritations and the intrusion of private space as individuals were asked, for example, to take their domestic assets such bedding materials and suitcases outside their houses while the spraying took place. Public perceptions of bednets also included some negative aspects, for example they were thought by some to be a covert Government tactic to control population size through birth control. In addition, bednets were used by some as valuable financial assets to

cope with immediate livelihood demands, for example selling them for cash or using them for other activities such as threshing or fishing.

Perceptions of hygiene and sanitation were also analysed based on the participants' understanding of the risk of diarrhoeal diseases. Practices such as handwashing were shaped by socio-cultural norms and values, and by economic needs with, for example, participants referring to the use of toilets as entailing the loss of a source of manure for farms, but on the other hand toilets could be important when having guests.

Further, the chapter discussed how villagers perceive health professionals as inspectors rather than as health educators or promoters, and this generated a reluctance amongst villagers to take up 'expert' health advice. The chapter has also shown how implementation of public health interventions should include consideration of timing and season. The findings indicated, for example, how the perceived importance of bednets was influenced by a distribution operation which was carried out at a time of year when mosquito numbers are reduced. Furthermore the chapter showed how implementation of interventions concurrently can influence villagers' responses to each, for example, the introduction of mosquito repellent plants seemed to contribute to a rejection of the IRS programme.

Finally, the chapter has discussed how participants made sense of phenomena by combining different sources of knowledge, in this case local and expert knowledge.

Different strategies identified include comparative judgement, internalising risk, and fatalism. In safeguarding their social and cultural values, respondents combine their local understanding with scientific knowledge to verify their practices. When ill-health and disease is felt to be 'inevitable' a fatalistic approach is adopted in which 'healthy' practices are perceived as ineffective in disease protection. In other cases, individuals internalise the risk where they develop a sense of invulnerability to the risk, looking at the risk as a normal and manageable part of everyday life. Thus, the underlying argument of this chapter is that applying a socio-cultural perspective to understanding the risks felt by people, including health risks, has helped to uncover a range of perceived interpretations of living with disease, and of the technologies to control these diseases. It also begins to shed light on why local people sometimes reject, ignore or manipulate health interventions in a manner that seems, from an external scientific perspective, to be 'illogical'.

CHAPTER SEVEN

SOCIAL RELATIONSHIPS: VULNERABILITY AND RESILIENCE

7.1 Introduction

This chapter discusses how social relationships intersect with health by looking into how they contribute to the occurrence and management of diseases, thus shaping people's vulnerability and resilience to risks of ill-health and disease. The section begins with setting the context by introducing the nature of social relationships and then discusses the problems of defining and conceptualizing social capital, a framework to be used for the discussion. Social relationships are important in understanding the context in which behaviour or knowledge of villagers emerges and is shaped. Therefore, social relationships contribute to shaping villagers' perceptions of a phenomenon such as health-related risks. Based on a social capital framework, I explore how social relationships influence villagers' perceptions of risks related to the occurrence of illnesses. In this context, vulnerability and resilience are conceptualized in terms of positive (health-promoting) and negative (health-detoriating) behaviours that shape individuals' likelihood of succumbing to illnesses.

According to Bruhn (2009) humans are social creatures who demand support and companionship from one another. Throughout human history, social cooperation has played a significant role in facilitating learning and survival. Despite current livelihoods having moved substantially from that of the hunter-gatherer, the need for social interaction and positive ties with others has remained important because it is through social interactions or relationships that humans acquire the necessary means to survive and thrive (Bruhn, 2009). Bruhn (2009) summarises social relationships in

terms of three categories; 1) individuals' culture such as common values, beliefs, and expectations that provide the context for social behaviour; (2) motives for group membership and the degree of identification individuals have with the group such as conformity; and (3) relationships with leaders or intermediaries (such as health professionals). In understanding the importance of social relationships in shaping everyday lives social capital can provide an important framework. The concept of social capital has its origin outside the field of public health – in sociology (Bourdieu, 1986; Coleman, 1990), economics (Loury, 1992), and political science (Putnam, 1993). There is a great deal of research that has pointed out links between social capital and the social aspects of economics, politics and health (Putnam, 1986; Coleman, 1990; Kawachi *et al*, 2008). Despite the contentious nature of social capital (Szreter and Woolrock, 2004), there is growing interest in applying the concept to health research (Kawachi *et al*, 2008).

Social capital has been conceptualised in different ways depending on the level of analysis (cohesion and network approaches) or type of relationships (such as bonding and bridging perspectives). In health research two distinct schools of thought, the social cohesion and the network schools of thought predominate (Kawachi, 2006). The former considers social capital as a group attribute i.e. a public good not based on individual statuses. In this context social capital is conceptualized as a group attribute in which resources are accrued by an individual's involvement in group interactions. The network school of thought defines the concept of social capital as the resources embedded within an individual's social networks such as social support, information channels and social credentials (Lin, 1999). Depending on level of analysis, the 'network' theory conceptualises social

capital as encompassing both individual and group attributes. Defining social capital in terms of bonding and bridging social capital shows how resources are shared across various groups within a society. While the former refers to access to resources of similar social characteristics (social identity), the latter refers to benefits that can be achieved through relationships with an individual or group beyond their socially identical groups. In other words social capital bonds similar people and creates bridges between various individuals or groups of people, with norms of reciprocity (Dekker and Uslaner 2001; Uslaner 2001). Conceptualising social capital in this way helps us to understand how resources can be shared between individuals within and across the boundaries of their socially identical groups.

Despite its wide application, the concept of social capital lacks consensual agreement concerning its definition as it has been defined in numerous ways across various fields of research (Adler and Kwon, 2002). Kawachi *et al* (2008) conclude that the debate about social capital is a healthy reflection of the concept because there is some sort of convergence in meaning from those various points of view about its definition. Table 7.1 represents the various definitions of social capital as adopted from Adler and Kwon (2002).

Table 7.1 Definitions of social capital (adopted from Adler and Kwon, 2002)

Classification	Definitions of Social Capital
External/Bridging	'a resource that actors derive from specific social structures and then use to pursue their interests; it is created by changes in the relationship among actors'
	'an individual's personal network and elite institutional affiliations'
	'the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition' 'made up of social obligations ('connections'), which is convertible, in certain conditions, into economic capital and may be institutionalized in the form of a title of nobility'
	'the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition'
	'the number of people who can be expected to provide support and the resources those people have at their disposal'
	'friends, colleagues, and more general contacts through whom you receive opportunities to use your financial and human capital' 'the brokerage opportunities in a network'
	'the process by which social actors create and mobilize their network connections within and between organizations to gain access to other social actors' resources'
	'the ability of actors to secure benefits by virtue of membership in social networks or other social structures' .
Internal/ Bonding	'the web of cooperative relationships between citizens that facilitate resolution of collective action problems' .
	'Social capital is defined by its function. It is not a single entity, but a variety of different entities having two characteristics in common: They all consist of some aspect of social structure, and they facilitate certain actions of individuals who are within the structure' .
	'the ability of people to work together for common purposes in groups and organizations' . 'Social capital can be defined simply as the existence of a certain set of informal values or norms shared among members of a group that permit cooperation among them' .
	'a culture of trust and tolerance, in which extensive networks of voluntary associations emerge' .
	'those expectations for action within a collectivity that affect the economic goals and goal' seeking behavior of its members, even if these expectations are not oriented toward the economic sphere' .
	'features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit' .
	'those voluntary means and processes developed within civil society which promote development for the collective whole'.
Both	'naturally occurring social relationships among persons which promote or assist the acquisition of skills and traits valued in the marketplace. . . an asset which may be as significant as financial bequests in accounting for the maintenance of inequality in our society' .
	'the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit. Social capital thus comprises both the network and the assets that may be mobilized through that network' .
	'the web of social relationships that influences individual behavior and thereby affects economic growth'.
	'the set of elements of the social structure that affects relations among people and are inputs or arguments of the production and/or utility function'
	'the information, trust, and norms of reciprocity inhering in one's social networks'.

The pioneers of social capital have principally focussed on its positive outcomes (Putnam, 1985; Coleman, 1990). However, Portes (1998) highlights its negative outcomes to livelihoods such as excessive demands on members of cohesive groups to provide support to others; expectations of conformity that may lead to restrictions on individual freedom and social exclusion through group solidarity; and the down-levelling of norms which can hold back individual or group prosperity. The positive and negative outcomes of social capital show that social relationships are a very important element to a social group. However, efforts to achieve or maintain social capital produce different outcomes (both positive and negative). Positive outcomes of social capital refer to those benefits individuals can get by virtue of being a member of a particular social group. For example a citizen may receive a loan from another villager to meet medical or health needs under loose or flexible repayment arrangements. In the case of negative outcomes, it may happen that individuals reluctantly practise risky behaviours simply because that is a normative practice of his or her group. I will therefore attempt to establish how social relationships shape individuals' vulnerability and resilience to health problems through the lens of social capital. I specifically attempt to explain how social capital influences health through health behaviours that in turn modify citizens' vulnerability and resilience to illnesses. I turn now to discuss in turn social capital and vulnerability (Section 7.2), and social capital and resilience (7.3).

7.2 Social capital and vulnerability

This section explores how social capital may contribute to increased vulnerability to health risks when the need to maintain good social relationships surpasses technical advice to avoid health risks. The section therefore discusses negative aspects of

social capital in contributing to villagers' vulnerability to future illnesses or worsening the conditions of their illnesses. This section will be followed by a discussion of the positive aspects of social capital in management and prevention of illnesses.

7.2.1 Maintaining social cohesion

Hygiene and sanitation practices appear to many individuals to belong to 'civilized' 'modern' society – wealthier, educated and urban-dwelling individuals. Rural dwellers appear to distance themselves from such practices with restrictions of sharing health messages among them. Thus, some individuals who would like to share health messages with others do not do so in order to maintain good relationships or social cohesion.

7.2.1.1 Maintaining social values and norms

People engaging in social relationships have a 'web of meaning' that characterizes how individuals collectively experience and define their world or situations (Bruhn, 2009). The social groups reflect the web of meaning through sharing similar values and norms. An example of this is in the study area is the traditional practice of sharing local brews. Drinking of alcohol in a group at local clubs is a common practice for both men and women. Such social practices offer the opportunity to share important cultural ideals or values or, as Bruhn (2009) describes it, the 'web of meaning' which joins people together in collective activities thus helping to retain social cohesion.

How a brew is traditionally shared among the research participants is, from a public health perspective, a significant, risky health behaviour. Alcohol is shared in such a way that many people drink from the same straw in a large container circulated around the group. These straws and containers are 'washed' during drinking by occasionally dipping them in a large bucket containing untreated, contaminated water. From a bio-medical point of view, this encounter may be interpreted as lack of awareness (ignorance) of the risk associated with an 'unhygienic' drinking behaviour. However, citizens explicitly express that they are quite aware of the health risks associated with their traditional way of sharing alcohol. To them such a drinking habit has historical attachment and is important to ensure social cohesion and identity as illustrated by one of the research participants:

> *This tendency of sharing drinking containers or straws is a traditional practice. Since we were born we have seen our fathers and grandfathers doing the same. You can see that now I am old and yet the practice is still going on. Therefore, I think even the Government cannot stop this practice because we have been doing it for a very long time. This is our tradition and people are very happy to share drinking facilities among themselves (Awazi, old man, FGD, Kumnazi).*

Thus, tradition is stronger than public health messages that do not take account of communal practices and their values in a shared culture. This implies that individuals seem to ignore health messages so as to maintain their social values which, in turn, are necessary to maintain social cohesion.

Another example of the importance of maintaining social values is the very common practice of sharing of food among family members. Villagers reflected on how the sharing of food gives them more appetite and also helps them to enjoy the food as illustrated by one respondent:

We like to eat food together with our families because that makes you eat more as the food becomes more palatable (Adadi, Adult man, FGD, Kumnazi).

Depending on how food is prepared, it was noted that villagers either share food from one dish, or from two or more dishes. For example, cooked green banana and beans, a staple food, is normally eaten from a single dish. In other cases when they eat food such as *ugali (*main dish)*,* which is served with side dishes (normally containing soup/sauce), they share more than one dish depending on the number of side dishes. Since eating of food is normally with bare hands, and generally people do not wash their hands, and there is a tendency for individuals to prefer preparing food with soup, this practice seems to pose a risk of disease transmission.

7.2.1.2 Social conformity

Every social group has rules or norms that define how individuals within the group should generally behave. These rules require an individual to comply in order to conform. Therefore, conformity as defined by social psychologists is adjusting one's behaviour to that of the group or social relationships (Cialdini and Goldstein, 2004). This can be either because a person wants to be right or behave properly, or sees the opinion of the group as an indicator of accuracy (informational conformity), and/or

because the person does not want to be excluded from the group (Deutsch and Gerard, 1955). Common social practices that individuals normally follow in order to conform include practices of personal hygiene, particularly bathing and washing of clothes. However, when and how often one is able to bathe and wash clothes, and thus conform to social norms, depends on the availability of water and affordability of soap, which link to poverty as one aspect of vulnerability (Kyegombe 2003), and the limitations of the physical environment. Therefore, a meaning to a health-related normative risk practice is not only associated with ignorance or negligence of hygienic, healthy behaviour but is also a result of inter-personal interactions (such as conformity) and other place-based attributes (such as cold weather) as the following extract indicates:

> *…you cannot bathe daily. We have a lot of problems, sometimes there is no water or soap, sometimes you come home late, sometimes you may feel tired, sometimes it is very cold… it is also true that sometimes we just neglect it without any reason. If anybody says that he bathes throughout a week, he could be lying to you. In a week some people bathe two to three times, others just once or not at all. That is it. (Mkude, Young man, FGD, Nyakariba).*

The quotation also intimates another aspect of vulnerability – the difficult work associated with subsistence farming. People are sometimes 'too tired' to adopt healthy behaviours, and thus not taking a bath is socially acceptable and conforms to community norms. Field observation revealed the different ways in which people compensate for not washing their body fully. It is a common practice, especially among young men, to have a *'pasipoti'* style (a passport sized picture) of washing.

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An individual does not wash his whole body; instead a shirt is taken off then the upper part (chest, stomach and the back) and legs are washed. It is common practice that before going to bed or going out (e.g. for recreation, such as drinking local brews, shopping or other social interactions) villagers wash only their legs. Common social activities that involve villagers in going out for recreation also include practices relating to clothing and are of relevance here. When people go out especially during the evening they put on clean clothes after washing their legs. However, citizens do not feel it is necessary to wash or wear clean clothes when they are at home. It is common to see villagers when they are at home to have soiled or dusty legs and wearing soiled or torn clothes. Thus, being clean has a social, rather than a health rationale. Thus, the risk is to social relationships, rather than to their own health when they decide when to wash and when to wear clean clothes. Observations also revealed that individuals have different categories of clothes that are worn when they are at home, on the farm or when they go out. This is linked to their poverty (Armar-Klesu *et al.*, 2000; Tumwine *et al.*, 2003) and the importance of conforming to social norms (Bruhn 2009, Cialdini and Goldstein, 2004).Farm clothes (*nguo za shamba*) are put on when they go to work on the farm and these are normally soiled, old, torn and are only occasionally washed. It is normal practice that *nguo za shamba* are either used only on the farm or become exchanged shortly after arriving at home with *nguo za nyumbani* (home clothes). Generally, individuals have a third category of clothes, those worn for important social events (for example, different celebrations) or when they go out or travel; or when they attend a clinic (for women); or when they go to church. However, some villagers keep wearing *nguo za shamba* at home or when they go out for social gatherings. This is seen as something 'not acceptable' to many people as illustrated by one research participant:

It is very disgusting to see some people coming (at Kumnazi centre) all the way from their homes wearing dirty work-like clothes. You know, that is an area for recreation where people come to get mlamba (local banana juice), lubisi (local banana brew) and many other basic items like soaps, kerosene etcetera (Kishoka, adult man, FGD, Kumnazi).

Participants explained that categorization of clothes was important in order to save costs related to buying soap and new clothes, as well as ensuring that their better clothes stay clean. Again, we can see that clean clothes have a social purpose, and relate to economic circumstance – people generally do not change clothes for reasons of hygiene, or in order to stay healthy. This is further evidence that people judge social relationships to be more important than individual health, which can lead to risky health practices.

A further example of the importance of conforming to social rituals is the washing of hands, which is not related to health, or remaining healthy, but to removing a nuisance and taking part in a joint ritual.Health professionals emphasize washing of hands with soap and water after using the toilet and before eating food. This is important from a medical perspective in order to control the transmission of pathogens that cause diarrhoeal diseases. However, it seems that villagers' motivation for washing hands is not generally associated with perceptions related to avoiding contracting diseases but rather to remove the nuisance of physical dirt on their hands. As the following quotation indicates the removal of mud and dirt is considered a valid reason for washing hands but handwashing following use of the toilet can be regarded as a practice linked more to religious beliefs:

Listen, sometimes I do not understand why these people tell us to wash hands many times in a day. Why should I wash hands when my hands are not muddy? ...sometimes they [health experts] say "wash hands after attending the toilet" but why should I? I think that is for Muslims not for Christians like me (John, adult man, Interview, Kumnazi).

During hand washing before eating food, most members of the community prefer to share a single water container where everyone dips in their hands and scrubs to remove dirt. Normally seniority is observed where younger people wash their hands last once senior members of the community have finished. When younger people wash their hands, the water is normally cloudy and dirty, and can thus potentially make younger ones more vulnerable to diseases.

7.2.2 Health messages and social conflicts

Hygiene and sanitation issues including the importance of hand-washing, use of toilets, disposal of child stools and personal hygiene (such as bathing and washing of clothes) were common health messages conveyed by health professionals to villagers. At times, such health messages were not well-received and resulted in conflicts between villagers or families. This is because when people are advised about hygiene and sanitation they feel offended as they feel 'uncivilised'. One participant expressed that he had been in conflict with a neighbouring woman for a long time after advising her to construct a toilet after seeing her urinating beside her house:

I remember one day I advised a woman to stop urinating beside her house. Unfortunately, that woman became furious at me and scorned me that I am so proud and pretend to be educated. Further she mocked me by saying "if I were an educated person I could not be living in the village". Therefore, she scorned me and then said - do not bring your stupid ideas here. Since then we have been on bad terms (Kapeyu, educated young man, FGD, Kumnazi).

Another man expressed how his family is in conflict with an entire neighbouring household after advising them to construct their own toilet and to stop using his family toilet:

For a very long time, my neighbour and his children do not want even to greet me and we do not ask for even a hoe or salt from one another. My neighbour and his family are not happy with us because I stopped them from using my toilet (Kazembe, old man in-depth interview Kumnazi).

Within the study area there was a general view that hygiene and sanitation practices were symbols of 'civilisation' and features of modern life-styles. Research participants described how 'ideal' hygiene practices, as emphasised by health professionals, did not suit them, but rather were felt to be for educated people, urban dwellers and wealthy individuals. Instead participants have their own social 'scale' that is used to gauge an 'acceptable' level of hygiene among themselves. This difference between the levels and types of health practices expected from professionals and those performed by participants contributes to a gap in knowledge that appears to be common between health professionals and villagers. Personal experience of diseases within the community, and social and cultural aspects of daily living were felt by villagers to be more important than health professionals' advice in

setting up acceptable levels of hygiene within the area. It was common to see people in formal employment, such as primary and secondary school teachers, living in houses with well-constructed toilets. It was learnt that houses with good toilets were preferred as they had a higher market value than those withouth. As a result some landlords were motivated to improve their toilets in order to attract higher rentals. Villagers therefore seemed less concerned with the idea of owning a toilet as a means of preventing transmission of diseases and more interested in the financial value of having a toilet. Similarly, some participants mentioned a lack of financial resources as limiting their priorities and choices:

> *We are poor; we do not have enough money to dig a toilet pit. Our income depends only on agriculture and we have just one big harvest in a year. Therefore, after harvest you find that you have a lot of needs waiting for you including the loans ... therefore toilets are not important for us (Sekenke, adult male, FGD, Kumnazi).*

In contrast I noted that some villagers who the community regarded as 'better-off', with better housing and enough food, did not have adequate toilets. This is contrary to what is believed to be lack of economic capacity among individuals that limit them in terms of affording hygiene and sanitation technologies (Armar-Klesu *et al.*, 2000; Tumwine *et al.,* 2003).

