Gender Differentiated Impacts and Benefits of Artisanal Mining: 
Engendering Pathways out of Poverty
A Case Study in Katwe Kabatooro Town Council, Uganda

by

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ABSTRACT

Artisanal and small scale mining (ASM) is a crucial livelihood for over 20 million miners in developing countries throughout the world (Veiga and Baker, 2004). Despite misperceptions of “mining as men’s work”, ~40-50% of Africa’s artisanal miners are women who occupy critical roles in commercial, domestic and social spheres (Lahiri Dutt, 2003; Hinton et al, 2003a). The widespread poverty, environmental degradation and poor social conditions which characterize the ASM poverty cycle are largely attributed to its informal nature and use of crude technologies while its capacity to reduce poverty through increased incomes is also well recognized. Numerous policy reforms and interventions have been implemented accordingly with variable success.

This research posits that ASM policy and action must further be informed by understanding of factors that determine livelihood outcomes through a gender lens. Both quantitative and qualitative methods were used to investigate the gender-differentiated constraints facing women and men miners compared to those in fishing, trading and other activities as well as the main assets or poverty reducing measures to which they have access.

Based on a case study in the salt mining community of Katwe-Kabatooro Town Council in Western Uganda, it was found that women are clearly disadvantaged in most assets that comprise the foundation for sustainable livelihoods. Nevertheless, many women miners’ vulnerability has prompted them to “trade up” their assets of labour, cash and growing social capital through livelihood diversification, leading to improved socio-economic and health outcomes. While this suggests a clear pathway out of poverty, the majority of women miners often cope by using strategies that compromise their wellbeing, with far reaching implications for themselves and the community.

Although a number of women have been able to overcome major constraints, gender inequalities were shown to play a prominent role in exacerbating the ASM poverty cycle. Findings point to women's lack of autonomy and decision-making power as a root cause of negative outcomes for health and wellbeing of both women and men. If ASM policy and technical intervention increase emphasis on building human and social capital, more success can be achieved in realizing the poverty reduction potential of ASM.
PREFACE

Portions of this dissertation have been partly drawn and adapted from publications developed through collaborative or independent research conducted between 2002 and 2006 as the dissertation literature review was elaborated. Specifically, introductory Sections 1.1.1 and 1.1.2 have been adapted from a report commissioned by the World Bank (Hinton, J.J., 2006. “Communities and Small Scale Mining: An Integrated Review for Development Planning”, unpubl. Report to CASM/World Bank, 214p.), where I was sole researcher and author of the desk based assessment.

Furthermore, Chapter 2: Women’s Work, Men’s Work and Beyond has partly drawn from three literature reviews on women in artisanal mining published as follows.


In all cases, as the first author, I was primarily responsible for the majority of research design, data collection and analysis, manuscript preparation and writing, while Dr. Marcello Veiga provided ongoing guidance and insight into the design and analysis, contributed to writing of some sections and overall editing. Christian Beinhoff provided peer review and performed some oversight functions for the 2003 works, while, for the 2006 publication, Barbara Hinton aided in research and contributed to writing some sections.

This earlier work was subsequently adapted and re-contextualized within the dissertation as guided by the theoretical model for this research and as informed by findings from a plethora of new research published by others (as cited) between 2004 and 2010. As the research in this dissertation involved human subjects, ethical approval was obtained from the UBC Behavioural Ethics Board (Certificate No. B06-0769).
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<td>ASM</td>
<td>Artisanal and Small Scale Mining</td>
</tr>
<tr>
<td>CAO</td>
<td>Chief Administrative Officer</td>
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<tr>
<td>CBO</td>
<td>Community-based Organization</td>
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<tr>
<td>CEEWA</td>
<td>Council for Economic Empowerment of Women in Africa</td>
</tr>
<tr>
<td>DGSM</td>
<td>Department of Geological Survey and Mines</td>
</tr>
<tr>
<td>DEO</td>
<td>District Environment Officer</td>
</tr>
<tr>
<td>DHO</td>
<td>District Health Officer</td>
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<td>District Health Inspector</td>
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<td>DLO</td>
<td>District Labour Officer</td>
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<td>DOCH</td>
<td>Department of Community Health (MOH)</td>
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<td>DOSH</td>
<td>Department of Occupational Safety and Health (MGLSD)</td>
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<td>Government of Uganda</td>
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<td>International Labour Organization</td>
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<td>Katwe Kabatooro Town Council</td>
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<tr>
<td>LG</td>
<td>Local Government</td>
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<td>MEMD</td>
<td>Ministry of Energy and Mineral Development</td>
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<td>MFI</td>
<td>Microfinance Institution</td>
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<td>MFPED</td>
<td>Ministry of Finance, Planning and Economic Development</td>
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<td>MGLSD</td>
<td>Ministry of Gender, Labour and Social Development</td>
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<td>MOH</td>
<td>Ministry of Health</td>
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<td>MTTI</td>
<td>Ministry of Trade, Tourism and Industry</td>
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<td>NEMA</td>
<td>National Environmental Management Authority</td>
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<td>NGO</td>
<td>Non-governmental Organization</td>
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<td>Uganda Poverty Eradication Action Plan</td>
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<td>Uganda Community Tourism Association</td>
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<td>UIA</td>
<td>Uganda Investment Authority</td>
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<td>UNDP-GEF</td>
<td>United Nations Development Programme – Global Environment Facility</td>
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<td>UNIDO</td>
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Isabelle Allende said “How can one not speak about war, poverty, and inequality when people who suffer from these afflictions don’t have a voice to speak?” I acknowledge with sincere appreciation and respect the women and men miners and community members in Katwe Kabatooro who persevere under some of the direst conditions imaginable, who gave honest and open input throughout the research and from whom I learned more about the strength of human spirit than I’ve ever known before.

Bertrand Russell said “One of the first symptoms of an approaching nervous breakdown is the belief that one’s work is terribly important”. My family and friends both believed in what I was doing and provided the support and unrelenting encouragement that I needed to push through unscathed. At home, I am honoured to express love and thanks to Mom, Dad, Barb, Mary Pat, Leanne, Rod and, at my other home in Uganda, Jonny, Joseph, Stephen, Rachel and Ruth. Putting my appreciation into words would require a whole other dissertation.
1 INTRODUCTION

Artisanal and small scale mining (ASM) is a critical source of livelihood for more than 20 million artisanal miners who are active in ~50 mainly developing countries throughout the world (Veiga and Baker, 2004). Despite common misperceptions of “mining as men’s work”, approximately 30% of the world’s artisanal miners are women who occupy a number of critical roles, not only in mineral extraction and processing but in providing essential goods and services (Lahiri Dutt, 2003; Hinton et al, 2003a). The percentage of female artisanal miners is the highest in Africa, averaging 40-50% and escalating to 100% in some mining areas (ILO, 1999; Amutabi and Lutta-Mukhebi, 2001; Onuh, 2002; Hinton, 2009a). The pervasive poverty, environmental degradation and poor social conditions which are characteristic of ASM are largely attributed to its informal nature and use of rudimentary technologies (Hentschel et al., 2002; Hinton et al, 2003b) and numerous policy reforms and interventions have been implemented accordingly with variable success.

This study posits that appropriate ASM policy and action must further be informed through understanding of the complex interplay between factors that include, but are not limited to: income level and disparity; social support networks; education; employment, working and living conditions; physical, natural and social environments; biology and genetic endowment; personal health practices; coping skills; child development; social services; gender and culture (Evans, 1994; Health Canada, 2004; Marmot, 2001; Mach, 2004).