Access to large areas of land means it is acceptable to defecate in the bush and this practice was common among research participants. Toilets were seen as less important particularly for people living in Nyakariba where houses are surrounded by large farms or bushes as expressed by one participant:

Here we do not need toilets because our houses are located far from each other and therefore we have big areas around our houses. I think those living at the centre (of village) or in town need a toilet because they do not have area around their houses (Moshi, adult male, in-depth interview, Nyakariba).

Te empirical examples discussed in this section demonstrate that the ways in which people dislike judgments about their health-related behaviour and do not like to be in conflict or seen as 'different'. In these contexts people tend to continue with behaviour based on traditional beliefs and practices in order to maintain their togetherness. The next two sections discuss circumstances under which this unity breaks down, and tensions and conflicts come to the fore, both between villagers and health facilitators, and within village communities themselves.

7.2.3 Conflict with health facilitators

In efforts to reduce or eliminate environment-related diseases, health facilitators (health professionals and other facilitators) have attempted to encourage villagers to change their health-related behaviours. However, such efforts have sometimes resulted in conflicts over competing interests or values. Important reasons behind these conflicts between villagers and health professionals include competence and consensual values (Johnson, 1999). This assumes that villagers consider facilitators as having the expertise and capacity required for the mitigation of health risks and that facilitators are open, honest and acting in their (citizens') interest or be perceived as holding the same values (Freudenburg 1993, 2001). Lack of confidence and consensual values can make citizens sceptical of experts' or authority's advice

(Freudenburg, 2001) such as those related to health. In this way the Government and other development partners may be seen as secret agents with hidden agendas (Hedges 1999) and thus when health professionals come to the village with messages encouraging people to change their behaviour these are likely to fail. More recent literature suggests lack of trust is still an issue that hinders the realisation of expected success (Mubyazi *et al*, 2007).

In this section I will discuss how relationships between villagers and health facilitators (health professionals and village leaders) influence villagers' reactions to health messages and how such messages may lead to misunderstandings that can contribute to an increase in their vulnerability to diseases. Such misunderstandings, as Rowe and Right (2001) suggest, can themselves lead to scepticism about experts' abilities, and a loss of credibility where people then view 'expert' as a title conferred on those who hold particular roles rather than on the basis of their knowledge of health and disease. The focus will be how individuals strive to maintain their social values by challenging the roles of health intermediaries.

Related to the issue of conflict is the problem of health professionals having two roles: one role is to promote healthy practices, and the other is to supervise and punish people who do not adopt the changes recommended by the government. Similarly, villagers in Kumnazi and Nyakariba sub-villages reported that public health professionals are also responsible for blaming people for their unhygienic conditions and behaviours, and for carrying out inspections of environmental health conditions. Health professionals carry out at least annual inspections, with, as discussed in Chapter 6, a focus on the ownership, condition and use of toilets. Other

issues included in the inspection are ownership of garbage pits and racks for drying dishes. In areas like Kumnazi where people live closer together, villagers are advised to dig their own garbage pits near to their houses where they can throw all household waste. When the pits are full, people are expected to dig a new one and cover the old pit with soil. In addition villagers are also advised by health professionals to make their own dish racks for drying dishes. Because of existing dish-washing practices, however, villagers felt the racks to be unnecessary. Their practice is to wash their dishes just before serving their meals and thus there was not felt to be a need to dry dishes on the racks. This is explained as 'their habit' and thus, from the villagers' perspective, there is little understanding of the health reason behind washing dishes when they are used and then allowing them to dry before their next use. Villagers also explained the underlying meaning or reasons for other aspects of their health-related risk behaviour. A further example where 'official' public health advice was ignored is the behaviour towards the disposal of child stools. I learned during the fieldwork that individuals seemed indifferent to child stools being scattered outside around their households. However, they seemed to act differently if they knew that a health professional or Government official was going to visit the village. When I walked around the village, it was very common to encounter child stools scattered around the houses. Some people, when they noticed me walking around, thought I was a government official and they tried to collect the stools and throw them in a pit latrine or on the fields around their houses. It seemed that some people were initially afraid of me, and even went further giving excuses for the situation saying '*oh, this has just happened ... I have just come back*', to show that they are concerned but had not had enough time to clean the area around their houses.

When public health professionals carry out inspections in the villages they are normally accompanied by local leaders (*chairperson, balozi* and secretary) and local security officers (employed by the village). The condition of a toilet is supposed to be such that it has a floor which can be easily cleaned, a roof, and walls on four sides to ensure privacy. In addition, since the toilets are pit latrines, a pit cover is also encouraged. Several participants told me that villagers who do not have toilets or whose toilets are in poor condition as judged by inspectors, are normally penalized. The penalty fee is Tsh.10,000/- (£4) and owners can be taken to the police station for further action if they fail to pay the fee. Such punishments were discussed in the focus groups, and it transpired that it is common for people to pay the penalty many times. Participants also stated that it was possible to 'bribe' the officials and to pay less. It appeared that the main issue for my participants was how high the fine was, and how often they had to pay, rather than accepting that if they followed the health messages they would be healthier.

In this situation, then, villagers appear to see the role of health professionals within the community more as inspectors. It was reported that on the days of inspections some people ran away to avoid the penalty as expressed by the following man:

> *Sometimes when inspectors come to check our houses, we close houses and run away because we do not have toilets. You know, if you do not have a toilet, they tell you to pay a fine or else you will be arrested and sent to court (Masanzu, male, Indepth interview, Kumnazi).*

In addition, there are tensions between local leaders and members of the community as they, the local leaders, are seen to collaborate with health inspectors in penalizing villagers. This collaboration between health professionals and local leaders then makes it difficult for villagers to trust them and take up the health messages. In this way villagers find changes in their behaviour to be problematic and, instead, they retain traditional behaviours which potentially exacerbate their vulnerability to disease. From the perspective of the village leaders, they are often invited by the local district council in Ngara to attend health seminars with the expectation that they will be able to convene meetings in their respective villages and share health information with community members. However, the local leaders described how they find it difficultto convene such meetings with villagers because people do not want to attend and how this can generate ill-feeling, as illustrated by one participant:

> *Here, it is very hard to convene a meeting to discuss health issues. Everyone here pretends to know everything and then if you want to take action against them, they see you as a very bad person (Kabonge, village leader, Kumnazi)*

Villagers supported this view that they do not like attending meetings convened by village leaders, adding that this is because they do not feel it will benefit them. Villagers question why they are not paid to attend local meetings while their village leaders are paid when they are called to attend the seminars at the council. Therefore, villagers are more interested in the pay than in obtaining knowledge about health. They further added that village leaders benefit more from convening local meetings because they write reports which, when sent to the local councils, lead to more invitations to attend seminars where they are again paid. Thus, again it is the issue

of payment that is most important to them and their relationship with village leaders. They appear less interested in the possibility of learning about health and ways to stay healthy.

Villagers also revealed that they provide different responses to health professionals depending on how they perceive the purpose of the visit. First, if the health professional is there to gain data and knowledge about their community, then they tend to respond positively:

> *… when experts {health professionals} come to our village we give them positive answers so that they can get something to write about. But we are telling you the truth because you wanted to know about the real problems about our behaviour (Magadi, adult man, Interview, Kumnazi).*

The 'truth' implied by this man is a reference to how villagers might know the requisite health-related information but that they have not changed their behaviours in the light of this information; instead they retain their traditional beliefs but do not want to admit this to the 'experts'.

Secondly, as previously stated, there is a tendency for officials to blame people for their ignorance about 'appropriate' hygiene and sanitation practices. If the health professional is providing an assessment for the provision of health services or education, villagers respond in such a way as to convey ignorance in order that they can subsequently be provided with appropriate health services, including information and education. For example, the following response indicates how the community

prepares itself for such an attitude: they are told the purpose of the visit and then try to show that they know very little. They collude with what they see as the purpose of the visit (to provide 'evidence' for services) and respond as though they are ignorant even though they might know much more than they demonstrate:

> *When experts come in the village to interview people during preparation of a new project, for example on health education, many people like to impress them by showing big knowledge gap. Normally our village leaders tell us in advance the purposes of different officials who visit our village (Magadi, adult man, Interview, Kumnazi).*

In a third situation, if the health professionals are carrying out an assessment in order to punish villagers, as in the inspections, they, the villagers, try to show how competent they are in hygiene and sanitation so as to avoid the fine, or if they have to pay the fine, then just to accept it. They show little sense of seeing the fine as an incentive to change their behaviour:

> *You know when we are interviewed by health inspectors we give them answers that show that we understand and follow properly the hygiene and sanitation practices as recommended by the experts themselves (Kasisi, adult woman, FGD, Kumnazi).*

The most important issue, therefore, is not health, but who is being paid. Villagers do not feel the need to cooperate with facilitators, they do it for money. The health

messages appear unimportant and individuals may not be motivated to follow instructions given to avoid health risks.

Villagers showed that sharing of health messages sometimes results in stigma. The concept of stigma denotes the process by which a person is marked, typically by a personal characteristic, as generally undesirable in the view of the observer (Slovic *et al.*, 1999). It is a concept that has been extended further to include places and their inhabitants (Bush *et al.*, 2001; Gregory and Satterfield, 2002). According to Becker (1963), deviance (the basis of stigma) is created by society and causes of deviance are located in the social situation of the deviant, or the social factors, which prompted the action. This implies that social groups create labels which, when applied to particular individuals, make them appear deviant or 'outsiders'. Therefore, the deviant is the one whose behaviours have been successfully given an unacceptable social label.

According to the empirical results, villagers have a tendency to assign labels to individuals or groups according to a community perception of hygiene standards. For example villagers consider those who seem to follow health messages about hygiene and sanitation at an 'acceptable' level as 'civilized' and those who do not, 'uncivilized' (primitive, dirty and uneducated). Therefore when health messages produce the 'uncivilised' label this results in resentment causing conflicts between individuals when one tries to advise another about hygiene and sanitation. In addition the 'uncivilised' label also depicts a low degree of social status and in this way health messages can produce social tensions that may impair social relationships

and, as a consequence, increase the vulnerability of stigmatised individuals to diseases (Link and Phelan, 2002).

Generally most villagers seemed uninterested in issues related to hygiene and sanitation. However there were limits to the toleration of dirt, and beyond that some socially corrective measures are instituted. Thus, when sanitary and hygiene conditions become severely challenged, especially for households with many children, mothers of the households are generally regarded as *wachafu* (dirty). Others use the expression *simenti* (cement), in these cases referring to the presence of hard dried faecal matter which can be used for construction purposes as expressed in the following quotation:

> *...when there is a lot of faeces, we say "go to that house to see simenti" (cement)... here some women are very dirty do not care for their houses. They cause a very big shame to their husbands (Magdalena, adult woman, FGDs, Nyakariba).*

Similarly, individuals who normally wear 'dirty' clothes and produce 'bad' smells as they only occasionally take a bath are nicknamed *nganganile*. Participants commented on how *nganganile* is used as an expression to annoy others, and this sometimes resulted in fights amongst people when they are insulted in that way as they feel humiliated. It was also noted that individuals sometimes use sarcastic expressions to mock others. For example, one woman commented on how villagers made jokes about a woman who gives off a 'bad' smell when she is breast-feeding by saying *ananukia pafyumu nzuri* (she gives off a smell of a nice perfume). In

contrast to the previous observation that the 'uncivilised' label (dirtiness) leads to stigma that contributes to increased vulnerability, this woman further commented that making jokes helps to "correct" extreme 'dirtiness' and consequently improve hygiene within the community.

7.2.4 Conflicts between ethnic groups

Ethnic social differences within the community seemed to affect social cohesion. Nyakariba and Kumnazi sub-villages contain a diversity of ethnic groups, with Hangaza, Nyambo and Ha tribes being the most common. According to the research participants, Nyambo was the first group to inhabit Kasulo village where most settled in Kumnazi sub-village. The Ha and Hangaza subsequently migrated to the village in search of good agricultural land where the majority settled in Nyakariba sub-village. However, following the immigration of refugees into the village many people, especially the Hangaza, moved to Kumnazi for security following concerns about refugees. This movement triggered rivalry between immigrants (Ha and Hangaza tribes) and native inhabitants, the Nyambo, as illustrated by one participant:

> *You know those people who came here first call themselves Nyambo tribe [from Karagwe district] but their origin is Himba tribe [from Biharamulo district]… we came to this area because we were looking for land for agriculture. The difference between Ha and Hangaza tribes [on one side] and Nyambo tribe [on the other side] was very intense in the past … The Nyambo unsuccessfully tried to find out all means of trying to chase away the immigrants [Ha and Hangaza] and sometimes they were attempting to*

forcefully steal the immigrants' goats (Mwasi, Hangaza, an old woman interview, Kumnazi).

Social conflict between Nyambo and other tribes is still a facet of community life. Through interactions with research participants it transpired that differences in social status existed where other tribes, particularly the Hangaza, consider the Nyambo to be less educated and uncivilized, primitive people who are influenced by witchcraft beliefs. A Hangaza woman spoke of how the Nyambo feel marginalized and try to do things in the community that could prove their superiority, for example vying for political leadership:

There are two groups, Nyabuhimba [Nyambo] and immigrants [other tribes] ... Nyabuhimba tribe is dirty and uncivilized because they are not educated. That is why you find that they like to fight even for minor things. They feel inferior and think that we undermine them. Therefore they are always trying to show their superiority ... For example they have been strongly vying to take political leaderships in order to influence over other tribes. Sometimes they even bring very sick people to a polling station so that they can win the election (Maria, woman, interview, Kumnazi).

This conflict between Nyambo and other tribes has led to poor unity and support, making communal resilience more difficult. The groups have occupied different spaces within the sub-villages. One research participant expressed how the Nyambo mostly occupy Nyakariba sub-village and the periphery of Kumnazi sub-village, while most of the Hangaza predominate in Kumnazi:

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It is very difficult for us to cope traditionally with the Nyabuhimba because we have different norms. These social differences have made these groups reside in separate places. For example you cannot find the Nyabuhimba in Nyakariba. Here in Kumnazi because we found them here, some are still here but others have moved further into the forest. But also around Kumnazi centre you find the Nyabuhimba only (Maziku, adult man, interview, Kumnazi).

This man states that the two tribes have 'different norms', including those related to health behaviours. My observation is that the social norms of the tribes are similar, but the important point is that they feel they are different and this makes social cohesion more difficult. Therefore lack of cultural tolerance among these groups may weaken social cohesion and seems to lead to difficulties in ensuring good cooperation from villagers in relation to health campaigns. However, research participants also reported that some efforts have been made to resolve or alleviate the social differences among the groups:

Now at least the situation is becoming better. During that time, my neighbour who is now our cell leader was a very troublesome man. We decided to elect him to lead us so that we can get peace with them. At least that has helped to calm the situation to some extent (Mwasi, Hangaza woman, Interview, Kumnazi).

Until now I have been discussing the conflict between different ethnic groups within the host community. However, as discussed earlier in the thesis, there have also been conflicts between the ethnic groups of the host community and the refugees that have come to live in Ngara. The refugees have a separate identity (Grove *et al*, 2006) by virtue of them being refugees and coming to the area recently. Although they are different ethnic groups, this is less important than the idea of their being from another country and moving into this area as a result of violence in their home country. The host tribes then come together with a joint 'identity' as long standing inhabitants, and try to exclude the newer refugee. Kumnazi and Nyakariba sub-villages are located close to the former refugee camps of Lukole A and B, and Kitali which hosted about 160,000 refugees from Burundi (personal communication with Concern Worldwide, Water Engineer). In general, refugees from Burundi stayed in Ngara for about 14 years (1994 to 2008) and their population varied with time as some were returning home as the security situation in Burundi was stabilizing. There were friendships, inter-marriages, and general exchange of goods and services. It was reported, however, that 'host' villagers generally saw refugees who were living in the camps as dirty and poor. Thus, many villagers used them as cheap labour, hiring them for tilling their farms. The refugees also sold to local communities some of the goods they received from humanitarian agencies such as food items, blankets and bednets.

It was learnt that during that time, interactions with refugees influenced the behaviour of people towards diseases. According to the research participants, the influx of refugees was perceived to be associated with an increased prevalence of diseases. For example, the prevalence of diarrhoeal diseases and malaria was perceived to be very high because of interactions with people in the camps and that

health within the camps was worse than that of the host community because of hygiene standards, as illustrated in the following quotation:

… there were more people and diseases in the camps because Burundians were very dirty (Mashaka, old man, FGD, Kumnazi).

Generally then, people regarded refugees as dirty, uncivilized people with low status. Some situations arose whereby people who closely befriended refugees were themselves socially segregated, as illustrated by one participant:

The refugees were very primitive and their children were walking around with faeces. They were not good people as they used to invade and steal from our houses. People (in the village) tried to keep a distance from some of their friends in the community who befriended the refugees (Banduka, adult man, In-depth interview, Kumnazi).

These feelings of superiority over the refugees seem to influence villagers' perceptions and actions towards diseases or illnesses as they seem to feel that their cultural practices are more appropriate. It was learnt that the Hangaza's sense of superiority over other local tribes made them unwilling to participate in hygiene and sanitation training as illustrated by one participant:

Do you think people can listen to you when you tell them about hygiene? No, thank you. Here, everybody is clever; they know 'everything'. However, people do not like to argue openly against facilitators, as they are afraid of

government punishment. We see them just wasting our time (Majoto, adult

man, FGD, Kumnazi).

This quotation also shows that people feel that they do know and understand about health – at least from their perspective. Again, we can see that they do not value the information given by the health professionals but see them instead as playing their role just for the salary. At the same time, they do not want to 'argue' or have a bad relationship with the professionals; so they 'listen' but do not take the advice of health professionals or other officials seriously. Thus their response is creatively coined in order to maintain their values, rather than acting on health information.

The findings also uncover how villagers can feel humiliated when compared with refugees. For example standard five primary school children in Kumnazi expressed how they feel bad when they are called refugees by their school mates. Because of an inadequate number of classrooms, standard five take half of their lessons in the Anglican church hall located about 100m away from the school. When they come back to school, their schoolmates call them refugees and welcome them 'home' like refugees coming back to their original country. The standard five children expressed the psychological stresses they experience which consequently affect their studies:

Our friends call us refugees when we go back to school. We have told our

teachers how this situation affects us and teachers sometimes punish them.

Sometimes some people do not like to come to school. You know refugees

were very dirty and poor, therefore this is not a good word (Maneno, male,

informal discussion, Kumnazi primary school).

It is clearly seen that a sense of superiority cuts across different age groups (children to adults). The psychological stress experienced by children may result in increased vulnerability to diseases with Link and Phelan (2001) arguing that stress associated with stigma can worsen the clinical course of an illness thus increasing an individual's vulnerability and may also affect their ability to work or lead a normal social life.

7. 3 Social capital and resilience to health risks

In this section I will explore how social capital can play an implicit or explicit role in buffering the impact of illness. Social capital is accrued by virtue of individuals' participation in group interactions and individuals' ability to draw potential support when required according to the group's arrangements. A well established system of social support in the community decreases villagers' vulnerability to the impact of diseases and hence community resilience is improved. In this section I will mainly focus on the positive aspects of social capital on reducing vulnerability to ill-health and consequently improving resilience. This section begins with a discussion of coping strategies and resilience; it then goes on to discuss social groups and their benefits and finally it discusses the dynamics of different features of the groups which facilitate or inhibit the release of social support or capital.

An important characteristic of resilience is the ability of individuals to cope with external influences or stresses (Adger, 2000). Resilience was first introduced by Holling (1973) to describe the nature of the sustainability of ecological systems. In his seminal paper, he defines resilience as a "measure of the persistence of systems

and of their ability to absorb change and disturbance and still maintain the same relationships between populations or state variables" (Holling 1973:14). Since then, resilience has been redefined and extended in its application not only in the ecological field but also in the social sciences and humanities. In general, resilience can be seen as a perspective to explore the capacities of citizens to creatively respond to significant social constraints such as environment-related health risks.