As women and men are differently affected by these factors, examining the multiple determinants of individual, household and community wellbeing through a gender lens is crucial for formulation of policies and interventions that promote rather than exacerbate gender equality, sustainable livelihoods and human development.

This action-based research examines the societal conditions that affect health, wellbeing and perceived development opportunities of women, men, boys and girls engaged in multiple livelihoods in the salt mining community of Katwe-Kabatooro Town Council in Kasese, Uganda. Specifically, the case study is focused on gender-differentiated constraints facing women and men salt miners compared to those engaged in other economic activities and, in particular, the main assets or poverty reducing measures to which they have access.
1.1 Critical Concepts in Artisanal & Small Scale Mining and Gender

This research is anchored on the principle that a causal relationships exists between gender and poverty, taken as “human poverty”, which includes lack of assets, access, dignity, autonomy and time in addition to income poverty (Çagatay, 2001). It further contends that harnessing the poverty reduction potential of ASM and its impacts on sustainable livelihoods requires holistic understanding of individual ASM communities and their broad-based developmental needs (Labonne, 2002; Gyan-Baffour, 2003; Hentschel et al, 2002; Hinton et al, 2003; Pedro, 2003). In light of the interdisciplinary nature of this study, brief working definitions of ASM, gender and development therefore lays a critical foundation.

1.1.1 Artisanal and Small Scale Mining: A Working Definition

There is no commonly accepted definition of artisanal and small-scale mining (ASM), mainly as it typically includes a spectrum of activities ranging in scale from small to large that is generally distinguished from “formal” mining by a relatively low degree of mechanization, high degree of labour intensity, poor occupational and environmental health standards, little capital investments and lack of long-term planning (Hinton et al, 2002). With as much as 80% of activities taking place outside of a legal framework in some countries (ILO, 1999), ASM is typically an informal and highly disorganized activity. However, even licensed, organized ASM can differ little from “illegal” or “subsistence” activities in terms of methods of production, labour force demographics, safety risks, environmental outcomes or social impacts. Thus, the terms “artisanal” and “small scale” are often used interchangeably, as they are used herein.

The nature of ASM in any given region often dictates the responses needed to mitigate its impacts. Gyan-Baffour (2003) described four main ASM types, each of which is driven by different factors and can result in distinct environmental, social and economic outcomes:

- **Seasonal ASM** provides a source of employment in agricultural off-seasons and often generates capital for both agricultural and non-agricultural activities. When seasonal ASM leads to migration of male miners from traditional lands to mining areas, resulting in a host of impacts on women and their families who remain behind.

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1 Section 1.1.1 and 1.1.2 have been drawn partly and/or adapted from Hinton, J., 2006, “Communities and Small Scale Mining: An Integrated Review for Development Planning”, unpubl Report to CASM/World Bank, 214p. with permission from CASM.
- **Permanent ASM** is undertaken by miners who have settled in regions with established mineral resources, often where large-scale commercial or formal mining is present. In some cases, seasonal miners forego agriculture or other economic activities to undertake mining permanently.

- **Shock-push ASM** refers to mining catalyzed by major disruptions, such as droughts or conflict, which often necessitate relocation to regions or adoption of non-traditional activities where other economic opportunities are present. As ASM may be perceived to yield relatively high pay-offs with minimal investment, it is often chosen over other activities, despite the lack of expertise of most “new” miners.

- **Rush ASM** represents one of the most serious types of ASM in terms of environmental and social impacts. Most typical for “high unit value” commodities (e.g. gold, diamonds), news of a major strike can cause the influx of tens of thousands of miners to an area in a matter of months. With expectations of high incomes and low capital investment coupled with inadequate knowledge and skills, rush ASM often leads to dire socio-environmental and health conditions. This is exacerbated by poor infrastructure and services and a lack of government presence in often marginalized, remote and hastily established communities.

Similarly, Rogers (2005) differentiated between three types of ASM. **Subsistence mining**, which is often seasonal, rush driven and/or highly migratory, is characterized by illegality and use of crude technologies. **Petty commodity mining** is marked by a greater degree of organization and permanence and generally has a higher potential for formalization. **Small-scale mining** is more mechanized and is operated like a business with a degree of planning and knowledge concerning mining practices. It further has a greater likelihood of being formal. Women’s direct participation in mining generally decreases with the increasing scale, mechanization and degree of formality of the operation; i.e., women play a more prominent role as “miners” in small family operations where mining takes place to supplement other activities (e.g. farming) or hand-to-mouth subsistence (Hinton et al, 2003).

Each of the above scenarios undoubtedly yields diverse characteristics with respect to gender roles and relations, autonomy and time poverty (e.g. when male miners migrate seasonally and women become *de facto* household heads), security (physical, financial, food, etc), household impacts as well as obvious and varying community health risks (e.g.****
increased environmental degradation, exposure to STDs with sex trade, alcoholism and domestic violence, etc), among many others. Furthermore, heterogeneity between and within contexts, seasonally and changes over time are therefore also relevant.

What constitutes a “miner” is inconsistently defined. In some cases, only those undertaking the digging are considered miners, while many practitioners now include a variety of key groups in the designation, include diggers, processors, haulers and other labourers, pit owners, mine owners, title holders, equipment providers, explosives experts and providers of other goods and services. As women are more frequently associated with transporting and processing materials, as opposed to digging, they are not always identified as “miners” (Susapu and Crispin, 2001). Women working part-time as miners or occupying “ancillary roles”, for example working as cooks or service providers, are often also discounted thus there may be significant discrepancies between the estimated and actual numbers of women involved (Wasserman, 1999). For instance, in Kenya, despite their vital contribution, women’s roles in agricultural, domestic and other community roles are largely invisible as they are ignored in statistical accounting of government and non-governmental organizations (Sigot, 1995). ASM is largely invisible in its own right and women’s work in ASM faces even greater visibility challenges

The debate on the definition of ASM has continued for more than two decades without resolution. What has been largely accepted is that the classification of ASM must be context specific and should be determined at the regional or national level. For example, a small-scale mine in South Africa may be a medium- or large-scale mine in Rwanda. It is evident, however, that although this debate will likely continue at local, national and international levels, energy should be directed towards tackling the well-known challenges facing the ASM sector. Within the Ugandan context, this is explored further throughout Chapter 5.

1.1.2 The Problematique of ASM

The problematique of ASM is a complex web of issues, its strands span policy and regulation, environment, human health, culture and society and economics (Hinton, 2006). For the majority of ASM – subsistence or artisanal miners - at the centre of this web is poverty. It draws people into ASM and once its grip has solidly taken hold, it can readily perpetuate participation and the negative impacts of this sector (Fig. 1). Although the
specific nature of the ASM problematique is unique to a context, community and country, a generalized view lends insight.

A sensitive interconnection exists between the environmental, social and economic elements of ASM and other economic activities. An increase in mining – whether catalyzed by increased commodity prices, events such as droughts or conflict, or changing seasons – often leads to a decrease in the agricultural workforce, thereby affecting productivity of that sector (Hinton, 2006). Due to domestic responsibilities, migration is commonly undertaken by men; however, women and girls sometimes also migrate to ASM sites in search of opportunities (Yakokleva, 2006). For women who remain at home, requirements to take on the roles of men in addition to their traditional roles may exacerbate women’s deficits in time (Moretti, 2006) and may lead to abandonment, family breakup or polygamy (Hayes, 2008). Whether or not the outmigration of men and added responsibilities leads to increased

![Figure 1: The ASM Poverty Cycle in an Agricultural Context](source: Hinton, J., 2006, Community Development and Small Scale Mining: An Integrated Review for Development Planning, unpubl report to CASM/World Bank, 214p).
autonomy or empowerment of women who frequently become *de facto* household heads is not known but likely varies from context to context.

As ASM activities lure people from their traditional livelihoods with the perception of greater incomes, a substantial influx of miners (for instance, during seasonal, rush or shock-driven ASM) can thin the distribution of revenues from often marginal reserves, diluting the revenue earned by each miner (Gyan-Baffour, 2003). Although women and men miner’s incomes are frequently higher than those obtained from other livelihoods (particularly in the case of metallic minerals), insecurity of those incomes, absence of mineral rights, lack of means or cultural impetus to save money and the often cited miners lifestyle of “quick and unwise” spending frequently provide only a temporary buffer to mitigate the livelihood shock or opportunity to “get ahead” that drew miners into ASM in the first place (Amutabi and Lutta-Mukhebi, 2001; Hayes and Van Weuwe, 2009; Hinton, 2009a).

With limited income accumulation and lack of proper training or guidance, the methods and tools used at ASM sites are typically extremely crude (e.g. hammers, shovels, basins), a situation exacerbated by the lack of ownership or mineral title for the site (Hentschel et al, 2001; Hinton et al, 2003c; Veiga and Baker, 2004). These poor methods perpetuate low mineral production and incomes while increasing risks associated with environmental degradation, occupational safety and community health and wellbeing.

The links between poor mining practices, environmental degradation and human health are well known. For example, in addition to chemical contamination of ecosystems, ASM can modify aquatic systems, for example, through silt accumulation in rivers or construction of water reservoirs (Akagi and Naganuma, 2000). Siltation of rivers caused by discharge of tailings into waterways reduces light penetration and dissolved oxygen levels, thereby jeopardizing fisheries, and may result in flooding (Hinton, 2002). Flooding of abandoned pits or lands adjacent to waterways increases the net area of standing water, thereby contributing to malaria and other mosquito-transmitted diseases. Inadequate sanitation and poor hygiene at mine sites can further lead to contamination of water sources and

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2 The “unwise spending” in ASM communities throughout the World generally refers to predominantly men’s spending on alcohol, women (in some cases second or third wives), gambling or similar pursuits. Although frequently reported by miners and academics alike, this is clearly a generalization as many men (particularly in more established ASM areas) have also been shown to spend on agricultural tools, home repairs, basic household needs etc. Furthermore, this generalization fails to capture women’s saving and spending habits.
transmission of diseases such as cholera. In addition, deforestation for the purposes of site clearing, domestic use or mining processes (e.g. lime roasting kilns) can significantly impact families reliant on forests for fuel wood and, in some cases, food and medicine (Hinton, 2006). Equally significant to human health, poor mining practices generate significant occupational hazards – landslides, shaft collapses, machinery accidents and dust and noise pollution are a few of the frequent concerns at many mine sites (Hentschel et al, 2003).

Being situated in remote regions and often established in an ad hoc manner, the resulting characteristics of many ASM communities are also important determinants of health and wellbeing. The influx of cash into a local economy, combined with a paucity of economic alternatives and a transient workforce often leads to an active sex trade and high rates of HIV/AIDS and other STDs. In addition, rampant drug and alcohol abuse, gambling, and violence are frequently reported. Further to this, misuse of ASM revenues to meet personal rather than family or community needs continues to be an oft reported barrier to positive change. Due to the remote location of most of these communities, the speed at which they are often established and the limited resources of governments in impoverished countries, these health and social issues are often compounded by a lack of services and infrastructure.

Poor health is a critical component of the ASM poverty cycle – when spouses or family members are infirmed and their capacity to work is diminished, a “healthy” family member must work harder to pay for normal living expenses in addition to health costs (Hinton, 2006). Ill health of a family member may initially drive men, women and children into mining. Arduous work, combined with inexperience in mining and lack of knowledge about hazards, can exacerbate the potential for injury or illness; thus, the cycle of poor ASM practices, ill health and poverty is perpetuated (Hinton, 2006).

An overarching element in this maze of issues is the regulatory regime in which ASM is housed. Although the impetus to regulate the ASM sector exists and is recognized by most legislators (Barreto, 1993), artisanal and small-scale miners are not properly considered within most legal frameworks. Fundamental factors that impede the development of suitable legislation include an inability to come to an agreement on how these activities should be defined and licensed (i.e. on the basis of operation size, mineral extracted, income
generated, degree of mechanization, etc.), preference towards “formal” mine developers and inadequate government resources to strengthen miners’ capacity to understand and adhere to legislative measures (Veiga and Hinton, 2002). Furthermore, legislation is often claimed to be gender neutral yet can easily exacerbate gender inequalities by overlooking gender differentiated constraints and opportunities (Reeves and Baden, 2000). Poor governance and corruption present additional barriers. Lack of land tenure offers little incentive to satisfy legal requirements for environmental practices and further precludes access to credit, a critical necessity in terms of upgrading a mining operation (Gyan-Baffour, 2003). It is evident that any legalization strategy must consider that (a) miners will undoubtedly opt to work outside of a regulatory framework if obvious benefits cannot be derived from operating within it and (b) many miners nevertheless do not have the resources or skills to effectively participate (Veiga and Hinton, 2002).

The problematique of ASM fails to adequately capture the differential constraints and opportunities faced by women and men engaged in or impacted by ASM and the heterogeneity between and within communities. A fully integrated approach is called for encompassing good governance, appropriate policy and its practice, environmental protection, intersectoral coordination, livelihood opportunities and equitable distribution of revenues, among many other issues (Hobbs, 2005). Capacity to break the poverty cycle brings questions of differential vulnerability, access, assets, autonomy and overall capacity to the forefront. In the absence of engendered approaches, the transformation of the vicious cycle of poverty into a virtuous cycle of prosperity is endangered. Delving deeper vis-à-vis a gender lens will lend tremendous insight.

1.1.3 Gender and Development: A Primer

Sex is the biological determination of a person as female or male according to specific set and recognizable physical attributes (Reeves and Baden, 2000). Although the differential status of women and men is often attributed to these biological differences, societal values and attitudes placed on biological sex and resulting inequalities require understanding of gender. Gender, as applied herein, refers to behaviours, attitudes, values, beliefs, etc. that a particular socio-cultural group considers appropriate for males and females, which can shift and change over time, space and circumstance (Butler, 1990).
A few simple examples put forth by women and men miners in Ugandan ASM communities illustrate how gender is socially constructed and not derived directly from biology. Attitude changes over the past 50 years include increased importance of educating girls as well as boys, eradication of the belief that women were not supposed to eat chicken for health reasons (infertility, back ailments, death etc) and, very recently (although not widespread), the willing of land to both sons and daughters. Similarly, in the Baganda Region of Uganda, women do not normally ride bicycles, but many women in Teso Region do, while in the Karamoja Region, women are largely responsible for house construction while men primarily undertake this work in the remainder of the country. In Ntungamo District (Ankole Region), women go deep in underground mines to break cassiterite ore while women do not work underground in other parts of the country with the perception they are “too weak” to undertake the work. Each of these examples has obvious implications in terms of economic opportunities, human health, autonomy and other dimensions that impact human wellbeing.

Both women and men can experience negative impacts of discrimination based on gender and addressing inequalities requires both women and men to confront their prevailing beliefs, advantages and behaviour (Mayoux, 2005). However, it has been widely demonstrated that women are generally more disadvantaged than men. A few official statistics in Uganda illustrate some key inequalities: 23.1% of households are “headed” by women; men earn over 30% more than women; 76% of adult males and 61% of adult females are literate; women hold 24.7% of seats in Parliament; and only 7% of women own land (UBOS, 2004; Leistikow, 2003). National statistics do not, by any means, fully describe gender differences in terms of vulnerability, access or control, nor do they convey how poverty is differently experienced by women and men or the causes of inequities in status or power. They do, however, provide a glimpse into the outcomes of gender imbalances and posit the significance of inequalities on overall development.