Having discussed social capital and vulnerability (Section 7.2), this section deals with the role of social capital or social relationships in reducing risks of diseases including environment-related diseases. In that connection, this section explores how villagers cope with or manage diseases, how social groups or relationships provide direct or indirect support in management of health-related problems, and finally the role of social sanctions and norms in mediating social behaviour which consequently contribute to maintenance of beneficial social relationships as well as the modification of risky behaviours.

7.3.1 Coping and management of diseases

My findings reveal how villagers adopt a range of responses as a disease progresses from the time of onset. Different stages of responses were noted which include palliative or no action, use of traditional medicine, self-treatment, and seeking of medical advice. Villagers' responses to diseases or illnesses merge traditional and biomedical approaches such that the responses demonstrate syncretic models that may deviate considerably from appropriate medical approaches (Muela *et al*, 2002). In the early stages of onset of a disease, where clinical symptoms are apparent, villagers normally do nothing and wait for a day or two to assess the progress of the

disease. In addition, there may be some palliative care such as sponging children to lower feverish conditions. If the person who is ill appears to get some relief, then no other intervention is felt necessary. When participants were asked why they don't seek medical treatment earlier, some responded in terms of how ill-health is simply part of everyday life. This notion supports ideas discussed by others about ill-health being just part of life (Smith and Easterlow 2005; Philo, 2007).

> *We cannot use medicine any time you do not feel well, because for us as farmers that is common ... sometimes that could be tiredness. If you would like to take medicine every time you feel weak, then you may be taking medicines everyday .... because our work is very hard even our living conditions are not good (Mapolu, adult male, FGD, Nyakariba)*

As a disease progresses, individuals explained how they start to use traditional medicines which are available for conditions such as malaria and diarrhoeal diseases. Most people identified malaria through three important signs: increase in body temperature (fever), loss of appetite and general body malaise. Several participants mentioned that they use leaves of the plants called '*mubilizi*' to treat malaria, as explained by one villager:

> *Malaria is not a problem here in our village, because if you fall sick you use 'mubilizi'. 'Mubilizi' is our redeemer, it helps us a lot since we do not have enough money to go to hospital every time we fall sick (Kantalamba, adult man, FGD, Kumnazi).*

Participants also explained that there were a lot of traditional medicines for treatment of diarrhoeal diseases, with different medicine for the treatment of "normal" diarrhoeal diseases (without blood) and those with blood (dysentery). Many expressed a sense of trust in these traditional medicines and some felt that they were more effective than modern, western treatments, as illustrated by one villager:

> *In the past years, an outbreak occurred where people were seriously giving out bloody diarrhoea. Many people who were taken to hospital for treatment died but those who used our traditional medicine survived (Mpoki, adult man, Interview, Kumnazi).*

After about four or five days if a disease persists after using traditional medicine, villagers resort to self-treatment where they buy drugs from local kiosks. When self-treatment fails to lead to an improvement and the disease becomes serious, the patient is taken to a dispensary or hospital, as illustrated by one participant:

> *Yeah, normally we go hospital late when a disease becomes serious. You know, we suffer a lot brother but we have no alternative because we need to save the little money we have for other purposes. We are not employed here in the village therefore our income depends on agriculture where we harvest just once in the year. But generally we find that situation as normal because we are used to it and almost everybody has the same experience (Demani, adult man, FGD, Kumnazi).*

Several villagers reported purchasing ALU® (Artemether Lumefantrine), and

Septrin® (sulphonamide antimicrobial) to treat conditions related to malaria and diarrhoeal diseases, respectively. In general villagers revealed that they do not seriously follow the recommended drug dosage. They reported that normally they buy drugs depending on available cash and stop using the drugs when they feel better. The remaining drugs are then kept for future use:

> *There is no need to continue using drugs when you become well. It is better to keep some for future in case someone falls sick. Then, you have to know that experts say these drugs are harmful when you take them more [the feeling that prolonged taking of drugs is good for health] (Maganga, adult man, Interview, Kumnazi).*

It has been reported that using drugs without following the recommended prescription where villagers practice self-treatment may lead to drug resistance (The National Academies, 2003); this may potentially render the community to become more vulnerable to further diseases.

Despite seeming vulnerable to diseases due to a lack of resources to manage health-related problems, villagers felt less troubled by diseases than may otherwise be expected. It seems that, since many villagers experience similar problems, they have developed a sense of being "resilient". Villagers compare their vulnerability amongst themselves and this situation may appear different to an outsider who might view the villagers as 'more vulnerable', but to themselves they are 'resilient' because everyone is the same, living a similar life, and thus the perceived 'health problems' are not problems but, as discussed above, instead 'just a way of life' for everyone,

that they adjust to:

> *You cannot live as we do because we are used to difficult situations. Our*
> *rural life is different from your urban life – there you 'treat' everything even*
> *water! Ha haa haaa… does water get sick like people? (Kisura, adult man,*
> *FGD, Nyakariba).*

7.3.2 Social groups and support

Social support is a kind of support which an individual receives by virtue of being related to social networks (groupings based on relationships such as family membership, friendship, neighbourhood or community contacts) (Rolfe, 2006). Social support seems to be related to the extent of integration of individuals within a web of supportive relationships (density of supportive networks) or the degree to which individuals are identified within the supportive groups of the community or individuals' cohesiveness in the web of supportive relationships. Social support is one of the most common strategies that poor populations like those in rural areas use to manage social problems including health (Kawachi *et al,* 2008). Through association with other people or organizations within or outside their own community, individuals can draw on resources required to meet their different life needs including demands for improving health.

In this section I will discuss various kinds of social support (outcomes) that individuals derive out of social interactions or their involvements in social groups. I will then go on to discuss important dimensions (processes) of social capital that facilitate the 'release' of social support to individuals within social groups. The

findings of this research showed different forms of support that social groups extend to their members including material support, financial support and emotional support as well as sharing information about solving problems. Material support refers to materials that an individual receives in order to meet a demand which could otherwise be difficult for them to address as a single individual. Material support included assistance through means of transport during illness and supply of foodstuffs during burial ceremonies. With regard to financial support this included direct monetary support from friends and relatives, and loans provided under mutual agreement without written support. In the case of emotional support this included visiting people during illnesses and consolation of bereaved family members following a death. Each of these forms of support will now be considered in turn in more detail although it is important to note that there is considerable overlap between these different forms of health related support.

Many research participants indicated the importance of offering transport to a sick person as illustrated in the following two quotations:

> *We are all poor, therefore everyone has to bear the costs of treatments. The only support we give when a person gets sick is transport. Normally, we put a patient on a stretcher and rush him to our dispensary. This is the support from the community the patient can receive (Madadi, adult man, FGD, Kumnazi).*

> *When a person becomes seriously sick normally then even four people carry him on a stretcher or bicycle to a "hospital" (dispensary) (Didas, adult man,*

FGD, Nyakariba).

In more serious cases where transport to a referral hospital is needed relatives or friends may contribute financially to the cost of hiring a car. However, in most cases the patients or their families borrow money for transport from wealthier people in the community:

> *When a person is required to be sent to hospital in Ngara, then he himself or his family has to pay. But in most cases people borrow money from others. We are not the same here in Kumnazi because some people are rich (Tausi, a woman, FGD, Kumnazi).*

It was learnt that in some cases lending of money is done based on trust without a written contractual agreement. In this case money is lent with a belief that the sick person will pay back the loan after recovery. Sometimes conditions were set under which collateral, such as livestock or a bicycle, was required before receiving the loan. Some respondents reported a declining level of trust among villagers which impacted on the lending of cash as illustrated in the following quotation:

> *Life is not the same as it used to be in the past where people were living as very big family supporting each other. Nowadays, when you get problems you have to borrow money from rich people who ask you to leave a collateral. You know, if you are very poor without a goat or house plot, no one can lend you money. They say, how are you going to pay it back? (Kasuku, male, Interview, Nyakariba)*

Many participants reported how paying back a loan was not restricted to cash but sometimes took other forms such as piecework, food crops or exchange with a farming plot. Ill-health may therefore lead to an individual's loss of assets in trying to cope with illness.

Another important way in which individuals within the village draw on support for health was sharing of information about treatment of diseases particularly with regard to use of traditional medicines. The social context in which diseases can occur influences health seeking behaviour and participants preferred traditional medicines to more 'modern' 'scientific' treatments. Treatment was related not only to how individuals diagnose causes and severity of the illness based on their experiences but also to the financial capacity to meet required medical expenses as illustrated in the following quotation:

> *Some people when [they] fall sick rush to a hospital where they are given medicines that cannot cure. But at the end of the day, they come back home and start using traditional medicines which finally help to treat their problems.. Therefore, why should you waste your money by rushing to hospital before trying to use traditional medicines? It is not surprising to find that even the 1000Tsh that he pays to the hospital was borrowed from someone else (Kalulu, oldman, FGD, Kumnazi).*

Respondents reported how, within the community, individuals have different knowledges and experiences of diagnosis and treatment of diseases. Diagnosis is

based on clinical manifestations, and different causes were outlined such as animate (mosquitoes and tse-tse flies), inanimate (food and water) and bad spirits. It was also learnt that the course of the clinical manifestations influenced interpretation of the causes of diseases consequently determining the choice of treatment as illustrated in the following quotation:

You have to know what causes diseases before you decide which traditional medicine to use. If you do not understand you can seek advice from other people who could be knowledgeable about it. This is because we come from different families and areas and therefore we do not have the same understanding. For example there are complex diseases which occur very quickly which need exceptional revelation by gifted people to intervene because hospital and traditional treatment cannot help (Masanzu, Adult man, FGD, Kumnazi).

It was learnt that per-acute (sudden) or chronic cases were frequently related to witchcraft or bad spirits. In such cases gifted traditional healers or church leaders who are believed to possess powers to cast out bad spirits are consulted. Although some individuals reported that beliefs grounded in superstitions are declining, they are still common among the Hangaza as illustrated by the following participant:

There are some diseases which are caused by natural forces or "watalam[1]' (witches) therefore even doctors at the hospital cannot see a disease. Therefore to treat such diseases you need other 'watalam[2]' who can be able

to see and treat the disease (Gwaga, adultman, FGD, Kumnazi).

Note: Watalam literally means experts but in context "watalam[1]" and 'watalam[2]' refer to witches and witchdoctors, respectively.

There was a diversity of knowledge of traditional medicines and diagnosis of diseases among participants. Knowledge of traditional medicines is mostly acquired through vertical transmission (e.g. parents to children) and horizontal (e.g. sharing with fellow residents):

We have traditional medicines for all conditions of diseases. If you do not know a good medicine then you can ask help from your friend since we do not have the same knowledge (Bushoke, Adult man, FGD, Kumnazi).

Some respondents commented on how it is common for people to combine treatments such as traditional medicine, hospital treatments and magical healing (casting out of bad spirits) and that relatives or friends may bring a witch doctor to hospital to carry out casting of the spirits as illustrated in the following quotation:

It is common that some people give traditional medicines to their patient who is hospitalized or they can take a witch doctor with them to hospital in order to cast out the spirits. They normally do it secretly because doctors in hospitals do not entertain and strictly prohibit anyone to do that (Masue, adult man, FGD, Nyakariba).

When a condition is long-lasting many villagers referred to how they normally bring the patient back home where they seek the advice of traditional healers. Participants commented on how some traditional healers do not charge a specific 'rate' for their services but instead ask for a 'donation':

> *When we find our patient does not get better at the hospital, we opt to send the patient to traditional healers as some diseases cannot be treated at hospital. Some traditional healers do not charge for their services, but they ask you to contribute anything at any time to show your appreciation. Actually, these people are very helpful and many people in our community seek their medical advice (Malue, adult man, FGD, Kumnazi).*

This provision of a service without a demand for cash provides an important aspect of social capital as individuals are assured of getting a service whenever they need. Having trust in such a treatment protocol seems to have a positive effect on psychological well-being which, arguably, may have a positive effect on physical health as well. Therefore, it seems that the role of traditional healers increases the social support and resilience between villagers as they provide health care freely or with a small donation, and thus are viewed positively by the villagers. They feel that the traditional healers care about them and will provide help when called upon. As was observed, most villagers cannot afford the medical costs associated with regional referral hospitals and therefore alternative treatments such as traditional healers or prayers from religious leaders can become a source of support for their health and well-being as commented by one respondent:

We are poor and we cannot afford medical costs from big hospitals [referral hospital]. Therefore, if there were no traditional healers, many people could be dying every day because of diseases (Majeta, adult man, FGD, Kumnazi).

A few participants commented that when they bring a sick person home, they do not use traditional healers but instead take the patient to church for prayers:

Just imagine you I sent my relative to hospital, they diagnose him but they did not find any disease. He suffered a lot at the hospital, as he did not get any relief. Then I decided to take him back home and he recovered after prayers (Zungumawe, Interview, adult man, Kumnazi).

A further form of support that friends, relatives or other members of the community reflected on is visiting of the patient at home or in hospital in order to provide emotional support. It seems that such visits can have positive psychological effects for the sick person and may potentially contribute to improvement of physical health by influencing physiological mechanisms in the healing process. The practice of visiting a patient seemed very common among individuals as illustrated in the following quotation:

We have limited support to people who fall sick. But what we normally do we visit patients, and you may give them whatever you have. But even if you do not have anything individuals appreciate so much when you go to see them when they are sick (Kayanda, adult man, FGD, Kumnazi).

Social groups facilitate certain actions of individuals (Coleman, 1990). Therefore group membership seems to be an important survival strategy especially among the poor as the effect of their poverty may be distributed among members thus reducing the burden of stresses of life. It seemed that the extent of social support an individual can receive depends on the degree of togetherness (cohesiveness) and the extent to which individuals interact within or outside their bonding social groups. Most social groups comprised individuals of similar social characteristics such as faith-based tribes (Nyambo and Hangaza), specific religions (e.g. Christians and Muslims), and locality ('ubalozi', the lowest administrative unit in the national political hierarchy, and sub-village). The formation of a social group has a purpose which individuals expect to achieve collectively. Based on their primary functions, social groups are represented in various forms (it should be noted that the classification is blurred since the functions of the group go beyond their primary functions). The most important and well-established groups were burial groups purposefully formed to support the bereaved family following the death of a family member. The norms and practices of such social groups are discussed in the following section, Section 7.3.3.

7.3.3 Social norms and sanctions

Social capital entails norms of reciprocity in which individuals are obliged to provide support to one other with the expectation for them to receive similar support from other members. In order to achieve beneficial social relationships, groups institute norms and sanctions, important dimensions of social capital that facilitate cohesiveness of individuals and release of social support. This section will now discuss the norms and sanctions that govern effective operations of social groups.

Social groups in the study area show different norms of reciprocity such as providing appropriate types of contribution, participation in burial services and visiting the patients, which all members are obliged to abide by; failure to do so results in sanctions for such individuals. In this section examples relating to social norms and sanctions are drawn from the burial groups which appeared to provide support for individuals. There were two important social burial groups which were formed in Kumnazi at different times. After formation of the groups individuals elected leaders and discussed how to run the groups. However, it was learnt that most of the norms and sanctions related to running of their groups were adapted from other groups in a nearby community in Karagwe. Most participants mentioned Karagwe as an example of an area where groups have been running successfully for a long time. According to the group norms, individuals were supposed to attend and participate in activities during the burial ceremony such as, for males, collection of firewood, digging of the grave, burying of the body and distribution of food. Women were responsible for cooking and collection of water. Although there is no specific assignment of activities to a particular individual, it is expected that everyone will deliberately devote and commit himself or herself to 'the common cause'.

During the burial people 'monitor' each other's behaviour and activities such that if a person is felt to be avoiding a specific task the situation is noted and subsequently discussed as illustrated in the following quotation:

> *We have our way of evaluation because people can see involvement of everyone during the event. Meetings are always held after burial where we discuss different challenges in order to improve our groups. During this meeting those who do not participate fully are also discussed and warned (Makwela, Nyambo, FGD, Kumnazi).*

Two particularly striking examples were conveyed to me in terms of the importance of sanctions. Participants recounted how one man and his wife, both Government officials, who used to give contributions without participating in burial ceremonies lost a child. Other members of the community came to the man's house, gave their contributions and then went away without helping further with the dead child's burial. The community members were replicating the behaviour of the couple as a form of sanction or punishment. Later the couple pleaded to the leaders of the burial group and sub-village (Kumnazi) officials to forgive them and to ask the community members to facilitate the burial of their child. The couple were asked to provide two *'debe'* (20-litre containers) of local brew and a goat in order that the senior people could discuss their concerns. After fulfilling the conditions, the senior people in the village allowed the couple to participate in burial services and but warned them to observe social norms like other members of the community.

Another villager, a young man, shared his experience of social sanctions when his child died. The villager said his father advised him not join the burial group because the father felt that his son was not old enough. Since the young man was not then a member of the burial group, other villagers did not provide support relating to the child's death. After consulting the burial group officials, the man was 'forgiven' but was required to contribute local brew and goats. He commented on how he was 'lucky' not to be forced to pay the full penalty:

> *I felt so bad because no one came to give me support even my relatives*
> *because I was not a member of the burial group. After paying a fine 'pombe'*

(local brew) and goats, people came to support me in all burial activities.
However, I was very lucky that I got a relief in the fine because my brother
was a leader of the group (Bocha, young man, FGD, Kumnazi).

This relief in payment of a fine is an example of a social network where individuals have links with people who have sufficient influence to release resources. Although the groups seem to have well-defined norms and sanctions which each member has to follow, there are situations in which unequal treatment or favouritism to some of the members occurs, as happened in the case of the young man who paid less penalty. This situation seems to pose a challenge for sustainability and accountability of the group when such events or scenarios prevail within the group. Consequently such situations may contribute to the loss of trust among members towards their leaders and weakening of the group's bond.

The research findings showed that individuals, to a greater or lesser extent, adhere to the norms of the group by avoiding consequences that they will experience should they face a problem. Therefore, groups perform social control and shape individuals according to the desired characteristics of the group. Based on the examples of the influence of burial groups on their members, it seems that appropriate health-related behaviours can be adopted by individuals who are members of the group through persuasion as they are norms of these burial groups. Therefore, in doing so it seems that norms and sanctions of the group could help in adherence to healthy behaviours which could contribute to the efforts of health promotion.

7.4 Conclusion

This chapter has discussed the connections between social relationships and changes in vulnerabilities associated with ill-health. In the previous sections I have discussed the importance of shared values and beliefs, the significance of maintaining group membership, and the role of intermediaries or facilitators (Bruhn 2009) to social relationships. In Section 7.2 I show how maintaining good social relationships is more important to people in the villages, than is their individual health. This leads people to continue with social practices that have a strong cultural meaning, though are risky to health, as well as conforming to behaviour that they know is 'wrong', but to change it would upset their neighbours. Further I show how health messages are often linked to local perceptions of 'modernity' and 'civilization' which can lead to the exclusion and stigmatization of some individuals and groups. This has lead to a decrease in social capital, and an increase in vulnerability of individuals to diseases. In section 7.3 I discussed the importance of social capital in support mechanisms which are useful in coping with illnesses and building social resilience. The section further looked into the role of social groups and interactions in order to ensure support mechanisms to individuals. Finally, the section explored the influence of social norms and sanctions in mediating the release of potential resources to respective individuals.

The chapter shows how an individual's behaviour is subject to the norms in their society. Individuals are obliged to abide by the rules and sanctions of the social groups to which they belong in order to conform to others' expectations and to avoid being isolated. Community norms influence whether or not an individual can practise positive health behaviour and therefore are important to understand in order to

facilitate successful transfer of health-related expert knowledge to vulnerable individuals. In the next chapter I will discuss implications of the research findings for health promotion policy and programmes. The chapter explores opportunities for improving health, for example, through use of social relationships and social capital.