In the early 1970’s, the Women In Development (WID) approach emerged in response to the perception that women were “passive beneficiaries” of, or even negatively impacted by, modernization, with recognition that women needed to be actively engaged in development processes in order for development to take place (Razavi and Miller, 1995; Reeves and Haben, 2000:33). With a focus on the commercial roles of women, access and control of resources and equal participation, WID programmes focused on practical needs of women
related to employment, income generation, education and financial access. With marginal focus afforded to men or power relations between women and men, WID overlooked the role of gender relations in restricting women’s access in the first place (Razavi and Miller, 1995).

Limited progress in achieving development objectives and improving women’s wellbeing under the WID approach led to the rise of the Gender and Development (GAD) perspective. With an emphasis on addressing both practical and strategic gender needs and challenging gender roles and relations that perpetuate power imbalances, the GAD approach explicitly recognizes the socially constructed basis of differences between women and men. The GAD approach is more commonly employed in Subsaharan Africa by Governments, UN, NGOs and other organizations; however, on an implementation level, it is often difficult to discern clear differences between WID and GAD and combinations of both are practically used (Reeves and Haben, 2007).

The transition of WID to GAD is succinctly captured by Rico (1998) that “It is not enough to have programmes and projects aimed at women, but that development activities must as a whole contribute to equity, which means that men must be involved as well.” Gender equity is the “condition of fairness and equality whereby gender is no longer a basis for discrimination and inequality between people... In a gender equitable society both women and men enjoy equal status, rights, levels of responsibility, and access to power and resources….to make their own informed, realisable and free life choices.” (Mayoux, 2005:3).

Gender equity is commonly distinguished from gender equality as the latter is commonly assumed to focus on removal of obstacles to participation, thereby providing “equal opportunities” but yet not necessarily “equality of outcomes” (Reeves and Baden, 2007:10). Profound change in power imbalances between women and men is central to gender equity, requiring appreciation of differing needs, interests, priorities and distribution of power and resources, i.e. equality of opportunities and outcomes may require different approaches for women and men. The role of both women and men as “dynamic promoters of social transformation” rather than passive victims of externalities is vital (Sen, 1995:189).
1.2 Statement of the Problem

Substantial scholarly work and policy literature exists on the technical, legal, organizational, human health and environmental characteristics of ASM, a selection of which seeks to elicit the linkages between these aspects (Barretto, 1993; Bannerman et al, 2003; Hentschel et al, 2002; Hinton et al, 2003; Peterson and Heemskerk, 2001; Wotruba et al, 1998; Gunson et al, 2006). Assessments of ASM as a livelihood strategy are less abundant but broadly assert that integrated approaches are vital to effectively understand and respond to the development needs of miners and affected communities (Bayah et al, 2003; Caballero, 2004; Carmouze et al, 2001; Dreschler, 2001; Gyan-Baffour, 2003; Mwaipopo et al, 2004).

Each of these vital works generally aim to elucidate critical aspects of the ASM poverty cycle (Fig. 1), although marginal attention is typically afforded to the gender dimension of cultural, social, political, economic, civil and cultural factors that determine access, participation and voice, autonomy, vulnerability and, ultimately, the distribution of impacts and benefits. Identification of the proportions of women and men engaged in mining and, to a lesser extent, their specific gender roles in these contexts is increasingly being incorporated in the ASM discourse. However, identifying respective roles in production gives only marginal insight into status and power differentials between men and women and the social determinants that perpetuate these inequities (Moore, 1988; Razavi and Miller, 1995).

If scholarship framing the ASM problemitique does not adequately consider the gender-specific nature of development, resulting policies and interventions are likely to be oriented towards the tasks, needs and priorities of men who are typically better positioned to effectively participate and voice their concerns. Indeed, gender analyses of development programmes related to agriculture and forestry found that the quality of women’s lives did not, in fact, improve, and in some cases even declined as a consequence of initiatives that failed to incorporate gender perspectives (Wightman, 2001; Wakhungu and Cecelski, 1995). Even when improvements to women’s quality of life have been achieved, they do not necessarily improve the subordinate position that women often occupy (Jackson, 1993). As women’s direct involvement in ASM frequently decreases with the increased scale and mechanization of a mining operation, it is easy to speculate as to how technical assistance
programmes, technocentric policy reforms and ASM-focused development programs could exacerbate rather than ameliorate gender inequalities.

The growing body of work on the impacts and benefits of large scale mining on women - as miners, their spouses and/or community members - frequently calls for mining companies to commit to gender responsiveness in engagement, employment, mine planning and design as well as community development interventions (Lahiri Dutt, 2008; Lozeva and Marinova, 2007; O'Faircheallaigh, 2008). The frameworks, approaches and findings that have emerged from these studies provide invaluable insight, yet profound differences exist between large scale mining and ASM in terms of capacity, resources, rural livelihoods linkages, legality, political influence and recognition, among many other distinctions (Priester, 2007).

The paucity of work specific to gender-differentiated roles, responsibilities, impacts and benefits in the ASM subsector, particularly that which is framed on the social determinants of health and wellbeing, makes this research extremely relevant. As early as 1996, the UNESCO Committee on Natural Resources called for strategies to support the empowerment of women in ASM (UNESCO, 1996). UNDP, UNIDO, UNCTAD, ILO, AFDB and many more multi-lateral agencies, national governments have recognized the multi-faceted dimension of ASM, inclusive of the cross-cutting needs related to gender. Formed in 2001, the Communities and Small Scale Mining (CASM) Initiative housed in the World Bank has committed to promotion of gender equality and empowerment as women as one of its three priority themes (CASM, 2009). Similarly, the World Bank has developed guidelines for their personnel with respect to mainstreaming gender in extractive industries projects, many of which include a component related to ASM. Furthermore, the Japanese International Cooperation Agency (JICA) together with World Bank is currently developing a Toolkit and Guidance Strategy for governments in the mainstreamining of gender concerns in the ASM policies, projects and programmes.

Action-based, holistic research focused on the multi-faceted development needs and priorities of women and men artisanal miners and their communities would significantly inform the technical, environmental and socio-economic interventions, policy reforms and ensuing scholarship that have potential to impact human poverty.
1.3 Significance of the Work
The number of women and men engaged in ASM is substantial with direct and indirect beneficiaries of more than 100 million women, men and children (Veiga and Baker, 2004). Within Uganda, ASM provides a vital source of employment for more than 195,000 people, almost half of which are women (Hinton, 2009a). Most of these miners are “community miners”, who spend their revenues within the subcounties and districts where they reside. In Uganda, the local economic contribution from these incomes alone was estimated at 337 million USD in 2008 (Hinton, 2009a). Despite the economic significance to miners and their communities, ASM is typically characterized by extensive environmental degradation and deplorable social conditions, both during operations and well after mining activities have ceased.

Internationally, the number of miners is believed to be on the rise, and, in Uganda, the gender gap in the ASM workforce is expected to narrow over the coming years. Critical factors include: escalation of rural poverty and the feminization of poverty; rising commodity prices; growth of the construction sector (wherein women’s engagement of stone aggregate production is pronounced in Uganda); outward migration of skilled male miners from ASM areas in pursuit of opportunities in urban centers (or, in some countries, due to increased large-scale mining development); evolving cultural norms with respect to gender roles; lack of employment in other sectors; and increased family pressures due to high birth rates and dependency of children orphaned by HIV/AIDS, malaria and other diseases (Hinton et al, 2003a; Hinton, 2009b).

1.3.1 Towards Gender-Responsive Approaches to ASM and Development
Despite the frequently reported negative consequences of ASM, it is widely believed that these activities have the potential to be a catalyst for entrepreneurial activities, the development of sustainable livelihoods and the alleviation of poverty (Hentschel et al, 2002; Pedro, 2003; CASM, 2008). Accordingly, a growing number of efforts to advance the subsector have been undertaken by international organizations, governments and, to a lesser extent, mining companies and NGOs (Hinton, 2006; UNIDO, 2007; Wotruba et al, 1998; Rio Tinto, 2008). Numerous improvements (e.g. licenses granted, technologies adopted, organizations formed) have been observed yet these have been largely
piecemeal, while systematic, equitable development progress continues to be largely elusive.

As a growing livelihood alternative for millions of rural poor, the feminization of poverty is particularly relevant to the ASM discourse. Over the past two decades, the number of rural women living in absolute poverty has increased by 50% (compared to 30% for men) (Carr, 2000).

“The primary cause of the feminization of poverty is gender bias, which in its various forms, prevents women from obtaining the education, training, health services, childcare, and legal status they require to escape poverty.” (Carr, 2000).

Although the need for positive outcomes for both women and men are increasingly recognized in recent ASM interventions (and to a much lesser extent in policy reforms), the specific need for transformation of gender relations is rarely incorporated within the discourse or methodologies employed. Many ASM researchers and practitioners have long emphasized the need for integrated, interdisciplinary approaches requiring a different skill-set (Davidson, 1993; Veiga, 1997). Technical experts, policy makers and environmental scientists are progressively partnering with development specialists, health experts and biologists, among others, to design and implement policies and interventions. However, the absence of gender specialists and engendered approaches in ASM still represents a critical gap (Lahiri-Dutt, 2003).

This research is therefore significant as it builds on the limited, albeit insightful scholarship on gender and ASM conducted to date (Amutabi and Lutta-Mukhebi, 2001; Bhagyalakshmi, 2007; Labonne, 1996; Lahiri Dutt, 2003; Heemskerk, 2003; Perks, 2008; Yakovleva, 2006 and others), while employing a methodology that seeks to understand the gender-differentiated practical and strategic needs, as well as distribution of power and resources, in response to multiple social determinants of individual, household and community wellbeing. The study aims to identify knowledge gaps as a foundation for future research while informing the design and implementation of related interventions.
1.3.2 Towards Evidence-based Policy and Intervention

Despite their interconnectedness, strategies and approaches related to development, environment and gender have evolved almost independently, significantly impacting the policies of various sectors and government agencies (Rico, 1998). With a mandate to promote and manage mineral resource development, most mineral policies are typically narrowly focused on providing security of exclusive tenure, technical aspects, financial benefits (e.g. taxation, royalties), typically underscored by the need for environmental protection. Sectoral performance is often gauged on investment and revenues from mineral production. A focus on economic performance fails to capture the diverse health, cultural and social outcomes that are crucially vital to people’s wellbeing and development opportunities (Heemskerk, 2003). Although legislation in most sectors claims to be “gender neutral”, it can actually serve to exacerbate gender inequities (Reeves and Baden, 2007). Conversely, most human development sectoral policy (e.g. related to health and welfare) tends to recognize gender more explicitly and is underscored by objectives to address poverty, marginalization and exclusion. In many developing countries, the disconnect between mineral and development sector policy objectives, and ways in which their performance is measured, represents a major challenge in terms of achievement of broader poverty reduction goals.

This situation is exacerbated by the “visibility crises” of ASM. Although the informal sector is often recognized as crucial to developing economies, the ASM subsector is still largely invisible to most governments, donors, NGOs, the general public and others. Furthermore, mining is commonly viewed as “men’s work” (Momsen, 2008) and, within ASM, the invisibility of women’s work – at the mine site, household and in communities – is even more acute, sometimes even to miners themselves. For example, during gender consultations in Eastern Uganda, a significant proportion of women limestone miners identified their occupation as “peasants” while in a neighbouring ASM area, male miners strongly affirmed that women were not engaged in gold production, yet multiple houses have grinding stones where women pulverize gold ore as they perform domestic chores. Similarly, many government officials engaged in ASM training programmes in 2007/08 were hard pressed to incorporate measures requiring slight budget increases to ensure the participation of women and men miners (mobilization time, child care, adaptation of materials, location selection etc), yet participating women miners frequently reported they
would have not benefitted were it not for these measures. The invisibility of ASM, and women’s work in ASM, are factors contributing to exclusion of gender and ASM from national poverty reduction strategies.

Within Uganda, this work is particularly significant given planned reforms to the mineral policy and institutional model of the Department of Geological Survey and Mines (DGSM) in the Ministry of Energy and Mineral Development (MEMD). Included is the provision of extension services to artisanal miners at a grassroots level and improved intersectoral coordination, in part to address artisanal miners’ multi-faceted needs.

Furthermore, recent changes to the National Budget Planning Process involve streamlining budget allocation along themes (including those related to gender equity and social welfare as well as natural resources). This shift from sectoral budgeting seeks to improve coordination between Government agencies while reducing redundant expenditures and ensuring that those agencies that are best equipped to address specific priorities are sufficiently funded. With strong recognition of the importance of the informal sector in national development and firm commitments to promotion of gender equity, an obvious entry point exists to both increase the visibility of the ASM subsector and promote gender responsive, integrated ASM policies and strategies.

Standard scientific research approaches limited along strict disciplinary streams are generally inadequate in terms of generating evidence to elucidate linkages between multiple social domains at micro, meso- and macro-levels and their ultimate impact on development and sustainable livelihoods (Killoran et al, 2006). The interdisciplinary framework applied in this research aims to bridge these gaps through established ecosystem and social determinants frameworks while further understanding the relationship between gender and poverty. By shedding light on the interconnection between ASM and other livelihoods and their gender-differentiated effects on poverty, findings speak directly to objectives of national poverty reduction strategies, the Millennium Development Goals (MDGs) and local development plans.

This research is therefore both significant and timely as it aims to inform policy and decision-making, particularly with respect to ASM and gender, while forming a basis for
design and delivery of integrated, interdisciplinary extension services, technical interventions and related performance assessment frameworks that seek to transform gender relations as a necessity of development.

1.4 Outline
The following Chapter Two draws upon international scholarship to introduce critical challenges in ASM and elucidate some of the linkages between ASM and poverty. In particular, it seeks to understand how the gender division of labour and gender relations at ASM sites and communities can determine same and differential constraints or opportunities to escape the ASM poverty cycle.

Chapter Three describes the theoretical and conceptual frameworks guiding the examination of gender-differentiated constraints and opportunities facing women and men salt miners and their communities. Sets of lenses include (i) Social Determinants of Health approach, which provides a structured means with which to examine multi-faceted determinants of health and wellbeing, (ii) the Ecosystem Approach to Human Health, which necessitates transdisciplinarity, participation and equity in methods and defined reasonable boundaries for the research; and (iii) the Sustainable Livelihoods Approach, whose clear framework to understand the vulnerabilities, assets and, in particular, processes determining wellbeing is well suited to understanding gender relations within a multi-livelihood context. Chapters One, Two and Three ultimately inform the Theoretical Model used in this research, which is described at the conclusion of the chapter.

Chapter Four details the methodological approach, outlines the research questions and provides justification for the case study site selected. It further describes how quantitative and qualitative methods and action-based approaches were employed and strengths and weaknesses of the research encountered through their application.