CHAPTER EIGHT

HEALTH RISKS AND COMMUNICATION: IMPLICATIONS FOR POLICY

AND HEALTH PROGRAMMES

8.1 Introduction

People's responses to risk depend not only on the risk itself but also on the effectiveness of risk communication. Effective communication of risk is a necessary component of any public health strategy in order to inform, advise and educate 'the public' to make more considered (and perhaps more informed) decisions (Bennett *et al*, 2010). However, risk communication is a complicated and challenging process because of the ways in which citizens perceive and make sense of the information provided by health 'experts'. As the Health Protection Network (2008) asserts, communication of risk is a difficult undertaking, as it should consider how personal, professional, social, cultural and political elements shape communicators and institutions. In addition, risk perceptions are related to the broader context such as everyday life demands and spatiality (Le Mare *et al*; 2014); perceptions of risks are therefore embedded in people's everyday experiences (Bickerstaff, 2004). From a public health point of view, it seems that the communication of health-related risks, including those related to environment-related diseases, mostly focuses on poverty, vulnerability and 'ignorance' (Blaikie *et al*, 2006; Bickerstaff, 2004).Malaria and diarrhoeal diseases, of central concern to this research, are generally regarded as diseases of poverty, with low-income groups such as rural people living in poverty appearing more vulnerable (Pryer *et al*, 2003).

Mboera *et al* (2007) researching in Tanzania show that socio-economic factors (including poverty) and cultural factors hinder utilisation of health-related messages and hence behavioural changes. The authors noted that adoption of some health interventions requires financial input, therefore poor households or individuals may ignore such interventions as they are likely to deepen their poverty and further increase their vulnerability. In this way, behavioural changes that health professionals expect to occur through promotion of those health interventions may not be realized. Health promotion activities such as those targeted towards improving hygiene and sanitation, and acceptability of technologies such as mosquito bednets are sometimes based on social marketing strategies. Social marketing involves the application of commercial marketing tools and principles aiming at raising awareness and behavioural change through the promotion of public health technology or practice (Minja *et al*, 2001; Schellenberg *et al*, 2001). However, decisions about risks to health are complicated by the fact that they are embedded in the context in which individuals live their lives. Citizens' responses to public health interventions are therefore not straight forward since both personal values and the wider social and cultural environment or context influence their responses to risk information.

In this chapter I link the empirical results of Chapters 6 and 7 in relation to communication of health risks. In so doing I draw on a typology for understanding public perceptions, notably comparative judgment, fatalism and internalization (Bickerstaff *et al*, 2006). Further, based on a framework of social capital, I consider the importance of social relationships for how these relationships shape responses to risk messages. Finally, drawing on Bickerstaff (2004) a thematic analysis based on

agency and power, communication and trust, and place and identity is used to abstract further perceptions of risks to environmental diseases. Regarding agency and power, I draw on different types of power – power with, power within, power to, and power over (Rowlands, 1995) to explain the position of power within the village, and between the villagers and intermediaries regarding health and risk information. Trust is a central element in the communication process and I draw from some significant approaches to communication (Lundgren and McMakin, 2009) to explain the roles of health intermediaries and the public's responses in the risk communication process. Then a discussion on place and identity will reflect on the complexity of the dynamic relationships between risks, places, and identity to risk communication. Most importantly this theme explains how citizens tend to distance health risks from themselves and intentionally avoid public practices so as to protect their cultural practices and identities. The chapter concludes with several suggestions for policy on risk communication that can be useful in communication of risks relating to environmental diseases.

8.2 Understanding risk

Risk is a difficult concept to define due to a lack of consensus of what risk is really is. As anticipation of future events, the 1992 Royal Society report (In Adams: 1995) classifies risk into objective (the expert's view) and subjective (the lay person's understanding). As mentioned in chapter 2, risk has its origin in actuarial science (Adams, 1995) where it was defined based on the probability of an adverse event occurring. For example, in 1983 the Royal Society defined risk 'as the probability that a particular adverse event occurs during a stated period of time, or results from a particular challenge' (in Adams, 1995:8). Risk in that sense obeys statistical theory

based on probabilities. The effects or detriments of risks are also described as expected harm or loss associated with that adverse event such as financial costs, reduced life expectancy, loss of productivity, or loss of life. In a Foucauldian sense risk is used in its sense of disciplining people (Foucault, 1991) and its definitions may be regarded as important dominant discourses that serve to maintain power structures and society, whilst for Beck (1992) risk is a concept of modernity that systemically deals with hazards and insecurities within the modern scientific approach.

As argued by Blaikie *et al* (2004) social science writings on risk take a continuum of epistemological positions ranging from a realist approach to a strong constructionist approach. A realist approach considers risk as a real objective hazard that can be measured independently of social and cultural forces. Strong constructionism considers that nothing is risk in itself but is the product of historically, socially and politically created 'ways of seeing' (Lupton, 1999a:35). In between these two positions is the 'weak constructionist' approach that considers risk as objective reality but mediated through social and cultural forces. In public health a biomedical perspective predominates approaches to deal with risks. This perspective takes a scientific or realist approach that believes risks about diseases are naturally available and exist independently of the people at risk (Bickerstaff, 2004). In this approach attention is directed towards managing diseases only, and less consideration is given to how a social environment or context can shape health programmes. In order to understand how knowledge of health risks is shaped by the social context, my study takes a 'weak constructionist' position where risks are believed to exist, being shaped by social and cultural drivers.

8.2.1 Perceptions of risk

From my data the villagers' perceptions of risk are not only influenced by their individual knowledge; rather these perceptions are subject to broader relationships within the community. As discussed in chapter 6 decisions about risks are social processes that involve consultations with other members within the society, such as relatives, neighbours and friends. Therefore, when illnesses occur villagers seek and receive advice on disease management from families/relatives, friends or other people within the community. The management of illnesses thus becomes the product of personal knowledge and that of other members of the community who are consulted. Sharing of knowledge and experiences helps diagnosis of the illness and suggests ways of managing it. So the sense of risk is collective rather than individual. Villagers showed that they do not have the same understanding of managing specific risks but rather they have diverse knowledge and experiences through their daily interactions. Therefore, knowledge from public health practitioners forms only one kind of knowledge that villagers utilise in the process of making decisions about health risks.

As discussed in chapter 6 the results from this study showed that public perceptions of risks of diseases are complex and are influenced by context specific criteria. In section 6.4 it is discussed how villagers use various knowledges to explain how they feel vulnerable or not vulnerable to disease risks. One such strategy is the comparative strategy which involves individuals comparing their risks of contracting a disease with other people in the community or with animals. Participants felt that they are more resistant to diseases than public health information/programmes suggest; these programmes construct villagers as 'vulnerable'. For example villagers

reflected on hygiene practices such as hand washing to be relatively unimportant because people in the village survive to a mature age without observing such practices. In addition, people made sense of their resistance by comparing themselves with animals that eat dirty things without contracting diseases. Respondents perceived that their life styles make them more resistant as their bodies have adapted to the frequent challenges of diseases. Internalizing risks was another strategy used where people consider risk as normal and manageable and therefore they felt that public health practices are not necessary. For example participants see diarrhoeal diseases and malaria as manageable because they have traditional medicines that they feel are good enough to treat such illnesses when they occur. Finally, some villagers felt diseases to be inevitable within the community and they can do nothing to prevent them, therefore assuming a fatalistic approach.

Villagers therefore use various strategies as ways to protect and maintain their ways of life. This means that they seem to avoid externally imposed 'modernising' ideas (such as improvement of hygiene and sanitation) and therefore challenge them so as to preserve social norms and practices. Other villagers had alternative perceptions, however, especially in relation to sanitation practices which were viewed as a symbol of 'civilisation'. The tendency of villagers to associate hygiene and sanitation practices with those who are educated, those living in urban areas, rich people and even further with white people showed that there was a group of people who appear as a 'model' for modernity. In addition villagers seem to consider this group of people as having better income and being more 'civilised' than the majority of villagers in rural areas. That means higher income appears to be linked with

hygienic practices as it facilitates accessibility to hygiene products such as soaps as the following participants express:

> *Before telling me to wash hands using a piece of soap, you should give me that soap first as I do not have money to buy it (Mkeremi, FGD, Kumnazi)*

> *Actually I do not wash hands using soaps because I am poor. But if I get money and become rich, I will start using soaps (Sangoi, FGD, Kumnazi)*

These results show that individuals may express lack of adherence to hygienic practices as a genuine case of lack of financial capacity to meet the cost of hygiene products. In addition there were other respondents who did not wash their hands as a way of preserving their traditions and avoiding what they saw as 'modernity'. Therefore, understanding various strategies and why they are used may help to design more culturally appropriate health interventions and this is the theme of the next section, Section 8.2.2.

8.2.2 Public health interventions

Health policy frameworks in developing countries have been driven by external donors especially international institutions such as WHO, UNICEF and the World Bank (The World Bank, 2011). Under the influence of such donors, Tanzania has carried out some significant health reforms that aim at improving the health and livelihoods of poor communities. Control of environment-related diseases, notably malaria, through deployment of two primary prevention tools (IRS and ITNs) has been a priority of national and international organisations in malaria endemic areas

in order to facilitate achievement of the Millennium Development Goals (MDGs) (Lengeler *at al*, 2007) and improvement of livelihoods. However, a significant challenge has been people's 'compliance' with proposed tools as malaria control strategies are embedded in biomedical practices and public health perspectives (Dunn *et al*, 2011). These strategies therefore ignore how people's use of interventions such as mosquito bednets are 'embedded in more nuanced and complex socio-cultural dimensions of individual, household and community life' (Dunn et al, 2011:414), assuming instead that disease morbidity and mortality can be 'controlled' by deploying scientifically effective tools.

Environment-related diseases have a significant impact on community development generally as they cause a loss of resources such as labour and incur additional costs for treatment of the diseases that could be spent on productive purposes. In a similar manner, based on the MDGs, Tanzania developed a National Strategy for Growth and Reduction of Poverty (NSGRP) or 'MKUKUTA' which meant to customize development activities such as health interventions to the local context. Poor people are caught in a vicious cycle of poverty and ill health where poverty causes ill-health and ill-health maintains poverty (Chamber, 1983). This means health may have a significant influence on the livelihoods of people (Bloom *et al*, 2001). Ill-health seems to negatively affect economic productivity by causing loss of labour due to sickness and taking care of sick ones as well resources required for health care. Therefore improvement in health could contribute to improvement of livelihoods for citizens as resources that are lost due to illnesses may be directed to livelihood-improving economic activities.

In the control and prevention of malaria and diarrhoeal diseases, external donors or agencies have supported various activities that include diagnosis and treatment of diseases as well as control of disease vectors. Like many lower-income countries, Tanzania has been dependent on external donors to support most of its disease control and prevention programmes. International organizations such as Concern Worldwide and Water Aid in Tanzania have provided support in ensuring supply of water and promotion of hygiene and sanitation facilities and practices in rural areas. Regarding malaria, the United States Presidential Malaria Initiative (PMI) has been instrumental in Tanzania and many developing countries in Africa in promoting preventive activities such as aiming for national coverage of ITNs and strategic IRS applications. There have been 'success stories' from different countries where PMI efforts have shown significant impacts in terms of a reduction in malaria mortality and morbidity and such efforts have been associated with economic improvement (The World Bank, 2011). A significant limitation of World Bank initiatives, however, is that they focus on measuring the financial values committed and coverage of the interventions with little emphasis on the social and cultural dimensions of the initiatives. This approach is thus less likely to support sustainability or the improvement of individuals' livelihoods.

However, significant challenges have been related to the sustainability of interventions such as ITNs and the willingness of people to use them (The World Bank, 2011). Skepticism about sustainability of interventions may occur if public interests and context are not considered effectively (Bennett *et al*, 2010; Dunn *et al,* 2011. Another challenge involved is the effective use of the technology (such as ITNs) and that also affects the sustainability of the intervention. The key concern in

the literature related to use of interventions seems to be lack of involvement of local people in the programme activities (Fischbacher-Smith, 2010)) such that the interventions become less culturally sensitive and appropriate to the local population, as has also been the case in Ngara district because the perceptions of villagers challenged the technical solutions. For example, ITNs and IRS seemed to be less preferable to repellent plants because the latter seem to offer more benefits, both related and unrelated to health: through their medicinal properties (cough expectorant), aesthetic values (ornamental plants) and animal feed (for goats). In addition, unlike ITNs and IRS citizens are more familiar with the plants since they occur naturally in their area. Therefore, the less common ITNs and IRS seem to face the challenge of being negatively perceived because villagers are still uncertain of how they map onto their social and cultural values.

Concern Worldwide project based on the use of repellent plants was based on the notion of developing 'culturally sensitive' and appropriate technologies. Concern Worldwide developed the project with the aim of engaging the villagers in order to stimulate their willingness to participate in the project. However, the project experienced a lack of full adoption of the technology because it seemed from the current research that villagers were not adequately engaged in the project cycle. Personal communication with the research team revealed that the team excluded villagers from participating in research activities as they thought engaging the communities fully would require more time in a way which was beyond the scope of the project. Having this constraint of time, the team decided to establish the plants themselves with the result that villagers were surprised to find them growing around their houses without prior information. In general, then, villagers did not have a

strong stake in participating in the project as the research team themselves performed almost all of the required activities that should have been the responsibility of the villagers such as planting, watering and pruning. Side-stepping the social context in these ways can contribute to a range of local perceptions of technical solutions as discussed in the next section, 8.2.3.

8.2.3 Perceptions of interventions

Villagers' perceptions of public health interventions are related to how they perceive the risk of diseases well as how effective the interventions themselves are perceived to be. Social and cultural norms also play a key role in influencing villagers' perceptions of the interventions. Such perceptions do, of course, vary and in chapter 6this study showed how, for example, some villagers felt a specific disease to be a threat while others, reflecting on the same disease, felt that it posed less of a threat to them as demonstrated through various strategies such as comparative judgment, fatalism, and internalizing risk.

Comparative judgment occurs when vulnerable people compare themselves with other members of the community or use an interpretation of an event to explain the effectiveness of a technical solution. In the process of comparison, villagers try to justify their ways of life by using examples that support their health-related decisions. For example villagers challenged the effectiveness of ITNs because those who sleep under ITNs also suffer from malaria. In a similar manner, their experiences of diseases makes them challenge 'official' public health messages because they see even those who use toilets or those who regularly wash their hands to suffer from diseases. Therefore, villagers perceive specific health practices as not

assuring protection against diseases and they therefore question the value of 'official' public health messages.

Perceptions of interventions are linked to perceptions of health risks because respondents may not consider the interventions relevant if they do not realize the significance of those risks. In addition, it is important with health interventions to know how these interventions support villagers' everyday lives. For example with a fatalistic approach when villagers consider risks to health to be beyond their control, they will not consider public health technologies or practices to be useful in reducing or preventing such risks. In addition, fatalism may be used as a rationale for protecting traditional values. For example in this study villagers use this approach to defend their practice of sharing local brews using straws and containers that are not thoroughly washed after every use because the practice is grounded in traditional norms. It is therefore important for health promotion policy to contextualize the meaning of their fatalistic practices or beliefs in order to realize effective ways to promote health interventions.

Internalizing of disease risk can have implications for interventions because people may not find diseases a serious threat to their health and wellbeing. Internalizing disease risk differs from fatalism because in the process of internalizing people do not find themselves powerless to control diseases but rather they see them as naturally occurring problems which do not necessarily needto be prevented. In comparison, a fatalistic strategy entails people feeling overwhelmed by diseases and giving up any effort to avert the situation. It is important for health policy to understand and appropriately to try to address the complexity associated with

interactions between 'official' health-related messages and corresponding 'local' knowledge. Villagers have their own way of understanding health-related risks that may differ from the 'official' public health messages. It is therefore important for health policy to be designed such that it is people-centred – strategically integrating 'local' values - in order to facilitate successful implementation of that policy.

Where villagers have long-term experience of specific types of illness they draw on their knowledge of how to manage those illnesses based on what they believe to be thecauses. When a 'new' disease emerges villagers are more concerned since they have no such experience to draw on. A similar situation arises when a new health technology is introduced: villagers' lack of experience and familiarity raises concerns amongst them. It has been shown here how IRS has been an unpopular intervention in the study villages as compared to ITNs and repellent plants. Although repellent plants were a 'new' intervention, the plants themselves were already known to people and this contributed to their general acceptability. However, acceptance of the plants was not necessarily, or solely, rooted in the idea that villagers felt them to be effective in preventing mosquitoes from entering their houses, but the aesthetic and ornamental value of the plants was felt to be important.

Villagers' experiences and wealth of knowledge about specific illnesses enable them to develop their own ways of managing those illnesses and associated risks. The tendency of public health interventions to focus on diseases de-emphasises the importance of the social and cultural contexts that contribute significantly to the limited success of efforts to manage those diseases. It is a common tenet of conventional public health promotion activities that villagers are assumed to think

rationally and independently of others and their environment in which they interact (Bickerstaff *et al*, 2004). This assumes that health information will help the recipients of that information to make individually informed decisions about their health. That is to say, people's social environment does not play a significant role in influencing people's health related behaviours and health practices. Villagers 'perceptions of the interventions as expressed in various ways – comparative, fatalism, and internalizing – provide an important insight to health experts and policy makers to consider how contextual factors shape villagers' orientations to health risks and their interventions and to acquire a more holistic understanding of human behaviours that may be useful in planning public health interventions. Drawing on Bickerstaff (2003) we can identify three cross-cutting thematic dimensions – agency and power, trust and communication, and place and identity - to further explore villagers' perceptions of risks to health and the interventions of which they are recipients. These three themes form the basis of the following discussion (Section 8.3).

8.3 Thematic analysis

This section explores notions of agency and power; trust and communication; and place and identity in the context of the empirical findings on villagers' perceptions of risks to their health from environmentally related diseases. With regard to agency and power, I will explain how villagers through their strength can respond to health risks and technical solutions so as maintain their health or mitigate health hazards. I will then turn to discuss the role of communicators and information in gaining, or losing, the trust of the recipients of external health interventions. Finally, section

8.3.3 will explore how a sense of place and identity play a role in influencing the perceptions of villagers.

8.3.1 Agency and power

In general, power may be explained as the degree of access to, and control of, resources for an individual or a social group. Drawing on Rowlands (1995) JASS (Just Associates), an international feminist organization, considers power taking four forms: *power over*, *power with*, *power to* and *power within*. Power over is the commonest form of power that involves one dominant group or individual controlling a subordinate group. This form of power manifests itself in negative relationships with people such as repression, force, coercion and discrimination. This power privileges some people and marginalizes others. Unlike power over, other forms of power constitute positive relationships among villagers that facilitate achievement of their goals and, in this instance, of reducing health risks by maintaining health and mitigating health problems when they occur. This subsection on agency and power suggests the use of these forms of power and, therefore, will focus on *power with, power to*, and *power within*.

Power with, as discussed in chapter 7 on social capital, is based on mutual support and cohesiveness and explores the resources available to build collective strength to mitigate health risks. The process combines individual strengths and helps to mitigate health hazards or reduce the severity of the effects that can be caused by these hazards. *Power with* facilitates social support and therefore strives to strengthen social relationships between families, relatives, neighbours, or among unrelated members of the community. The tendency to benefit from being a member

of a social organization makes villagers value social relationships, and informs and supports their desire for extended and larger families so that the scope of social support can be widened. Empirical findings in chapter 7 show how people utilize this power through social groups such as families, friends and local organisations, to derive social, economic and emotional support.

In their everyday lives villagers therefore strive to maintain their togetherness so that they can exploit the resources existing in the web of their relationships. Any attempt or practice that appears to spur conflict, reduce social conformity or weaken social cohesion receives a negative response from villagers as it seems to jeopardise *power with* that helps them to deal with their life challenges. In section 7.2.1 it was shown how villagers preferred to drink their local brews using 'unhygienic' practices because that practice ensured social cohesiveness. In addition, villagers avoided sharing health information with their neighbours because sharing health messages on hygiene and sanitation caused social tensions that might, in the process, undermine social cohesiveness. Furthermore in chapter 6 it was suggested that villagers showed negative responses to bednets as they perceived them to be an overt form of birth control that interferes with their reproduction capacity. This situation can be interpreted as the desire for larger families being useful in ensuring social support as it expands the group size and creates more opportunities for reciprocal social support. These examples emphasise the importance of considering technical interventions or 'solutions' in their socio-cultural settings and of being sensitive to the context in which they are applied or implemented. The explanation above shows how villagers struggle to protect their strength (*power with*) that encourages mutual support and important cohesiveness in mitigating their daily challenges.

Another form of power is the *power to* that refers to the vital potential that individual members of a community possess. It is a collection of various skills, knowledge and abilities that help individuals to accomplish useful actions in their lives. These are resources endowed in villagers or the community that are normally collectively tapped and nurtured for dealing with various challenges. The findings from this study have shown that villagers have the potential to manage health problems through, for example, traditional medicines, traditional healers and religious leaders as well those with special skills such as dealing with snake bite venom, management of fractures and treatment of severe child malnutrition (*nyamagoma*). Traditional healers and religious leaders are believed to possess the power to treat diseases caused by evil spirits. Generally, individual potential or knowledge is collectively shared and villagers do not charge each other for services but instead, after receiving a service, contribute something to the service provider as appreciation. This shows that exploitations of these resources are well facilitated by good social support as explained above by *power with*. It seems to be a common practice for public health programmes to ignore the sense of *power to* resulting in a more 'top-down' approach that consequently contributes to their failure to achieve expected goals.

Finally there is *power within*, the ability to overcome life's daily challenges based on personal knowledge. *Power within* demonstrates an individual's appraisal of self-worth and self-knowledge through critical reflection based on their own knowledge and experience. *Power within* is normally shared among villagers and in their daily interactions can be strengthened by things like spirituality, common sayings and critical reflections as exemplified by the findings of this study with regard to handwashing. Based on spirituality, participants said that washing hands before

eating food was not useful. The villagers defended their practice and explained that the Bible supports their practice because it says what goes inside the human body does not make the person unclean but only that which comes out of it. Important common sayings include that of the *Hangaza* that says '*ibili munda vilaluta*' which means the stomach always contains dirtier materials. This saying encourages villagers not to wash their hands before eating because the materials inside the stomach are even worse. A similar saying can also be encountered in another tribe, the *Nyamwezi*, from the Tabora region in Tanzania which says '*maja munda gaki-mikazi*', meaning what goes in the stomach does not stay there (i.e.it comes out as faecal matter).From the villagers' point of view these idioms justify the notion that washing of hands before eating is an unnecessary practice.

Furthermore *power within* is exemplified through beliefs in the potency of traditional medicines to manage health problems. Many villagers mentioned '*mubiizi*' as an effective traditional medicine to treat malaria as well as several herbs that are used to treat diarrhoeal diseases. When challenged about the efficacy of their traditional medicines, villagers explained that their medicines were effective but admitted that they sometimes failed. However, they clarified how this is unsurprising given that even modern medicines sometimes fail too.

These various forms of power – *power with, power to and power within* – are fundamental to the concept of agency – 'the degree to which individuals have control over their lives' (Rigg, 2007: 24). Therefore for 'experts' or professionals who are implementing externally imposed technical 'solutions', their strategies would benefit from being better designed to enable individuals to consolidate their sense of agency

so that they can take a lead in improving their lives in ways that consequently make the community more resilient.

8.3.2 Trust and communication

In this study risk communication is considered as a social process of information exchange related to biological hazard events (diseases) and technical solutions between intermediaries and a population at risk. The study is designed to understand how the risk communication process can be effectively planned and implemented in order to reduce inherent communication gaps that exist between 'experts' and the villagers or citizens living in rural areas. The process can either be one-way where information transfer is a uni-directional communication from intermediaries to a group of recipients (village residents) or two-way communication which allows sharing of information between communicating parties. In the study area risk communication regarding health tends to be one-way where various intermediaries, including non-governmental organizations (e.g. Concern Worldwide), government health officials, clinical officers and nurses from health centres, local leaders and faith-based leaders (sheikhs and clergies) are involved in transmission of public health information to village citizens. Other modes of one-way risk communication include local and national radio.

Risk communication is not a simple direct process but a complex one which is influenced by a number of social, cultural and political facets, amongst which trust has vital importance. Trust is particularly significant for policy related to risk management as it influences perceptions of risks and helps to ensure effective communication of information about risks and technical solutions (Renn and Levine

1991; Kasperson 1992; Slovic, 1993; Breakwell, 2000).According to the findings from this research two levels of trust can be recognized, namely interpersonal trust and organizational or social trust. Interpersonal trust is related to the relationship between one villager and another while organizational trust is that which exists between intermediaries and the villagers. The findings as discussed in chapter 6 show how villagers had a general lack of trust of government officials. This lack of trust was linked to weak social relationships between health officials and villagers. The findings showed, for example, how health professionals were looked upon as 'inspectors' rather than experts who, on village visits, penalized those villagers who were regarded as having inadequate toilet facilities.

As discussed in chapter 6, several authors assert that recipients' acceptance of information about technical solutions (such as promotion of hygiene, sanitation or bednets) is dependent on the level of trust they invest in the communicators or intermediaries and the information itself (Renn and Levine, 1991, Slovic *et al*, 2000). Risk communicators, then, together with their information, need to be perceived as trustworthy (Peters *et al,* 1997) with no vested interest (Frewer *et al*., 1996), and showing values similar to those at risk (Earle and Cvetkovitch, 1995). Since villagers are significantly influenced by collective decisions towards information about risk, trust can minimize social differences and bring participants together towards achieving their goals. In this sense 'trust links people together who share social identities and/or have a similar understanding of a specific situation, suggesting that trust may be relatively stable where there is a correspondence in attitudes' (Poortinga and Pidgeon, 2005, p208).Social relationships therefore become a crucial consideration in risk communication. The motivation to share

social identities and knowledge can cause the understanding of participants to vary from, or contradict, the technical information imparted by communicators or intermediaries. This can lead to communication failure and a consolidation of the knowledge gap between 'experts' and 'lay people'. A two-way communication process that considers values and expectations of citizens could increase trust, and minimize 'adverse' or 'negative' perceptions that affect the risk communication process.

Risk perception and risk communication are inter-related and interact in complex reciprocal relationships (Höppner, 2010). Risk perception strongly affects the effectiveness of risk communication and in turn risk communication shapes risk perception (Kolkman et al, 2007). Experts' interpretations of publics' risk perceptions can help to guide ways to communicate information about health risks. However, such interpretations do not always consider the deeper understanding of the participants and that ultimately leads to failure to achieve the goals of communication (Parker et al. 2007). Citizens can feel that the intermediaries serve their own interests and do not act in favour of the wider society. This instance is exemplified as seen in chapter 6where villagers did not see the importance of bednets as they did not have trust in government officials. Trust, then, is crucial to communication and risk perception; trust influences how risk is perceived which in turn influences risk communication and vice versa. The interaction of trust, risk perception and risk communication is complex and in attempts to understand this complex interaction several approaches to risk communication have been developed to find strategies that can be used to ensure more effective communication. Although the emphases of these approaches differ, my interest in these approaches is to

analyse the extent to which the concept of trust is explicitly or implicitly addressed in risk communication. Drawing on Lundgren and McMakin (2009) common approaches to risk communication include the mental model, culture and ethnicity, convergence communication, social constructionism, and social trust. These approaches show how social relationships depend on trust for their strength and effective functioning which in turn exert their influence on risk communication. The approaches realize importance social relationships in risk communication and therefore require building of trust so as to reduce 'negative' perceptions of risks or technical solutions.

The mental model approach which applies a one-way communication process attempts to understand which information respondents need to make informed decisions. Critics of this approach are concerned with the conservative nature of objectively differentiating 'lay' judgment from that of 'experts' and the fact that information flow is transmitted uni-directionally from 'experts' to 'lay people' (Plough and Krimsky; Morgan et al. 2001);one-way communication being largely ineffective in the building of trust (Parker et al. 2007). This approach has been common in public health practices such as health promotion and the results have not always been promising since the communication does not consider context. The culture and ethnicity approach explains the importance of culture and ethnicity in risk communication such that 'the public' is not an aggregate entity but comprises sub-cultures with diverse expectations and values (Lindell and Perry, 2004). Since the community is diverse, risk communication strategies would have to be diversified as well to meet the demands of various groups. For example in the study area there were various groups based on ethnicity (such as Ha, Hangaza, and

Nyambo), faith (Christians and Muslims), gender and age. A social network contagion approach explains that communication can be carried out through social networks emphasising that individuals prefer to receive information from people that already interact with them in their daily lives. The present research has shown how villagers in the study area prefer social networks built on trust in which they strive to conform. These networks can therefore potentially be used as communication platforms. Another important approach is the convergence communication approach based on long-term, repetitive risk communication where the values of intermediaries and those of 'the public' affect the process of communication. This approach prefers dialogue rather than a one-off and one-way approach to communication (Höppner *et al*., 2010). This longer duration of contact establishes good social relationships and trust that consequently 'reduces 'negative' perceptions of risks. The social constructionist approach challenges scientists for their dominance of knowledge in the understanding of risks. The approach claims that both scientists and public produce knowledge and subjectivities (such as values, beliefs and emotions) that affect risk assessment (Höppner, 2010). It proposes that there are neither rational nor irrational ways of responding to risk but rather the focus is an understanding of how knowledge and perceptions are shaped by the context in which risks are embedded. The approach also allows two-way dialogic communication and in this way it allows the build-up of trust. Finally, a social trust approach specifically demands the communication process to build social trust because it plays a significant role in behavioural change.

The presence of several models of risk communication points to the complexity of the communication process. However, of key importance is communication as a two-

way process which considers the social context and allows negotiation between the communicators and the recipients (Fischbacher-Smith *et al*, 2010, Höppner*et al*., 2010).

8.3.3 Place and identity

In contrast to the assumptions of external risk communicators, 'the rural community' is not a uniform entity but comprises multiple places and identities. These places and identities play an important role in shaping villagers' perceptions of health related risks. Villagers seem to avoid associating health risks with the places in which they live or with the social groups to which they belong. Rather, villagers show a form of 'distancing' in which health risks are seen as belonging to places in further away locations or settings. Some important 'places' discussed in this research include Kumnazi and Nyakariba sub-villages themselves versus refugee camps, urban versus rural areas, and Kumnazi centre versus the periphery. Since villagers live their lives at various socio-spatial scales that interact in multiple ways, relationships between place and identity with respect to risk perception and communication become complicated. There exists a complex set of dynamics in which respondents express their relationships between place, risk and identity. Empirical results show, for example, that villagers in Kumnazi and Nyakariba sub-villages perceived health risks to be more prevalent in the refugee camps, with perceived health risks being reduced following closure of the camps. At the same time, villagers in Nyakariba saw themselves as less vulnerable to diarrhoeal diseases than were those living in Kumnazi as their houses are spatially dispersed and surrounded by bushes and therefore to them toilet facilities are unimportant. Although some people in Kumnazi seemed to have a fatalistic approach to the potential prevention of diarrhoeal

diseases, as their houses are sited closer together, many felt themselves to be less vulnerable to diarrhoeal diseases than were people living in urban areas; the same feeling is also shared with people in Nyakariba.

Within Kumnazi sub-village there is also a dynamic relating to tribe. Thus villagers living in the centre of the sub-village, mostly Hangaza, see those living at the periphery, predominantly Nyambo, as more vulnerable to diseases because they appear 'less civilized', 'ignorant' and 'dirty'. Complex interactions of places and perceptions of risks therefore have cultural importance where villagers tend to disassociate places with diseases and unhealthy practices to defend their social identities and cultural practices. Villagers are offended by the notion that their 'places' might be linked with dirtiness and diseases as they feel that to be detrimental to their identities. Although in the study area Hangaza, Nyambo, Ha, and Shubi are the most important tribes, there are also other tribes since Tanzania has more than 120 tribes that have distinct identities. It also seems that some tribes are not officially identified because relatively recently, in 2009, in Ngara district, the Shubi were officially recognized as a separate tribe from the Hangaza. Hangaza and Shubi have slight cultural differences and generally each tribe dominates one side of the river Ruvubu with the Hangaza on the north bank and Shubi on the south. It is therefore important for risk communication to understand these nuanced dynamics related to place and identity in order to ensure effective communication of risks and effective implementation of public health promotion interventions.

Table 8.1 summarises the key ideas presented in this thematic analysis with some empirical examples.

Table 8.1 Summary of thematic analysis relating to health risk perceptions, vulnerabilities and coping strategies

Vulnerability and Coping	Perceptions and experiences of the risk
Agency and power	
Gender sensitivity and roles	Women more concerned than men about lack of a toilet (sense of helplessness)
	Construction of a toilet is men's work because it is difficult and expensive
Self-efficacy and disease control	
Sense of vulnerability	Most do not own toilets therefore personal action is futile
	Toilets are not useful as they cannot be used all the time since most of villagers' time is spent on the farm
	Unable to access health services effectively
	Expensive to construct toilets
	Powerlessness: Agencies lack a sense of responsibility for prevention and treatment of health risks, rather they act in their own interests (for example Government and NGOs)
Coping with illnesses	Villagers have a sense of resistance to diseases (adaptation to common illnesses)
	Utilise social capital to encourage community support and assistance in times of illness
	Reliability of traditional medicine
Trust and communication	
Roles of public health professionals	They are not effective in their roles
	Rather considered inspectors than experts
	Only interested in salaries and allowances
Distrust of the communicators	Do not act in favour of public interests (ignore social values and norms)
	Felt to conceal information about interventions (secretive hidden agenda) e.g. bednets and IRS
Uncertainty about effectiveness of intervention or practice	Health problems are inevitable in life, for example living to an old age without observing hygiene and sanitation practices. Use of bednets or toilets does not make someone free from diseases
Place and identity	
Emotional attachment to place	Social and cultural commitment to place: risks are distanced spatially and socially (e.g.Hangaza and Nyambo places; local village and refugee camps)
Influence of 'risky' places	Spoils social identity: a feeling of being stigmatized because someone lives in vulnerable and risky place e.g. refugee camps

8.4 Policy Implications

As stated by Bennett *et al*, 2010: 4) 'there has been progress in understanding various responses to risk and their implications for communication'. The literature shows that there has been significant progressive change in risk communication from approaches that consider 'public misperceptions of risk' as products of ignorance and stupidity to approaches that emphasise a two-way communication process in which 'lay' and 'expert' perspectives inform each other (Bennett *et al*, 2010). The two-way process provides an opportunity to consider health risks, hazards and vulnerability in a broader social and cultural environment in allowing a more holistic understanding and consideration of social values. This is because, more often than not, conventional risk communication approaches consider diseases as natural phenomena ignoring the importance of social and cultural contexts in shaping experiences and reactions of citizens to diseases. A focus on diseases and considering people's understanding as biases or 'misconceptions' constructs people as mere recipients of information from health 'experts'. The two-way approach when used in communication of risk-related messages can help to minimize misunderstandings between 'expert' and 'public' knowledge thus improving the chances of behavior change.

Rose (1997) claims that all knowledge is situated to some extent by the specific circumstances that shape its production. In a similar manner both 'expert' and 'lay' knowledge have traces of the values belonging to the circumstances of their productions. Although it may seem from 'expert' perspectives that 'lay' knowledge is 'illogical' and 'irrational' being reactions out of 'ignorance', 'lay' people from their own perspective challenge 'expert' knowledge in some ways because of the

values that they feel 'expert' knowledge contains. Expert knowledge cannot escape from being socially constructed in some way, because 'experts' are shaped to think in certain ways, notably by the professional training that they receive as part of their work, and at workshops and conferences. Therefore, it seems that there are competing interests between 'experts' and 'lay people' and, in solving disputes, compromise or negotiations based on mutual trust could be useful. Trust, as has already been discussed, is essential because without trust even the most effective of communications could hardly achieve its expected outcomes. Many villagers felt that their views were ignored, and that an 'expert' perspective had more political support than their 'lay' knowledge, with such political support itself conferring a degree of superiority onto 'expert' knowledge. Expert knowledge tends to be held in high regard in Tanzanian institutions, such as government bodies, the police and the legal system, which subsequently reinforces the notion that citizens should abide by expert knowledge. This is an example of *power over* that privileges some and marginalises others (section 8.3.1). Therefore, by holding expert knowledge in high regard citizens' values embedded in 'lay' knowledge are marginalized.

My findings indicate a tendency of 'experts' to impose on citizens their ideas about health related risks, rather than conceiving public health activities as events for knowledge sharing and persuasion. Achievement of mutual trust is thus undermined and consequently there is a 'failure' to absorb the desired message. In chapter 6, I showed, for example, that law enforcement structures such as the police and courts are used in trying to 'make' people follow recommended health practices. This power imbalance resulted in villagers becoming passive; they pretended to listen and follow the instructions but in fact villagers were not interested and showed what can

be termed a 'creative response' (Appendix I).That is to say recipients of risk related information may actively conceal their actual sentiments and opinions and, instead, display behaviours or responses that aim to impress and satisfy the health professionals and intermediaries.

Understanding the importance of context may help us to answer the key question of risk communication, that is, how to translate attitudes into positive health behaviours. In order to ensure effective communication and change of behaviour, building and maintaining of trust between 'experts' and 'lay people' is essential. Recognizing and respecting local knowledge improves citizens' agency and should help to encourage an approach to risk communication which is based on dialogue and negotiation.

Based on the findings of the current research, specific policy recommendations are as follows:

- As risk is understood as a group understanding, not an individual decision, discussions about risks to health should be in group settings leading to collective understandings of those at risk (chapter 6).

- Donors should prioritize a two-way communication process that has to be integrated into all stages of health related projects or programmes (chapter 8).

- Policy-makers and practitioners would benefit from an improved awareness of the strategies employed by local people (comparative judgment, fatalism, and internalizing risk) in order to direct specific policies to each strategy (chapter 6).

- NGOs and government departments could initiate more action research when they implement health interventions. Such research is important as it

improves implementers' strategies, practices and knowledge by considering local values or context (chapter 8).

- Health professionals would benefit from a greater awareness of the social context and be sympathetic to the significance of cultural practices (chapter 6).

- Interventions should be linked to the 'ways of thinking' in the community and to 'the familiar' in their culture, introducing newer ideas later (chapter 7).

- Interventions should as far as possible contribute to *power with*, *power to*, and *power within* the community so that people themselves have the capacity to do things, improving their resilience (chapters 6, 7 and 8).

- Health messages are likely to be received positively within relationships of trust, so interventions should take the necessary time, provide a process of two-way dialogue, and a 'sharing and persuasion approach', rather than a quick top-down approach emphasizing quantification of results (chapters 7 and 8).

8.5 Conclusion

This chapter has discussed the implications of the research findings for the process of risk communication. The chapter discussed various opportunities and barriers experienced in risk communication in public health promotion activities related to environment-related diseases. It started by introducing important themes used in the research notably frameworks in understanding public perceptions and perspectives of understanding risks; perceptions of risks and public strategies used; and public interventions and public perceptions. Based on the empirical findings, three key

themes (agency and power, trust and communication, and place and identity) are used to expound further risk communication and perceptions.

Power is an essential component of the concept of agency – an individual's capacity to influence change – such as control of health-related risks. Power helps to conceptualise agency either negatively *(power over)* or positively (*power within, power to, and power with*). Based on *power over* expert knowledge tends to be held in high regard in Tanzanian institutions such that the communication is one-way and thus the concept of agency is marginalised. However, positive aspects of individuals' power recognize the concept of agency where communication is two-way, more holistic, and which effectively motivates citizens to participate in the change process. 'The community' is not a uniform entity but comprises multiple places and identities. These places and identities play an important role in shaping villagers' perceptions of health related risks. At the heart of this lies the notion of trust, which plays a crucial role in ensuring the effectiveness of the communication.