Chapter Five describes the overarching “host environment” of the research. Specifically, it outlines national institutional policies, structures and processes that have considerable influence on the distribution of power, access and control of resources, individual and civil society rights and a host of other factors affecting wellbeing at the grassroots level. Explicit focus is afforded to ASM and the mineral rights regime in Uganda and the cross cutting
gender legislation and institutional machinery that seeks to redress gender inequalities in support of poverty reduction.

*Chapter Six* introduces the case study community, Katwe Kabatooro Town Council in Kasese District, where the demographic and geographical environment lays the groundwork for understanding the context in which the research is placed.

*Chapter Seven* presents the key findings from this research in the context of the foundations for sustainable livelihoods in Katwe Kabatooro. This includes an overview of predominant livelihoods in Katwe Kabatooro and interconnections between them. Detailed description of salt production, its gender division of labour and organization of work provide the foundation for subsequent discussion while gender-differentiated impacts and benefits are further detailed through multi-livelihood, gender disaggregated comparisons related to natural, physical, social, financial and human assets in the community.

*Chapter Eight* discusses the significance of results within the context of societal conditions that affect health and wellbeing and compares the assets and poverty reducing measures to which women and men engaged in various livelihoods differentially have access. It explores the importance of both national and local policies, structures and processes in determining livelihood outcomes and the roles of ASM in alleviating and exacerbating women’s and men’s poverty.

Recommendations for emerging themes of research, policy and institutional reforms and new approaches to ASM development interventions are proposed for academia (inclusive of engineering research in mining institutions) and government, donors and others.

*Chapter Nine* presents key conclusions from this research, attests to its originality and highlights the implications of findings in terms of broader development objectives.
2 WOMEN’S WORK, MEN’S WORK AND BEYOND

For millions of the World’s poor, ASM represents one of the most viable, and sometimes only, opportunities to reduce economic poverty and create wealth in developing countries (CASM, 2003; Hentschel et al, 2002). Miners often earn incomes several times those obtained from other livelihoods, the majority of which is spent locally, thereby stimulating economic development of non-mining livelihoods and increasing local purchasing power (Hayes, 2009; Jacques et al, 2002; Jennings, 1999). In many rural communities, ASM fuels demand for goods and services such as tools, equipment and day-to-day requirements (such as food, water, and other inputs). Further benefits cited include contributions to foreign exchange earnings, reduction of rural-urban migration and potential to exploit deposits which are unattractive to formal mining companies. In countries such as Kenya, Uganda and India, ASM quite literally provides the building blocks of development – construction materials for housing and other infrastructure – and has considerable potential to improve productivity in the agricultural sector through provision of a wide range of vital, soil-enhancing minerals (Asaduzzaman, 2008; Hinton, 2009a; Van Straaten, 2002).

Human wellbeing, however, in any given context does not rely merely on income and economic growth, but is determined by a multiplicity of macro, sector-specific, community, household and individual characteristics (Forget and Lebel, 2001). Environmental degradation, perilous work practices, pervasive poverty, gender disparity, HIV/AIDS and malaria, deplorable infrastructure, child labour and scant social services – this is also the face of ASM (Hentschel et al, 2002; Jennings, 1999; Veiga, 1997).

Founded on indispensable scholarship and policy literature specific to ASM and ASM communities, this chapter depicts the multi-faceted challenges and opportunities faced by women and men in ASM communities. It aims to build understanding of the trade-

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‘Women in artisanal and small scale mining in Africa’, in Women Miners in Developing Countries, eds. Kuntala Lahiri-Dutt and Martha Macintyre (Farnham etc.: Ashgate, 2006), Copyright © 2006.
‘Women and Artisanal Mining: Gender Roles and the Road Ahead’, In: Socio-economic Impacts of Artisanal and Small-scale Mining in Developing Countries, Ch. 11. G. Hilson (ed), (Balkema publ, Taylor & Frances Informa UK Ltd.) Copyright © 2003
offs made by women and men engaged in mineral resource extraction - willingly and unwillingly, informed or uninformed - that can determine differential or same outcomes. These multiple works further point to a clear way forward in terms of crucial gaps in scholarship, policy and practice, thereby providing a foundation, and strengthening the justification, for this dissertation.

2.1 ASM and Employment: Roles and Remuneration
In 1999, the International Labour Organization (ILO) estimated that the number of artisanal miners was around 11-13 million in 55 countries, a 20% increase over the previous decade. Although employment statistics were not gender-disaggregated in the submissions from 43 developing countries, ILO asserted that women’s direct involvement was pronounced in many countries, and was estimated at 3.5-4 million (Jennings, 1999). From these statistics, it was extrapolated that 80 - 100 million people worldwide were directly and indirectly reliant on this activity. With mounting poverty due to factors including drought and conflict causing displacement of populations and diseases such as HIV/AIDS, together with the attraction of potential wealth due to rising commodity prices, the number of artisanal and small-scale miners continues to escalate and, in 2004, was estimated at more than 15 million for gold mining alone, at least 4 million of which are women (Veiga and Baker, 2004). In some ASM sites, women miners’ participation is as high as 60-100%, with a regional ratio of men to women averaging about 3:2 in Subsaharan Africa, while the average in Latin America and Asia is on the order of 8:1 to 9:1 (ILO, 1999; Hentschel et al, 2002; Amutabi and Lutta-Mukhebi, 2001; Onuh, 2002).

It is believed that these statistics significantly underestimate the actual number of artisanal miners. The informal and frequently dispersed nature of ASM is a key factor. However, to an extent this is also because industrial minerals production (e.g. salt, clay, stone aggregate, sand, limestone etc) is often overlooked with a preferred focus on metallic minerals such as gold, coltan (columbite-tantalite) and tin. This is partly due to exclusion of industrial minerals from mining legislation in some countries and partly as most scholarship has focused on high unit value minerals. Industrial minerals can constitute substantial percentages of ASM workforces (e.g. 80% in Uganda where 70% of salt and stone aggregate miners are women) and, as they are “low unit value”
commodities where availability of cheap labour is a key determinant of feasibility, women’s participation is often prominent (Hinton et al, 2003; Hinton, 2006).

Employment statistics, therefore, further underestimate the contribution of women to mineral production. To some degree, this can be attributed to their engagement in industrial minerals production, however this is largely due to the gender division of labour at ASM sites. As women often work part time in mining, with domestic responsibilities impeding full time production on site, and they often occupy roles deemed “ancillary” (such as cooks or food vendors, water transporters and other goods and service providers), their contributions are often neglected (Hinton, 2003a). In Tanzania, Dreschler (2001) observed that 2.5 times as many women are engaged in “indirect” roles than in “direct” mineral production, with 25% of the total ASM workforce (550,000) being constituted of women. Susapu and Crispin (2001) observed that, as women are more frequently associated with transporting and processing, as opposed to digging, they are not always identified as “miners”. The visibility crises of women’s direct and indirect contributions to ASM - at the mine site, in the home, community and country – speak directly to inequitable power relations and their outcomes.