CHAPTER NINE

CONCLUSION

9.1 Introduction

The meaning of risk has been shown to vary historically. For instance, Lupton (1999) shows that the meaning has changed from relating to an event that is free from human fault and responsibility to the era in which human involvement in causing risk became important. In the pre-modern era risk was related to exclusively natural events and was also associated with probabilities for potential losses or gains. However, in the modern era the meaning has inclined mainly towards negative or undesirable effects of an event. From a bio-medical perspective risk might be thought of as being associated with a hazard, such as a cause of ill health, whereby it refers to the likelihood of the hazard causing harmful effects. Of key importance in defining risk is a potential lack of consensus among citizens, professionals and scientists about the conceptualization of a risk. These different understandings amongst publics and professionals or scientists have led to the development of risk perception research which explores the reasons for such differences. It is along this vein of risk perception that my research developed in order to uncover some of the views, attitudes and beliefs of citizens relating to the ways in which they made sense of their health/ill-health and the external health interventions which were introduced into their communities. A key focus of the work has been on the ways in which such perceptions would render citizens vulnerable to environment-related diseases and build their resilience against such illnesses.

The empirical part of the study was carried out in rural north-west Tanzania, in two sub-villages, Kumnazi and Nyakariba, in Ngara district, situated adjacent to the former refugee camps of Lukole. In 1993/94 the district experienced the arrival of refugees following civil conflicts between the Hutu and Tutsi in the neighbouring countries (Rwanda and Burundi). These conflicts resulted in a historic genocide where the majority from Rwanda and Burundi moved to Ngara district seeking refuge. The presence of a large number of refugees had varied and complex impacts related to the health and wellbeing, vulnerability and resilience of the local population. The research has drawn attention to the nature of these impacts, before and after the establishment of refugee camps as well as the continuing effects following closure of the camps and repatriation of refugees. The study has also shown how host communities re-organise and re-establish a sense of community after the majority of refugees have left.

Funding for the study was provided both by Concern Worldwide, through a partnership with Ifakara Health Institute (IHI), a local not-for-profit research institution, and by a Christopher Moyes Memorial Foundation Scholarship. Concern Worldwide is an international humanitarian non-governmental organization with a focus on health and livelihoods in rural communities. Its activities include health related research and interventions (for example mosquito repellent plants, access to clean water) and the promotion of hygiene and sanitation (Concern 2003, 2013). Initially my PhD research was integrated into one of Concern Worldwide's on-going programmes to provide improved water supply to rural populations in northern Tanzania. Within this broad programme a specific research project was identified which focused on the interaction between the three leading diseases of poverty

(malaria, diarrhoeal diseases and acute respiratory infections), and designed interventions that have 'added value' by reducing the burden of more than one disease. This project sought to devise interventions that are cheap, effective and locally sustainable, using appropriate technology acceptable to the local population.

Originally, the project was designed to investigate and facilitate a reduced prevalence of diseases in the Burundian refugee camps, as there was high prevalence of environmentally related diseases, in particular malaria and diarrhoeal diseases, within these camps. However, just before the commencement of the project in July 2008, the refugee camps were closed and all remaining refugees were repatriated back to their home country, Burundi. This initiated a re-organisation of the project whereby the target population was re-directed from that of the refugees to the local host community of Kumnazi and Nyakariba sub-villages.

The research was developed to complement that of other research in the region which was funded by Concern Worldwide and which adopted a biomedical perspective to investigating health-environment relationships (Mng'ong'o *et al*, 2011). In this way the study aimed to explore the complexities of villagers' behaviours in their everyday lives in order to help understand common public health concerns such as: why do some public health programmes succeed and others fail? Why do some individuals who know how to protect themselves against malaria and diarrhoeal diseases choose not to do so? And why are control and prevention of preventable infectious diseases such as malaria and diarrhoeal diseases problematic? In policy terms an understanding of these complexities is of potential relevance to

public health practitioners and professionals, researchers, and programme planners in protecting health and preventing diseases to individuals at risk. Public health approaches have focused largely on the biomedical model with the consequent use of quantitative methods (DFID, 2007). Such methods have been traditionally useful for describing measurable factors, projecting trends and establishing causal relationships. However, a significant weakness of a quantitative approach is that it de-contextualizes human behaviour such that it focuses largely on variables in a model, at the expense of the contextual socio-cultural milieu in which health related behaviours occur.

My study therefore assumed an ethnographic approach based on a socio-cultural perspective in order to explore the ways in which social and cultural beliefs and perceptions mediate health as they contribute to, escalate or reduce risks to health. It explored these attributes in the context of two issues: firstly, environment-related health risks pertaining to malaria and diarrhoeal diseases, and secondly residents' perceptions and views of public health interventions which had been implemented in the area. The socio-cultural perspective is important as it considers how individual behaviours are mediated or modified by the social and cultural contexts in which they take place. Guided by the research questions, two important themes arose as being important :(1) local perceptions of illnesses and health interventions; and (2) the role of social relationships for individuals' vulnerability and resilience. Both themes were broadly linked to social identity in which values and norms supersede the need of an individual to stay healthy by practising 'healthy behaviours'. Since a key interest in developing this research was to uncover problems related to public responses to health interventions and promotion/education as observed by Concern Worldwide, empirical and conceptual research questions were developed to

understand individual responses to health interventions or practices as mediated by the social and cultural context. The next section returns to these research questions, as set out in chapter 1, in order to encapsulate some direct responses to them.

9.2 Re-visiting the research questions

(1)*What are the perceptions and beliefs of rural individuals regarding aspects of daily living that produce or prevent health? And what are their perceptions of environmental health interventions?*

Responses to risks related to environmental diseases, and to health interventions depend on how citizens perceive those risks and health interventions. The findings show that citizens believe that health risks really exist and thus feel the need for health interventions. In addition, this sense of vulnerability to health risks expressed by citizens is important in designing public health programmes to bring about desirable behavioural change and the adoption of health interventions or technologies. It follows that development of beliefs on existence of risks and a sense of vulnerability to those risks are social processes being a social product from interactions between individuals and their environment (context) (Bickerstaff, 2004). In contrast to what might be anticipated by a biomedical approach, frequent exposure to information about risks or health interventions does not automatically motivate behavioural change or the adoption of health interventions. Dake and Wildavsky (1990: 42) refer to 'the knowledge theory' as 'the most widely held theory of risk perception: the often implicit notion that people perceive technologies (and other things) to be dangerous because they *know* them to be dangerous'. This means that perceptions of risks accord with what individuals know about the risk. According to

personality theory it is believed that 'individuals seem to be without discrimination in their risk-aversion or risk-taking propensities' (Dake and Wildavsky (1990: 42). Policy and public health professionals have largely embraced knowledge and personality theories in designing and implementation of their activities. However, individuals are not free from prejudices in perceptions of risks and therefore do not act as automatons. As a social-cultural perspective prescribes, individuals' perceptions of risks are largely embedded in a wider social and cultural context in which they occur (Sandman *et al*, 1987).

I useda number of important public health interventions that were common in the study area as a means of exploring the perceptions and beliefs of rural individuals regarding risks to their health and these are discussed in turn below.

The study explored perceptions of and behaviours towards malaria and diarrhoeal diseases together with their respective interventions. Malaria is an endemic disease in the country and produces most outpatient consultations. Various efforts have been carried out in Tanzania in order to reduce its impacts on rural people living in poverty. The perspectives of village respondents in focus groups and interviews on malarial interventions particularly repellent plants, Insecticide-treated Nets (ITNs) and Indoor Residual Spray (IRS) were analysed and presented to understand these perceptions.

Between 2009 and 2011 Concern Worldwide carried out a study to evaluate the efficacy of *Lantana camara* in reducing mosquito house entry in Kumnazi sub-village where I was involved in all stages of the research process. The results

showed excellent efficacy of the plants in reducing mosquito house entry (Mng'ong'o*et al*, 2011). It was therefore necessary to understand how citizens perceived these plants as related to the potential to reduce indoor mosquito density as well as reducing risks of illnesses caused by mosquitoes, specifically malaria. In general participants showed acceptance of the use of repellent plants as they perceived them to reduce mosquito nuisance inside houses; reduce malaria-related illnesses; give aesthetic pleasure as ornamental plants; provide good hedges for hanging clothes to dry; offer medicines for stomach ache and cough; provide animal feed for goats; and contribute to human nutrition by providing fruits. However, other uses not related to medicinal benefits seemed more important in their acceptance of the plants. In addition, some limitations seemed to interfere with the general acceptance and that included the characteristic weedy property of the plants, plant pests and management-related problems (see Section 6.2.1.2).

The fact that *Lantana camara* appeared to be a potential weed posed a serious threat to production and productivity of food crops especially banana, which is a traditional prestigious staple food. The nature of the plant as fast growing and fast spreading discouraged many villagers from using it as a mosquito repellent as it generated the need for additional labour for weed control, resulting in a decrease in agricultural yields (Focus Group, Kumnazi, November 2010). *Lantana camara* also seemed to be seriously affected by aphid-like pests that feed on the plant's leaves and consequently cause the death of the plants. The requirement for management of the plants, and in particular pruning, limited villagers' willingness to grow them as they lacked the necessary skills. They therefore relied on support from the field staff of Concern Worldwide to carry out the necessary watering, pruning and transplanting

of the plants. Late pruning encouraged the plants to overgrow causing nuisance to villagers such as the blocking of house entrances and windows. Another management difficulty related to the timing of the project's implementation. The project's initiation phase coincided with the time when the rains stop for about a month and this generated disappointment amongst participants as the plants then required extra labour in watering. The general acceptance of repellent plants seems to be associated with their importance in dealing with health risks as well as other social, cultural and economic influences. However, it seems that other reasons not related to the perceived effectiveness of the plants to repel mosquitoes have become more important for some individuals choosing to have the plants.

Further interpretation of the qualitative information showed participants' perceptions of the plants in relation to the reduction of mosquitoes and diseases are linked to three different reasons. Firstly it relates to the institutional relationship between Concern Worldwide and villagers; secondly to the application of Indoor Residual Spraying; and lastly, to the reduction of population pressure following the closure of the Lukole refugee camp in 2008. Here, institutional relationship refers to the fact that Concern Worldwide has been involved in ensuring adequate access of piped water to a larger part of Kumnazi sub-village. In this case some villagers were reluctant to criticize the repellent plants in order to maintain good relationships with Concern Worldwide. Participants also reflected on the fact that the repellent plant research coincided with other events that were also perceived as having an impact on the reduction of mosquitoes and diseases. Villagers thus noted that since Indoor Residual Spraying application, the introduction of repellent plants (Table 6.1), and the closure of the refugee camps (June 2008) all happened around the same time, it

was difficult for them to single out the contribution of the plants to the perceived effect on reduction of mosquitoes and illnesses. The socio-cultural perspective adopted here has therefore helped to understand the multiple benefits of the plants as perceived by the participants and which contribute significantly to the general acceptance observed, as well as why plants are unpopular with some of the respondents.

In terms of Indoor Residual Spraying (IRS) most participants regarded it as an unwelcome intervention, and resulting in many villagers resolving to 'drop out' of the intervention programme. Since the Government enforced the intervention with sanctions, citizens used different strategies such as bribing of officials and locking of houses to prevent their houses from indoor spraying. IRS was perceived to be related to an increase in fleas which caused irritation and lack of sleep for both children and adults. As a consequence some children failed to report to school due to tiredness and thus impairing their academic performance (Focus Group, Kumnazi, December 2010). Adults also expressed that they were not able to sleep at night and this affected their capacity to participate in important economic activities such as agriculture.

Taking a wider perspective, we can see that the presence of other interventions (particularly repellent plants) contributed to the rejection of the IRS programme. In other words, the unpopular IRS programme may have contributed to the acceptance of repellent plants. General acceptance of repellent plants could also have been influenced by the institutional influence of Concern Worldwide given that they have

been responsible for providing piped water supply within the sub-village of Kumnazi, and villagers were generally appreciative of their services and did not want to see them leave their village, as has been discussed in section 6.2.1.2. What this shows is that multiple interventions to achieve the same end may work against each other, with the perceived success (or acceptance) of one causing the relative failure of another. Furthermore the reasons for (relative) success or failure may be misconstrued.

Turning now to mosquito bednets, the Government of Tanzania in 2011 carried out a nationwide programme to distribute insecticide-treated nets (ITNs) in order to facilitate total access to bednets for each family. The programme meant to ensure universal coverage of treated bednets where every sleeping place had to be included. ITNs received mixed perceptions where on the one hand citizens felt them to be useful as a protection of their health and, on the other hand, they appeared to posed a potential risk with respect to other social and health related problems. Thus many villagers felt that ITNs contributed to the protection of their health as they were associated with the reduction of mosquitoes and some felt that a decreased frequency of illnesses has helped them to sustain the household economy by reducing the financial burden incurred when seeking medical care. But ITNs also appeared to challenge social and cultural values. For example, villagers were dissatisfied with the bednet distribution process, feeling that the distribution agents 'looked down on them' if they raised concerns.

Participants also described how, when they sleep under bednets, they feel uncomfortable and warm, and experience difficulty breathing. For these villagers, not having a good night's sleep was more important than the future risk of becoming ill. It was further added that bednets could cause a sense of insecurity, particularly to males who feel 'trapped' when they sleep under the bednets. Villagers explained how it would be difficult for them to defend themselves and the family in a situation where someone or something invaded their house. In this case, bednets were seen as giving criminals an advantage over their victims. This fear was amplified for many villagers because there were many refugees living in their area. Rather differently, some individuals saw the bednets as a covert birth control strategy where the bednets were associated with impotence in both men and women. Some villagers sold their bednets or found alternative uses such as fishing, keeping of chickens, collection of flying termites and threshing of maize. Lack of knowledge on how to hang bednets seemed to limit their use for some participants.

Nation-wide programmes seem not to consider the different contextual characteristics of specific places and, instead, expect individuals who have never used bednets in their lives to embrace the technology. Different views on risk and on risk interventions demonstrate that rather than viewing the risk of getting malaria as the most important issue, the experience of the distribution of bednets is significant, where some villagers were offended by how they were treated by the experts. In addition, livelihood demands are always important and if it is discovered that interventions designed for health (ITNs) are useful to farming, then they will be used for this purpose as well as – or even in place of – their designed use. This suggests that experts view illness as the main risk, while the public (the villagers) see the risk

in terms of livelihoods. Also a lack of adequate knowledge on how to use the bednets significantly influenced decisions on whether to use them or not. This section shows further how social values, rather than medical reasons for protecting individuals against illnesses, influence individuals' judgements about the use of bednets.

It seems perceptions grounded on social and cultural values appear to show why many people do not use bednets. These include a lack of knowledge about how to properly use bednets, seeing bednets as a hindrance to a good night's sleep, as a potential security risk, and as having an influence on sexual activity and reproduction. These daily risk perceptions are more important to villagers than perceived health risks in the future. Their cultural beliefs, their social relationships with government and health officials, and how they interpret the role and efficacy of interventions, as well as their preoccupation with daily tasks, prevents them from adopting bednets on a regular basis. Therefore, a socio-cultural perspective helps to understand health risks in a holistic way, as being embedded in everyday experiences.

In terms of hygiene and sanitation practices field observation revealed inadequate ownership and use of toilets among villagers. Ownership and use of toilets seemed to be influenced by the physical characteristics of a place, fear of health inspectors and socio-economic values. Social dignity and values also seemed important as some villagers own toilets in order to offer privacy for guests especially those who come from urban areas. Some villagers contended that going to defecate in the farms also

has a utilitarian function by fertilizing their land and thus increasing crop productivity. Therefore, their choice has an economic value which may be seen as more important than the health risks associated with not using a toilet.

Regarding perceptions of handwashing, social and cultural values related to nutrition, religion, social norms and modernity are significant. Individuals see food – its quantity and variety – as the main cause of diarrhoea within their community. Use of toilets and washing of hands seem to be less important in terms of transmission of diarrhoeal diseases. For example, people see higher food intake for children with extended stomachs (possibly malnutrition) being at risk and therefore parents institute food rationing to prevent diarrhoeal diseases. Handwashing is viewed by many participants as something for educated and urban dwellers, or as a religious practice for Muslims. However, some people are also influenced by health advice from 'experts' and their new experience is that their children and families have less illness when they follow such health advice. People do not understand the science (for example the existence of bacteria which they cannot see) of medical advice, so they base their views primarily on what they see and experience. This underpins how they cope with the risks they experience in their daily lives by using their traditional experiential knowledge, sometimes combined with 'expert' knowledge to form what is known as 'hybrid knowledge'.

(2)*What risky practices or behaviours are adopted which render individuals vulnerable to health problems?*

The findings show various risky practices which contribute to the vulnerability of citizens to health problems. But these practices were often embedded in wider socio-cultural contexts which related to group norms and beliefs. These risky behaviours included handwashing practices, disposal of child stools and defaecation, sharing of drinking straws, and 'non-compliance' with the use of bednets. Villagers did not feel there to be a health risk in not washing their hands, for example, before eating food or after attending the toilet, because these were traditional practices, learnt from birth. Rather, such practices were linked to ideas of modernity and religious rituals. Defaecation on farms or in bushes rather than use of a toilet was explained, not in terms of potential risks to health, butin terms of the benefits of fertilising the land and increasing crop productivity. Similarly, sharing of drinking straws whilst drinking alcohol is, from a public health perspective, 'risky' but, for villagers, serves to maintain their group social cohesion. Finally, non-usage of mosquito bednets can be understood through villagers' understandings of these interventions through their physical discomfort (difficulties in breathing, a feeling of being 'trapped') and socio-cultural concerns and beliefs about their potential impacts (reducing sexual desire, covert birth strategies).

(3) *Which coping and/or resilience strategies do individuals engage in, to reduce their vulnerability to ill-health?*

Resilience is the ability of people and societies to cope with external shocks (Adger, 2000) such as ill-health. The research findings show that the villagers use mainly two strategies to cope with illnesses or to become resilient to health risks. First, the villagers draw upon their own resources (financial and knowledge) or receive

support from their relationships such as families, relatives, friends, ethnic groups, faith-based groups and organised supportive groups, in order to access medical services in either the 'traditional' or modern systems. Villagers normally start with the traditional system before embarking on using modern health facilities. Secondly, through social interactions villagers share knowledge in diagnosis and possible treatments based on traditional systems. Exchange of knowledge on the management of illnesses and the support that individuals receive in their social relationships provide an important base for their resilience. Sharing their experiences of illness and supportive social relationships strengthens the social capital of individuals which my data shows helps them to deal with their everyday problems, including sickness and even death.

(4) *How has the presence of 'outsiders' (refugees)influenced health-related perceptions and behaviours of local 'host' communities surrounding refugee camps?*

The presence of refugees generated a set of complex outcomes in terms ofthe 'host' community's perceptions and behaviours related to their health. As the findings show, the arrival of refugees caused a perceived escalation of social crimes, environmental destruction, and competition for resources such as land and food, and villagers felt the refugees to be something ofa curse within their community. But there were positive effects as well, such as the improvement of social services (such as health facilities and a primary school), learning new skills (business and gardening), a supply of cheap labour, and the formation of long-lasting personal relationships. Following closure of the refugee camps, villagers seemed to be more motivated to participate in economic activities such as agriculture, business

activities, and gardening, which together appear to have been significant for their health and well-being. Thus, the data demonstrated that the arrival of refugees both increased the vulnerability of the host community and contributed to an increase in their resilience.