The gender division of labour can vary between and within ASM sites, however, certain roles are commonly dominated by men or women. Men are overwhelmingly responsible for “digging” or “rock breaking” in the pit or underground while both men and women are engaged in mineral processing (hauling, washing) and ancillary services. In the Cocoase Camp at Tarkwa in Ghana, risks associated with underground mining are given as justification for women’s role carrying gold ore and water and pounding rocks rather than digging (Akabzaa and Darimani, 2001). Approximately 90% of mineral processing activities are conducted by women in Burkina Faso, where 45,000 - 85,000 women constitute ~45% of the ASM workforce, and in Mali, where about 50% of miners are women (Gueye, 2001; Keita, 2001). Similar labour divisions – men engaged in digging and women engaged in hauling, processing and service provision - have been documented for metallic mineral and gemstone production in Bolivia, Brazil, Peru, Suriname, Colombia, Venezuela, Burkina Faso, Kenya, Sudan, Mozambique, Zimbabwe, India, Lao PDR, Philippines and elsewhere (Amutabi and Lutta-Mukhebi, 2001; Chakravorty, 2001; Dreschler, 2001;
Heemskerk, 2000; Hentschel et al, 1998; Jennings, 1999; Lujan, 2004; Veiga, 2002; Veiga, 1996; Veiga, 1997). This division is also pronounced for many industrial minerals, such as clay in Bangladesh, stone aggregate, limestone and dimension stone in Uganda, stone aggregate and sand in India and stone, sand and clay in Ghana, and marble in Zambia (Asaduzzaman, 2008; Babu, 2004; Dreschler, 2001; Hinton, 2005; Hilson, 2001; Sahnaj, 2004).

In a comprehensive assessment of ASM in SADC Countries, Dreschler (2001) observed that in the formal (legal) sector, only ~10% (or 3000) of the miners are women, with the remainder engaged in subsistence mining. He stated:

“Most of the women are found at the very bottom end of the sector’s hierarchy, doing subordinate work. Women are not employed in the regions large-scale mining industry, and therefore, they usually don’t have the experience in mining. Women are also not that flexible and able to move around in the country. So, while men are often following the gold-rush in remote corners of the region, women are usually tied to their households and involved in seasonal panning activities around their home areas.” (Dreschler, 2001:6)

Similarly, in mica factories in Giridih in Eastern India, Lahiri Dutt (2006:25) observed “the more arduous, tedious and manual jobs are done by women whereas men tend to do more specialised and skilled jobs that often involve the use of machines”.

Socio-cultural beliefs and tradition can figure prominently in gender roles and relations that determine access to and benefits from ASM. In the Jos region of Nigeria, Ogbe (2001) found that women’s role in tin mining is largely determined by her husband – in this case, mining is predominantly conducted by women, with their earnings regularly turned over. In N’tulo, Mozambique, women are believed to attract bad spirits, and are therefore banned from working in the mines (Dreschler, 2001). They are, however, permitted to sell food and beer. In Zambia, the belief perpetuates that women should not approach a gemstone mine as the spirits of the stones would drive the gems deeper into the earth (Synergy Africa, 2001) or disappear altogether (Kaingu, 2003).
Some cultures believe this is particularly significant during menses. Disappearance of the stones can be averted with the slaughter of a goat or cow, and the calling of the spirits of ancestors (Kaingu, 2003). Menstrual taboos in the Maroon culture of Suriname that prohibit women from engaging in activities, including sex, cooking for men, or touching items used by men, have prompted some women working at mine sites continually take oral contraceptives to prevent menstruation so they can continue mining (Heemskerk, 2000). The perceived repercussions of violating the taboos include illness, death and other misfortune to people in the community. Under the guise of concerns for women’s safety, women were strictly prohibited from entering the artisanal mining reserve in the gold rush in Serra Pelada, Brazil (Veiga, 1997). In Zambia, many women have reported severe difficulty initiating mining in some areas due to the hostility of chiefs threatened by their presence (Machipisa, 1997). Due to the belief that women bring bad luck, women have been legally banned or deterred from working underground in countries throughout the world (Robinson, 1998). Up until the mid-1980s, organized mining companies adhered to this superstition in Brazil, and, in the 1970s, coal miners in Eastern US states adhered to the belief that the presence of women underground would cause explosions (Hodel, 2000). The justifications for discrimination in each of these cases may differ; however, the end result is ultimately a system that undermines a woman’s freedom and choice to participate fully in mining.

At many sites, women and men undertake the same direct roles in mineral production; however this does not always equate to same outcomes. In Mali, it is suggested that centuries of mining tradition have determined that women and men work side-by-side gold digging (Keita, 2001), however Labonne (1998) observed that Malinke tradition in the Kangaba area nevertheless dictates that women turn over all gold to their husbands (Labonne, 1998). In Kikagati Mine in Ntungamo District of Uganda, both women and men dig underground while cases of women trading sexual favours for assistance in breaking exceptionally hard cassiterite ore have been reported. This example may depict the desperation of women working underground, but it also puts both women and men at risk while reflecting the “machismo” mentality that may call into the question the strength or virility of a man who denies such a request.
The gender division of labour is significant not only as it reflects differential visibility, vulnerability, autonomy, time, domestic responsibility, mobility, access and control, education and skills, among other interconnected issues, but as it determines differential outcomes, such as those related to social status, income and human health risks.

2.2 ASM and the Health of Mine Workers

Gender factors that influence occupational health risks faced by an individual can be either biological (e.g. related to physiology, life stage, physical characteristics, etc) or non-biological (e.g. occupation, risk attitudes, nutrition, stress). The role in the mine site, of course, figures prominently. For instance, as men dominate digging and rock breaking in open pits or underground, they are at greater risk of injury or fatality due to pit wall failures or tunnel collapses. Women and men who manually crush quartz-rich stone aggregate are chronically exposed to fine, crystalline silica dust, the inhalation of which can result in silicosis. Gender roles can vary from site-to-site, commodity-to-commodity and within sites themselves, while heterogeneity of miners in terms of risk perception and awareness, power to control and prevent risks and individual physiological differences, among others factors, can determine outcomes.

The occupational health issues that plague ASM can primarily be attributed to: the informal and often illegal nature of ASM, economic constraints that result in inadequate equipment and neglect of safety measures, and a frequent lack of expertise and insufficient training (Hentschel et al, 2001). Although the chemical dangers, in particular, those associated with mercury and cyanide misuse, first come to mind, most occupational hazards are a consequence of poor physical conditions, such as ground failure, shaft collapses and machinery accidents. Hydraulic monitoring\(^4\) of secondary deposits can also be extremely unsafe, as there is potential to undercut hill slopes and induce landslides (Hinton et al., 2003). In two ASM sites in Indonesia, shaft or pit collapses occur between 2 and 5 times per year (Purwana, 2003). Methane or coal dust explosions are also significant in small coal mines, such as those found in China, where at least 6000 miners die annually (ILO, 1999). Poor lighting and ventilation,

\(^4\) Hydraulic monitoring involves the high pressure application of water to “fluidize” metal-bearing highly weathered soils (Hinton et al., 2003).
electrocution and explosives misuse are other frequent causes of accidents. Women, men and children who work in ASM face additional illness, injury and stress from dust and noise pollution, as well as extreme exertion from highly labour-intensive jobs (Hentschel et al, 2001). Although accidents are severely underreported due to its illegality, ILO (1999) states that non-fatal accidents in ASM are still six to seven times greater than in formal, large-scale operations while, in reference to India, Rege (2004) contends that thousands of accidents go unreported on a daily basis.

Inhalation of fine quartz dispersed during breaking and crushing rock, can result in silicosis, which has been documented in children as young as 14 in Ghana (ILO, 1999). Primarily due to widespread silicosis, life expectancy in a mining region of the Bolivian Altiplano is barely 48 years (Quiroga, 2000), an overwhelming difference from the national average of 63 years (World Bank, 2002). Incidence of silicosis range between 16-57% in different quarries of India, amounting to more than 800,000 mine workers in the state of Rajasthan alone (Lahiri Dutt, 2006).

Being in close proximity to mining and milling operations often equates to environmental health hazards for area residents. For instance, in Rwamagasa Village, Tanzania, Tesha (2003) ascertained that chronic exposure to elevated noise levels for millers and those living in close proximity to mills could result in hearing impairment. In Tanzania, Tesha further observed that operators and people around the mill are exposed to a significant amount of dust, largely due to the use of dry grinding.