(5) *How are the findings and the socio-cultural perspective relevant in theorizing environmentally related health?*

The behavioural response of citizens is complex being intertwined in a web of the social, cultural and economic facets in which they occur. The socio-cultural perspective shows how people's decisions are influenced not only by the knowledge they possess, but also by numerous cognitive, emotional, psychological, social, cultural and environmental factors that interact in complex and dynamic ways (Lupton, 1999a and Bickerstaff, 2004). Applying a socio-cultural perspective helps us to understand why citizens sometimes reject, ignore or manipulate health interventions in a manner that seems, from an external scientific perspective, to be 'illogical'. This research shows how people's decisions are influenced by their personal experiences and how people sometimes reject interventions for reasons unrelated to their health. For example villagers seem to accept repellent plants because of the related uses that have social and cultural values such as being a good ornamental plant ('*maua*'). Equally,IRS was a less well received intervention as it was thought to cause an increase in fleas which led to a lack of sleep. A socio-cultural perspective, then, illuminates aspects of villagers' perceptions and beliefs that help to explain their health related decisions and behaviours to environmentally related illnesses. Understanding only the environmental and scientific dimensions of

such illnesses is not sufficient to understand why people do not change their behaviour in accordance with public health advice. Thus, the theorizing of environmentally related health must include an understanding of the social and cultural perceptions of the people involved, and in their capacity as recipients of public health interventions.

(6) *What is the contribution of the research to theoretical writing on resilience and vulnerability?*

The main contribution of the research to theoretical writing about resilience and vulnerability (see Section 2.7.) is in relation to the ways in which social relationships play a significant role in shaping resilience and vulnerability to illnesses. The findings of this study show that social relationships, particularly in relation to social capital,are so critical as to take precedence, in many cases, over concerns about risks to health. In the process of attaining social capital villagers strive to maintain their social and cultural values. This primacy of social capital may serve to support or challenge 'expert' knowledge and technical solutions resulting in increasing resilience or vulnerability to illnesses, respectively. In addition the findings show that building of social capital helps villagers to better exploit their resilience such as knowledge and experiences required to manage illnesses and improvement of well-being. The theorizing of both vulnerability and resilience must include an appreciation of the crucial role played by social relationships, and in the particular case of health related interventions, to appreciate the social and cultural contexts of the place where those interventions are implemented.

(7) *What implications do the research findings have for health promotion policy?*

The research shows the importance of considering local context and individuals'
understandings to help ensure successful outcomes from public health programmes
or projects. In this regard the study puts forward a number of specific policy
recommendations, mostly as emphasized in the previous chapter which addresses the
implications of the research findings for public health programmes and policy:

- Public health interventions should acknowledge, and attempt to incorporate,
  local 'ways of thinking' in the community and 'the familiar' in their culture,
  introducing newer ideas later (chapter 7).Social and cultural values play
  significant roles in perceptions of environment-related diseases and health
  interventions, consequently influencing the uptake of those interventions.
  When health interventions interfere with social and cultural values villagers
  can adopt different strategies such as comparative judgment, fatalism and
  internalising risks in making sense of risks to their health. Policy-makers and
  practitioners would therefore benefit from an improved awareness of the
  strategies employed by local people in order to direct specific policies more
  appropriately (chapter 6).

- Policy makers and practitioners should incorporate two-way communication
  processes wherever possible, not only in order to elicit, and understand, local
  values and norms, but also to help develop a sense of trust with local
  communities. 'Successful' risk communication, in this case, entails a two-
  way dialogue, engaging negotiations between the public and communication
  agents. At the heart of this two-way communication approach, lies the notion
  of trust, which is essential to facilitate the effectiveness of the communication
  (Chapter 8).

- Since risk understandings connect to the health-related behaviours of groups more than individual-level decisions, practitioner discussions about risks to health would benefit from exploiting the potential of existing social groups such as burial groups. Health professionals could usefully collaborate with such groups to facilitate the adoption of more 'healthy' behaviours (Chapters 6 and 7) .

- Planning of health interventions would benefit from consideration of aspects of social cohesion. The need to maintain social cohesion plays a significant role in aspects of vulnerability and resilience of citizens to environment-related diseases. Villagers seem to ignore health practices or messages that threaten this cohesion, thus potentially making themselves more vulnerable to health risks. Regarding resilience, maintenance of social cohesion is useful as it is an important element of social capital, which is helpful in coping with, or the management of, illness through social relationships based on reciprocity.

- A sharper awareness on the part of policy-makers of the specific, place-based social and cultural contexts is likely to generate improved reception of health promotion advice. Place and identity appear to play a potentially significant role in the implementation of health policies. It is therefore important for health policy to better understand the nuanced dynamics related to place and identity in order to ensure successful implementation of negotiated 'expert' knowledge and technical solutions. Policy would benefit from a more specific focus on the timing of public health intervention implementation programmes. The research findings show how, for example, bednet usage was considered by villagers to be relatively unimportant because bednet

distribution was carried out at a time in the year when mosquito numbers were lower than at other times. Furthermore, the findings showed that running interventions concurrently can generate 'interference' with each other in terms of the ways in which they are perceived by their intended recipients.

- Development agents should consider the use of 'action research' when they are planning health interventions. Such research is important as it improves implementers' strategies, practices and knowledge by considering local values, norms and context (chapter 8).

9.3 Conclusion and suggestions for further research

The research for this thesis, conducted in rural northern Tanzania, set out to explore citizens' perceptions of health, and risks to their health, with special reference to environmentally related diseases, and in the context of specific public health interventions. In conceptual terms my research has drawn particularly on ideas relating to risk, vulnerability, resilience and social capital, and it has explored some of the ways in which these concepts are inter-related in the context of health. The research has also offered some suggestions for improved policy, planning and implementation of health related interventions. Empirical data collection was conducted using a range of qualitative methods including focus groups, interviews, observation and informal discussions with villagers living in two sub-villages. A significant challenge I experienced while doing the research was the broad nature of the topic, which initially made it difficult to conceptualise and focus the study. By drawing on several different concepts, however, the research has uncovered some of the important linkages between these concepts, and the ways in which these linkages

play out in citizens' responses to the external introduction of public health interventions. Each of the main conceptual areas which the thesis uses, notably vulnerability, resilience, social relationships, and social capital could all benefit from additional in-depth study in relation to their connections with health and ill-health in rural sub-Saharan Africa. In addition there are three more specific areas related to the findings of this research that would benefit from further work:

- The complex nature of relationships between refugees and 'host communities' and, in particular, aspects of health and well-being amongst host communities which have intersected with incoming refugees.

- Exploring and mapping the potential within the everyday culture of rural citizens to better manage environment-related diseases themselves.

- Further qualitative studies are needed to explore the perceptions of policy-makers and public health professionals of the successes and failures of public health interventions in sub-Saharan Africa and elsewhere in the global South and to explore their understanding of the social and cultural contexts in communities which receive such interventions.
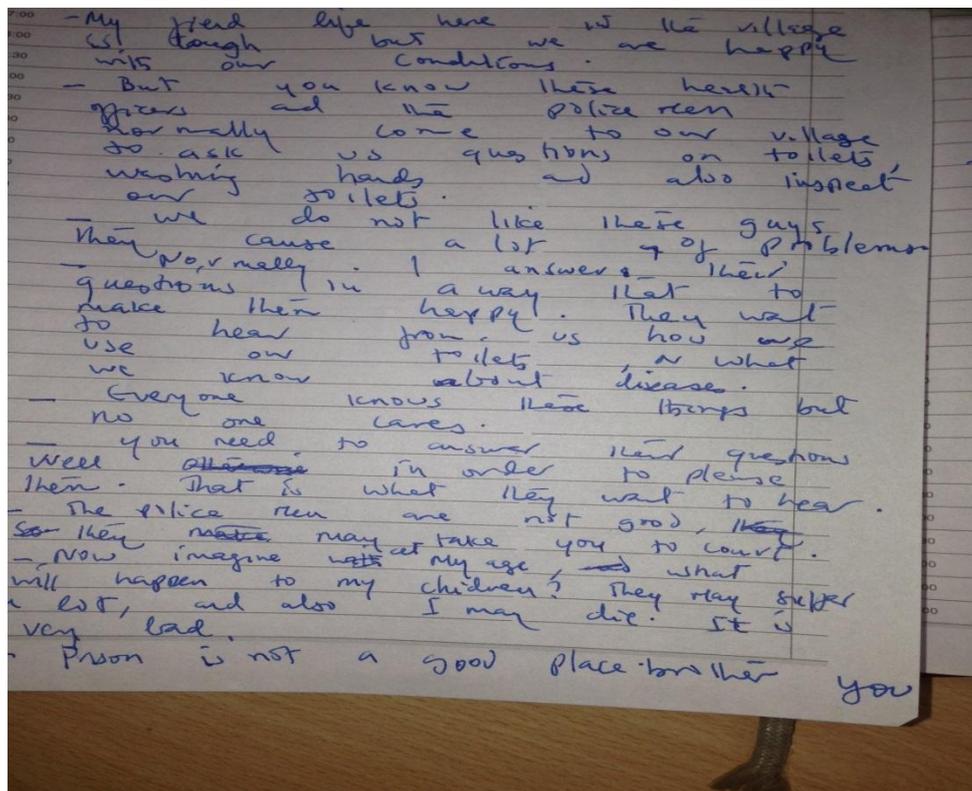
APPENDIX I

Extracts from Research diary

1a.

1b.
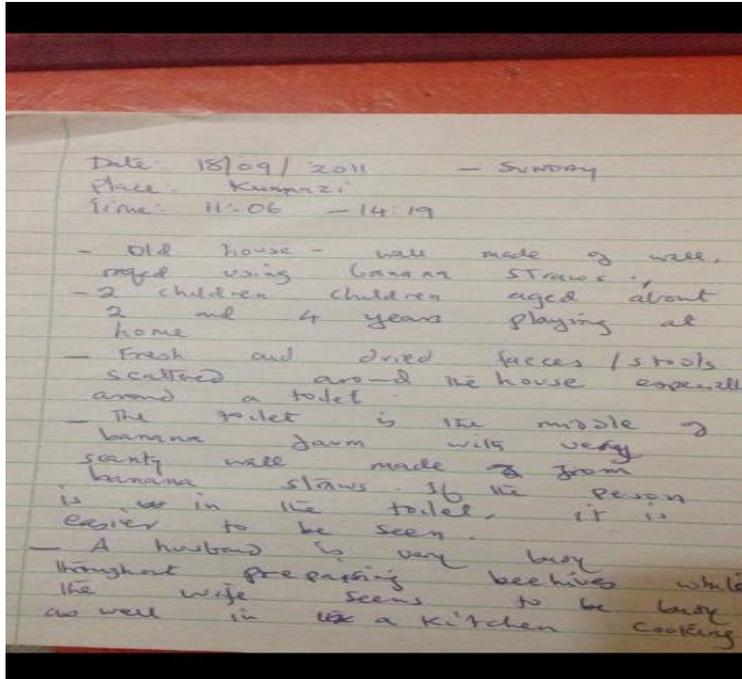
Topic guide for focus groups and individual interviews

Relationships of local population with refugees

1. How was your life different because of the influx of refugees? (Elicits information about refugee experiences)
   - What were negative effects of refugees
   - What benefits did presence of refugees brought in your community
   - What good things did you learn from refugees
   - How was health situation changed due to presence of refugees
   - How were you interacting with refugees in your everyday life

Perceptions of health interventions

2. In general, do people in society accept health interventions? Why or why not? (Elicits information about individual health interventions, for malaria-repellent plants, bednets and IRS- and for diarrhoeal diseases- handwashing and toilets)
   a. What are recent health interventions in your community in respect with malaria and diarrhoeal diseases
   b. What is your experiences with malaria-related interventions (Probe their experiences with bednets and IRS)
   c. In what situation do you normally wash your hands (Probe their perceptions of washing hands before eating food and after attending toilet)
   d. How do people normally answer call of nature (probe use of toilet for defaecation)

Illnesses and well-being

3. What do you do when someone falls sick? (Elicits information on how villagers manage diseases)
   a. How do you treat a person suffering from malaria and diarrhoeal diseases (Probe different therapeutic landscapes – hospital, traditional medicine and spiritual healing
   b. When do you decide to take the sick person to hospital after onset of illness

4. How do you support among yourselves within the society? (Elicits social support mechanism in times of need or example diseases)
     a. How kind of support your community assist the sick person or his household
     b. Are there any group support in times of difficulties (Probe support for other social problems such as food insecurity, financial needs and burial ceremony)

Example of focus group transcript

Facilitator: Provides introduces purpose of the discussion and asks verbal consent from participants. Participants agree to participate and therefore the discussion starts…

Facilitator: What are the most common diseases in this community?

RA: Actually, it is severe malaria! In the past years cases of severe malaria were so many, but now I see these cases are going down! There are just few sporadic casesoccuring!

Now in case of environmental hygiene! We are thankful that we have health officers who come regularly to inspect our toilets in order to control cholera! Referring to repellent plants, sincerely, our plants protect us well against mosquito bites!

Actually, nowadays we feel better! Since the departure of refugees, now at least people can sleep well inside their houses! But in the past, even when you hear a sound of rat chase, you become filled by fear! For example, during that time my ribs were stabbed and broken! My door was fired and broken by many shots of bullets! Now the situation is calm, generally we are at peace!

In my opinion, I see healthcondition in this community is not threatening, but it is quite usual!

Facilitator: What can you say about health or disease conditions in our community?

RD: I think condition of health here at Kumnazi is not good! We havea nearbyLukole dispensary but that center does not provide sufficient medical services! In addition, there are problems such as diarrhoeal diseases occur! I remember, in the past there were children who had a very acute serious health problem! We did not know what caused that problem! When they went to dispensary, they were told that children had eaten dirty things which caused stomach upsets! These were children of Alisante and Selemani! I think the place in which these people (Alisante and Seleman) do not meet health standards at all! So this place put other people who surround it at risk of contracting other diseases!

Facilitator: Why do you think Selemani's place is risky?

> Note: Selemani lives at *Mkanyagen*i (a dirty place where local pubs which sell local brews are located)

RD: In that place faeces are scattered all over! We feel that this is a threat to our health! That is to say, when you walk around Mkanyageni you meet a lot of faeces everywhere. That why I said this place can cause unexpected diseases to other people! Health wise, I see that place to be very difficult to control!

Facilitator: Thank you! We have discussed widely the problem at Mkanyageni. What can you say about environmental hygiene in our community at large?

RA: Generally, I see the situation is good because there are health officers who regularly come to inspect hygienic conditions in our community!

RY: I see the condition of hygiene at our hamlet is satisfactory!

RK: In the past we had higher outbreak of diseases because of interactions with Lukole camp! That camp caused a lot of disease like diarrheal, respiratory problems, colds (*RM interrupts*: *Kilimi*, anthrax, plastic teeth). Since when the camp was closed and all refugees were evacuated, the condition had been better. Unknown diseases which occurred during that time have dissaperared! The diseases which have dissapeared are like *kilimi* (*overgrowth of epiglottis*) and plastic teeth. We are remained with diseases which are usual which normally occur here and there! Actually, malaria cases have been remarkably reduced!The situation of diseases is quite good. Even when you get reports from doctors, they say the situation has improved!

For example, research which is carried out by CONCERN here at Kumnazihelped to reduce malaria. Malaria decreased even before distribution of these bednets! I think these pare capable to reduce mosquitoes tremendously. Mosquitoes have disappeared, that is why I see these bednetsas extra protection! Generally, I do not think if prevalence of diseases has increased!

Facilitator: How those interactions with the camp occurred?

RB: I contribute on how these interactions between citizens and refugees happened here at Kasulo village! For example, we were going in the camp to seek medical services and to purchase food items! Refugees also were coming to our village to buy commercial goods! For example, a refugee may come to you to buy a bunch of banana, and then later you go at the camp to buy few pieces from the same bunch of banana!!

You know during the presence of refugees, we were suffering from many diseases! But after leaving this place, I think diseases occur accidentally! For example, now we do not experience diseases like chicken pox! You may stay for a year without hearing a person who had suffered from this disease! Unfortunately, last year someone suffered from chicken pox!

In addition, since CONCERN established repellent plants around our houses, even before distribution of these bednets, the density of mosquitoes tremendously reduced! And when CONCERN set their mosquito traps inside our houses, those traps helped us to reduce mosquitoes! However, CONCERN had not been able tell us exactly what kind of mosquitoes they trapped and what kind of diseases they transmit. Now, since mosquitoes have disappeared, malaria incidences have gone down! Right now, you may say that malaria does not exist. In my own perception I see there is no malaria!

RC: Excuse me expert! Interactions, interactions! Some refugees were very poor! So they were coming to our village in search of food, casual labour and so forth! In this case if a refugee had infectious disease, could spread it to the community! Let's assume a refugee is athome, it starts raining and later it gets darker, what will you do? Definetly you will sympathize with him as you cannot chase him away! So you will allow him to sleep at home! The interactions were so huge indeed! Women and men, children and so forth!

Facilitator: Was it common for refugees to sleep at your homes?

Parcipants: Heeheeeheee..eee!!! Yes, it was common! (*All enjoying showing approval*)

RK: It came a stage where there were intermarriages between people in the camps and citizens,! Some marrying people in the camp, refugees marrying the citizens so it

became like that! (*participants cherished:* ha haa ...aaaa!! *also people cracked joke:* brother in law ...father in law...friend....sister in law..!!). So this situation made us relatives!

RC: There were interactions brother! That is it! (*Giving a joke*!)

RM: In our case, sometimes we were also sleeping in the camp! For example, if a child fell sick late in the evening, we rushed him to hospital! But if a child was not admitted, we were not able to come back home at night! So we were going to sleep in the camp! We had very close friends in the camp where we were going to sleep! During that time it was very dangerous to walk when became late because there were many culprits who attacked and killed people!

Facilitator: What was the magnitude of diseases in the camp!

Parcipants: eeeheeeh......eeh!!! (*All were excited to signify severity of the problem*!)cherish

Different reactions from participants (one said: In the camp there were many diseases! *Another:* many people died there! *More*: eeeh..anthrax!!

RM: There were some diseases which we herad them for the first time in our life! (*RC says*: This is anthrax!). There in the camp occured diseases like *kilimi* and plastic teeth, which we heard them for the first time. Sometime when a child was sick they said he had plastic teeth! Burundians had local knowledge on how to extract plastic teeth by drilling through the gums! When extraction of these teeth delayed, some children died! When my second born was 9 months old, he became critically ill, so we consulted Burundians to extract his plastic teeth. When they extracted his teeth we saw that the teeth had grown some hairs! (haahaaa ...haaaa!! *participants cherished*). This is very magical no body understand about it!! (*RX adds*: and if these teeth were not removed, it was very difficult for true teeth to emerge!! Some children lived up to 7 years without teeth!!). We were wondering! Why before coming of Burundians these problems did not exist! Before arrival of Burundians I had only one child! However, before I had child eventhose who had children, no one had experienced this disease! But we asked ourselves! why many children who were born during the presence of refugeessuffered from plastic teeth? We got knowledge on plastic teeth from Burundians! When they came, theytaught us

aboutplastic teethdisease which affects infants! They told us that there are people in the camp who know how to extract those teeth! They described the clinical signs which were excitement, pyrexia, and greenish diarrhea! They emphasised that when you see these signs, immediately you should take your child to the camp for extraction of plastic teeth!

Facilitator: Do you mean the hospital was not able to provide treatment for the plastic teeth?

Participants: NO (*collective response*)

RM: Children got admitted but later died! Actually these were very magical diseses which we had never ever seen! However, we are surprised to see these diseases have dissapeared since refugees left this place.

Facilitator: Thank you for indepth discussion on refugees. In our understanding, do you think what other situations cause diarheal, malaria and respiratory diseases?

RA: Now diseases like malaria and diarrhea – are caused by dirty things for example when you drink dirty water you can get coughing. But now I normally see expertscoming around to examine our sources of water. Although experts come to inspect our village, we have never received feedback to know whether our sources of water are safe or not!

RX: Please listen to me carefully, my home is down there near Chairman. But our most important concern is 'Mkanyageni'. It is place where we go to buy food, a soda or '**mlamba'**(*local soft drink extracted from banana)*. That place where we go to get our basic needs is very dirty! We have tried to ask our chairmanto follow up a toilet built by CONCERN which is not operating! That is why you find faeces and urines all over the place. For example when I go to that place I get a very bad smell! That is a reason which cause even adult people suffer fromdiarrhea and dysentry. But for other people like children who do not go there, to them there is no problem at all! Yeah, there are malaria cases but these are just seasonal. You know always where there is a family, there is something;therefore diseases are common! When you fall sick you may buy drugs from shops or go to hospital. Two days ago I went to Nyamiaga (*hospital*), I sent my wife there but I did get drugs! After paying my money (*consultation fee*) they told me to go to Mama Kalala or Misago (*private drug*

stores), as drugs which were prescribed were not available!. Now imagine, they have taken my money (*consultation fee*), where else can I get extra money? So we decided to go back home without treatment! Ha haahaaa..!!! It is like that! Now, you as our researcher, we would like to put our request before you! As you can see our center (*Kumnazicenter*) has many people – We spend our day time there, we buy our food there, we normally convene our meetings there, but there is no toilet! Please help up to maintain our toilet, donated by CONCERN, which is not operating now!

RD: I see these disaeses occur just in certain periods. For example, respiratory problems occur in June, the time when there is a lot of dust! Diarrhoeal disesases normally occur during rainy season. During dry periods, wind blows over dust, whereby dust is found everywhere! This dust causes respiratory problems like coughing, flu and so forth. What is recommended is that people have to make that they observe personal cleanliness, observe cleanliness of their sorroundings and so forth! In addition, during rainy season, for instance in April, this is the time when we get many cases of diarrhea or (*sometimes people name any diarrheal case as cholera*). This is normally a bad time because we get diarrhea or colds. Right now, the burden of these diseases is reduced!

RK: I concur to with previous speaker, what I feel or how I see to my understanding diarrheal diseases, occur mostly to children. And the main causesare fruits! You find that during fruit season, when a child gets a mango which may be dirty, he will just eat without washing, so then a child ends up into getting diarrhea. Similarly this also occurs during avocado season. Fruit seasons largely contribute to diarrhoealdisesaes. We have two main seasons of fruits, one starts in December (mango) and the other at end of May (avocado) when rain season ends.

You know children, not only these young children, even school children, when they are hungry, coming back home from school, they just pick and eat whatever they get without washing hands! They do not care whether a dog urinated or defaecated there! This is how diarrhea is caused! When they fall sick and sent to hospital, parents are told that the problem was caused by poor hygiene. So parents become advised to improve hygiene!! But this does not happen to children alone! This also happens to adults as well – take our exampleas farmers here at the village – You find yourself tired, hungry coming back from the field at 2 or 1 AM. Similarly, like

children, when you a fruit on your way back home, normally we eat without washing either hands or fruits! And at that point you are likely to get diarrhea! Normally when you are hungry there is no time to waste looking for water to wash your fruit like pawpaw! Important thing to do at that time is to control the hunger! So people here at the village consider controlling hunger first! And this situation is what which put us in danger of getting diarrhea!

RM: What I am trying to say, diarrhea is not caused by eating unwashed fruits, I see this is not a reason for diarrhea. For example, since I was born, it is usual when I am away attending the field, normally I eat without washing hands. Ha heeeheeeeheeeee...!! (*a group laughter*). I talk about myself, I cannot talk about my neighbor because I do not what he does before eating. So that is my normal practice! For example when I get a piece of cassava or dig out a piece of sweet potato – I just eat it without washing or drying hands! If at all, the soil could have been causing problems to our stomach, I could had been the first person to die or suffer normally from diarrhoeal diseases. But what I thank God is that, I have never attended hospital seeking treatment of diarrhoeal diseases, simply because I eat without washing hands. So on the other side, diarrhoeal diseases may be caused by feaces scattered all over around the sorrounding in which we live. For example when houseflies get in contact with faeces, they may come in contact of your food first even before you pray and start eating. So the tendency of eating without washing hands is very common (yes, yes – *th*e *group cherishes*). It is a common tendency because even Jesus provided a story about that. When Jesus was asked by Pharisees - why your followers eat without washing hands? Jesus responded – what goes in does not make a person unclen but, is what that comes out which make him unclean!

Facilitator: Does this situation apply even within our households?

He heeeheeee...(*a collective laughter*)

R M: You know, a home does have its own civilization (*another collective laughter*). For example if hygiene was not important, we could be eating without washing even plates (*another collective laughter)*. Beacause, at home you have access to water, so you wash hands, that why we normally wash hands before we start to prepare food. Just in our perception we think that when we are out there in the fields it is just right to eat without washing hands. We see that this can not harm

our bodies! What I see, because since I was born, I have been eating without washing hands when I go out there in the fields. So I see that I have never been harmed by eating food without washing hands when I am out there.

Facilitator: So you mean that, there are different situations when you are at home and in the fields. (mmmhhh!! – *a collective agreement*)

RM: But sometimes when you take food with you from home, you take water with you. But this happens only if you take food from home. That is our practice and we have nothing else that we can do!

May be I want to add on childdiarrhea! Child diarrhea is caused by food prepared by parents. If you do not set food ration to your child, he may get diarrhea! The parent may cause a child to get diarrhoea because of food. There are children who eat a lot! They can finish even two plates! So these children eat food to the point when it becomes difficult for them to stand on their own (ha haahaaa...!!*collective laughter*). So these are problems caused by parents. So we as mothers, we have our own ways on caring our families. For example, since I started to bear children, I can not allow a child to take food *ad lib*. I normally ration food depending on his status. This is important to avoid swelling of belly. If you find your child takes food exessively, you should realise that this is not a good habit, you should stop giving a child a lot of food and start appropriate rationing. So exessive food intake to children is harmful to their health. So in this case, a child can easily get diarrhoea!.When children get swollen abdomen, some parents see their children having good health. They do not know that these children are suffering as result of exessive food allowance. So it is useful to carry out seminar which target women, because we either harm or protect our children by food.

RY: I think in normal human environment, what usually causes diseases is poor hygiene. For example you find in our household we are not careful. For example, sometimes we are emphasised to make racksfor keeping our kitchen utensils. We see this as minor isssue and we do not consider it seriously, for us everything is normal!

Facilitator: Do you have the racks here in the village

Participannts: Ha haahaaaa...!! (*collective laughter*), no we do not have them!

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RY: In our case, we consider that is normal thing, there is no need of having racks. But our experts normally emphasize that these are very important in protection of our health and families.

RY: We have everything needed to set the racks, it is just our negligence. We see it normal! You know our wives remember to wash kitchen when they want to serve food! I think it is good to have theracks because utensils will be prepared long before the time of serving food. So this will help utensils to get enough time to dry and when food is ready, utensils will be dry and good. But all these things we do not consider them. So our normal practice is that when food is ready to be served, women remember to wash plates. There are a lot of things which we do not consider important.

Facilitator: So how is the situation when you travel! Will utensils remain dirty until you come back?

Ha haahaaaa...!!! (*collective laughter*), yes utensils will remain unwashed!

RY: You find that some us do not have toilets, we share toilets with neighbours! People do not take also this issue seriously! So this can also cause disease in our community! You may find one toilet can be shared by more than two or three houses! Not having a toilet at home is just negligence. Or sometimes people like to go to their farms around their homes where they use a hoe to dig a small hole in which they defaecate and then backfill the soil!

RM: Here at Kumnazi sometimes it is very difficult to defaecate in farms sorrounding you because we live so close to one another. It is difficult just to dig a hole and help yourself there! But for those who live far, that is very possible to them. For those who live far a toilet is not important to them because they have large area around their houses. For example when we were living in Kigina (*Nyakariba*), we had more that seven to ten acres of farm. So in this situation it possible to go out in the farm to help yourself and it is not easy to be seen by another person. But in case of Kumnazi, I find this very difficult. But to our young children, we normally insist their elders that once a cilddefaecate, they should remove the faeces and dispose them in the toilet! This issue of sharing toilet among households used to be very common in the past but the Government bannedthat practice. Sometimes you find

that when I go to my neighbor's toilet like three times; the neighbor becomes unhappy and tells me to havemy own toilet. Neighbors are not happy because their toilet can get full quickly! So this situation also makes those who like to share toilets to build their own. Here at Kumnazi this issue of sharing toilets is difficult, because people incur a lot of money to make a toilet. That is why you find sometimes people do not allow other people to use their toilets. However, this has helped us because when you see your toilet is about to get full, you start digging another one! When we arrived here from Kigina (*Nyakariba*), it was common practice for neighbors to share toilets.

RK: I concur with previous speaker about sharing of toilets. For example, sometimes health officers pass around the village to observe status of toilets. They pass at every house and examine the status of toliets. So if you do not have a toilet, you get penalised. Now there is a relief, many people have toilets! But in Kigina (Nyakariba) where health officers do not normally go there, you find few people have toilets! Another thing which causes people to build toilet is visitors. It is very shame when a visitor wants to go to the toliet, and then you tell him 'just take hoe and go to help yourself in the farm'! So this thing is also very important.

Facilitator: What is the situation of food security in our community?

Participants: Mhhmmhh..!! (*collectively agree while sympathizingat a low voice)* it is a prolem!

RM: The food security is problem because our farms are located very far from here! This is the reason I see myself! Here at Kumnazi we have just small plots for building houses but we do not have farms! For example when you want sweet potatoes you must travel that far to get them! Which I see is a problem. You go there, you get your potatoes, carry them on your head, but when you get home you find yourself very tired! So this causes people to take a small load which can suffice at least two or just one meal only when it becomes too far. But remember, not only you come with potatoes from farms; we carry other things like firewoods! Frankly speaking, food security is a very big problem in our community!

RY: Here are other reasons that contribute to food insecurity in our case as peasants. Take an example of maize as our farms are located very far and what you get atmost

may be two sacks (*1 sack≡about 100kg*) of maize. Now after harvest, you find either you or another member in the family get sick! In that situation, you are forced to sell that food! So if you sell your food, then it becomes difficult for you to get food! So, this in most case contributes to the problem of food security. Another situation, you may have two tins (*about 18kg*) of beans, and at the same time your child requires school fees! Since we do not have any other source of income, you will be forced to sell your beans in order to settle school fees! Here at Kumnazi, we are not employed, so the only source of our income is what we get from the farm! (***RM****interrupts at low tone sympathise by saying* – It is very terrible indeed). And bitter thing is that the rain is very unreliable. For example last year, we grew beans but all beans dried off because rain was very little! In that case, after harvesting a person may get just one tinof beans, and at the same time you may find you have school levy debt of 2000 Shillings! Now, in this case there is nothing that person can do but just to sell that tin of beans in order to clear school levy! In that way you become food insecure! That is why we normally have food insecurity in our community! (***RK****interupts* – also you are supposed to buy exercise books and uniforms): he heeheee.. (*a collective sympathetic laughter*). For example, imagine you may have five or three school children! And at the same time some may be in secondary school! Now when children enter secondary school, the situation becomes worse! So even if when you get five sacks of maize, but you need to pay 20,000 fees, buy a hoe, uniforms, and at weekly basis a student may come asking you for various contributions required at secondary school. So at end the whole of your income gets depleted! So when everything is finished at home, finally your child is may be chased out and comes back home! And that become the end for his education! That is it!! So in this situation, where will you be able to be food secure? That is my end!!

RS: In some cases, because our farms are located very far people may steal all maize, nothing remains.

RK: How I understand about food insecurity at Kasulo village, is lack of agricultural inputs! You find in other places in our country people have plenty food because they use different ways of agriculture. They use animal power and tracktors. But here at Kasulo, you find only a husband and wife are involved using hand hoes! So it becomes very difficult to get enough food which can be sufficient throughout a year!

That is why you find here at Kasulo, at every time there is crisis of food! (**RM** *interrupts*– sometimes you may be a widow so you cultivate farms alone).

Participants: Aaah..!! the food is not sufficient at all. Normally is just enough for two to three months only (*collective concern*).

RT: For example, say you have school child and expects to harvest your maize in May or June! You find that when a child goes to school in January, you are supposed to pay school fees, buy uniforms and so forth. So you may decide to sell your maize farm before crops mature! So you find during harvest period you have nothing to harvest since you sold your maize in January to pay for school expenses! So in this case, just after harvest you still continue with food insecurity!

RK: let me give an example of last year. Last year people had good harvests; people harvested a lot of maize. So because many children passed their exams (*from primary to secondary*), many parents sold their immature crops in the farms (*this was in January*). This trade of selling immature crops occurs like that! A businessman comes and tells you that I will come to buy your maize at 100 shillings (*the price during harvest was 200 shillings).* So you sell may be two acres and you remain with nothing! This is because you need money to send your child to school (*RX interrupts with a low tone* – it is very true!). So you find many people this year sold their crops immaturely in the farms before harvest! Now students (*secondary school*) have become a very big threat to food security!! It is a new fashion now where many people sell their crops immaturely on farm!

RY: Do you think what else can we do? We do not have any alternative but to sell our crops immaturely in order to meet school expenses! (**RK** *interrupts*- imagine if you have only one acre, what will you do? You will harvest nothing! we do not have agricultural inputs!).

Participants: How do you cope with the problems of food insecurity?

RK–You know, we go to cultivate in the *tingatinga* (wet valleys).

RY: In addition, even before going to *tingatinga*, what I do in my case is that! When I see the food is finished at home, I go out to search it! I go to work as casual

labourer in order to get food for my family! This practice is very common and is known as *kupagasa*! (hahaahaaaa...!! *collective laughter showing agreement to that statement*). For example, you may cultivate half an acre for one or two tins of maize but this depends on how you negotiate. So you get the food you send home to support your family. So this is a common coping strategy during food insecurity!

ParticipantsDo you have a way or a system where you support each other during food insecurity?

Participants: Aaaaaah...! nothing like that!! (*Collectively respond*)

RM: Everybody has own means of survival!

RK: You should you your common sense to survive!

RK: Really we suffer a lot!

Participants: Ha haahaaa..!! We can not help one another because every is suffering! Nobody has food! (*Collectively showed concern on this*)

RK: Very bad times are December and January! So during these times, there are people who do not eat at all! Others just eat once a day! In this time farmers suffer a lot!

RM: the serious problem starts from November!

Participants: eeeh..!! From November (*collective agreement*)

Facilitator: Do you any question to ask me?

Participants: No, we thank you so much to come!

APPENDIX IV

Coding Process

FGD I: transcript 1

Impact of Refugees

- Disease occurrence

- Fear and crimes

- Social exchanges

Disease Risk

- Norms and values (social identity)

- Awareness and perception of the risk

- Management – treatment and control

Food Insecurity

- Causes

- Coping strategy

_____

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Prevalence of Diseases

- RK: In the past we had higher outbreak of diseases because of interactions with Lukole camp! That camp caused a lot of disease like diarrheal, respiratory problems, colds

- Since when the camp was closed and all refugees were evacuated, the condition had been better

- Unknown diseases which occurred during that time have dissaperared! The diseases which have dissapeared are like *kilimi* (*overgrowth of epiglottis*) and plastic teeth.

- We are remained with diseases which are usual which normally occur here and there

- Actually, malaria cases have been remarkably reduced!

- RM: There in the camp occured diseases like *kilimi* and plastic teeth, which we heard them for the first time... Why before coming of Burundians these problems did not exist

- Burundians had local knowledge on how to extract plastic teeth by drilling through the gums

Management of diseases

- RK: Research which is carried out by CONCERN here at Kumnazi helped to reduce malaria. Malaria decreased even before distribution of these bednets! I think these plants capable to reduce mosquitoes tremendously

- Mosquitoes have disappeared, that is why I see these bednets as unnecessary protection

- When you fall sick you may buy drugs from shops or go to hospital

Risky habit/lifestyle

- RK: You know children, not only these young children, even school children, when they are hungry, coming back home from school, they just pick and eat whatever they get without washing hands...

- This also happens to adults as well – take our example as farmers here at the village – You find yourself tired, hungry coming back from the field at 2 or 1 AM

- Normally when you are hungry there is no time to waste looking for water to wash your fruit like pawpaw!

Social exchanges

- RC: Some refugees were very poor! So they were coming to our village in search of food, casual labour and so forth!

- RK: It was very common for refugees to sleep in our homes.

- It came a stage where there were intermarriages between people in the camps and citizens,! Some marrying people in the camp, refugees marrying the citizens so it became like that... *:* brother in law ...father in law...friend....sister in law..!. So this situation made us relatives!

- RM: In our case, sometimes we were also sleeping in the camp!

Increase of fear and crimes

- RM: During that time it was very dangerous to walk when became late because there were many culprits who attacked and killed people!

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Location of Ngara and study villages (Kumnazi and Nyakariba)
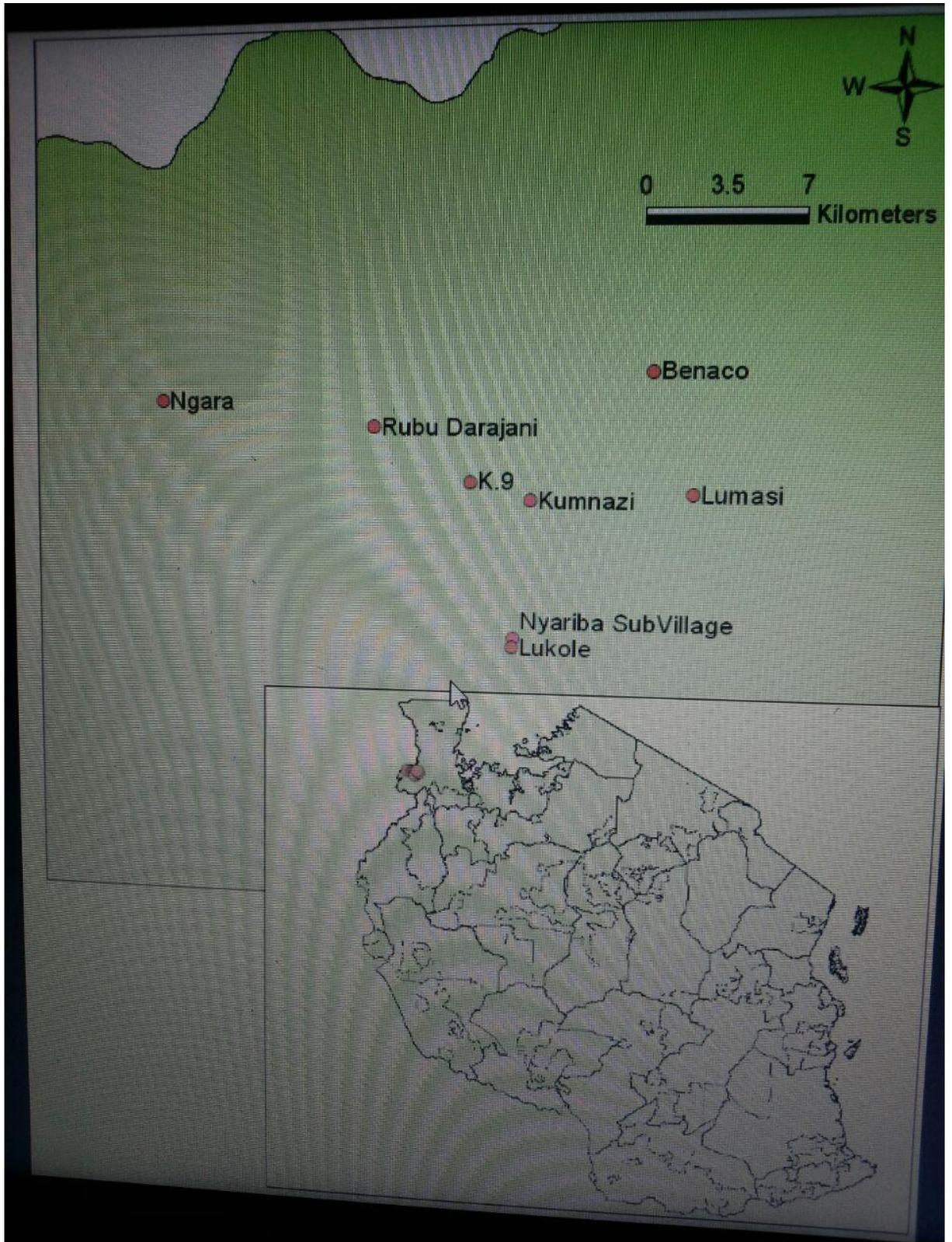
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