As women are most commonly involved in the processing aspects of ASM, they are also highly susceptible to chemical dangers, particularly in association with mercury misuse in gold mining. Mercury is widely recognized as one of the most toxic metals known to humans. Mercury vapour released during amalgam decomposition poses a serious hazard to women, men and children in close proximity to gold shops and amalgam decomposition sites. In many countries, gold decomposition takes place in the home (using the kitchen stove) or in small sheds adjacent to processing sites. In a study by Murao et al. (2002), women who conducted in-house amalgam decomposition in pocket mines of Luzon Island in the Philippines frequently had elevated levels of mercury accumulation in hair and exhibited symptoms, including
kidney pain, respiratory problems, and dizziness. Chronic exposure to mercury vapour can also result in gingivitis and muscular tremors. Mild cases of mercury poisoning have many psycho-pathological symptoms, such as depression and exaggerated emotional responses, which can be mistaken for alcoholism, fever, malaria or other tropical diseases. Exposure to acute levels can produce dysfunction of kidneys and urinary tract, vomiting, and, potentially, death (Stopford, 1979).

In El Callao, Venezuela, where thousands of artisanal miners actively excavate ore from hillsides, the amalgamation process is performed by "moliners", who typically own moderately mechanized plants consisting of three to five lines of jaw crushers, small hammer crushers (capacity of five tonnes/h) and amalgamation tables (mercury-covered copper plates (Beinhoff, 2003). Approximately 3 to 20 grams of gold is recovered from each of the 50 kg bags of ore processed through comminution, concentration and amalgamation. During this operation, the molineros direct the pulp with their bare hands over the mercury-covered plates. By doing this operation, all people working in the ore treatment plant are constantly exposed to mercury vapors – many miners have evident symptoms of mercury toxicity. Amalgam decomposition is conducted by burning. Gold production of 650 molineros amount to approximately 45 kg gold per month (Beinhoff, 2003). On a visit to a molinero, Veiga (1996) recounted the following:

“We have talked to a molinero, Mr. David Mejias who recently lost his brother with mercurialism symptoms. According to Mr. Mejias, his brother, who used to take care of the amalgamation work, died due to kidney problems, breathing deficiency and swollen heart. As Mr. Melijas was telling this story, his helper, now a woman, was burning amalgam in a shovel. At this point, he said: “from now on I will be inside of my office when she burns the amalgam”. Mr. Melias has never seen a retort and no environmental or mining inspector has ever given him technical advice. He prefers to hire unaware women for dirty work”.

Women and men involved in reworking tailings may simultaneously be exposed to multiple pollutants. In Bolivia, where tailings are primarily the domain of women, these palliris may spend several hours per day working in tailings saturated with heavy, metal-rich acidic drainage and cyanide residues (Jerez, 2001). Cyanide, which is used
as an alternative to mercury in recovering gold, is an effective asphyxiating and hydrogen cyanide gas (HCN), and can be fatal to humans at concentrations around 250 ppm in air. Chronic exposure to low concentrations of cyanide has been linked to neuropathological lesions and optical degeneration (Potter et al., 2001). In addition to cyanide and mercury, women reworking tailings may be exposed to highly toxic metals, including lead, cadmium and arsenic.

Despite the evidence that indicates the strong link between mental and physical health (WHO, 2001), indicators of mental health or stress have not been well studied in the context of ASM. Factors such as heavy workload, poverty, and family illness are expected to negatively impact the mental health of men and women. Further to this, the effects of migration may also weigh heavily on the psychological well-being of women. Migration of women to ASM regions, as observed in the garimpos of Brazil (Sena, 2001; Veiga, 1997), is often related to poverty and economic crises in their homelands. In some cases, women migrate to mining areas for periods of time, leaving their children in the care of relatives (Heemskerk, 2000). Factors such as change in diet and stress associated with leaving traditional lands, often breaking social ties in the process, has been linked to negative impacts on women. In Mashonaland, Zimbabwe, a study of effects of rural economic development on women’s blood pressure revealed notably elevated levels in mining areas in comparison to areas where large-scale agriculture and traditional economic activities took place (Hunter et al., 2000).

The health impacts associated with ASM are strongly linked with the poverty cycle. Poor health generates a vicious cycle – when spouses or family members are infirmed and their capacity to work is diminished, a “healthy” family member must work harder to pay for normal living expenses in addition to health costs. Ill health of a family member may initially drive people into ASM and - as arduous work coupled with inexperience in mining and lack of knowledge about chemical exposures can further exacerbate the potential for injury or illness - the cycle of ill health and poverty is perpetuated (Hinton, 2006).
2.3 ASM and the Natural Environment

ASM can detrimentally impact ecosystems through deforestation and the modifications of hydrologic systems, for example, through silt accumulation in rivers or construction of water reservoirs (Akagi and Naganuma, 2000). Siltation of rivers caused by discharge of tailings into waterways reduces light penetration and dissolved oxygen levels, thereby jeopardizing fisheries, and may result in flooding (Hinton, 2002). As well, silt build-up may effectively modify the dimensions of drainages such that flooding occurs. With decreased organic matter with deforestation, the water retention capacity of soils also diminishes, thereby resulting in an increased potential for flooding. Fishery depletion and frequent flooding can obviously have detrimental effects on riverine communities and others dependent upon fish as a food source. As flooding increases the net area of standing water, it also contributes to malaria and other mosquito-transmitted diseases (Mergler, 2003). Impacts on water quality can increase the burden on women responsible for water and fuelwood collection.

Deforestation can significantly impact women and families, due to the importance of forests for fuelwood and, sometimes, food and medicine. Akagi and Naganuma (2000) also identified deforestation as a major consequence of ASM. Peterson and Heemskerk (2001) estimated that up to 2300 km$^2$ of forest in Suriname alone will be destroyed by artisanal miners by 2010. Although regeneration of these forests is anticipated as mining activities subside, it has been shown that regrowth tends to be slow as soil quality has been degraded significantly (Peterson and Heemskerk, 2001). In addition to land clearing, deforestation also provides timber for the construction of shelters, underground supports, to fashion pans, as firewood, and for other domestic uses, as observed by Shoko and Veiga (2003) and Tesha (2003) in ASM regions in Zimbabwe and Tanzania. In Rwamagasa Village, Tanzania, miners use timber from the nearby forest reserve to stabilize pit walls (Tesha, 2003). Prior to mining, the forest around Rwamagasa covered the entire region. At the current rate of forest extraction, Tesha (2003) anticipates that the forest will be completely decimated within the next five years.

The environmental degradation associated with the excavation of large volumes of material can affect groundwater (when the water table is encountered), as well as
water quality in adjacent drainages. Waste material is often heaped in close proximity to pits. This creates a source of silt which can be eroded by rainfall, clogging nearby rivers. In Gugub Village, Sudan, Ibrahim (2003) estimated that 400,000 to 500,000 tonnes of waste and tailings are piled near pits. Siltation resulting from the erosion of mine waste and deforestation, coupled with the direct discharge of tailings into waterways, is one of the most significant impacts of ASM on the environment (Hentschel et al, 2002). The effects of siltation from garimpos in Brazil, for example, can be observed as far as 300-500 km downstream in the Tapajós River (Carmouze et al, 2001).

In the case of artisanal gold mining, organic forms of mercury – specifically, methylmercury – is of the greatest concern in terms of exposure from food. Metallic mercury discharged into the environment (air, water, tailings) from gold mining practices can be transformed into methylmercury, a readily bioavailable form of mercury. Due to its tendency to increase in concentration upward through aquatic food chains (i.e. it is biomagnified), individuals reliant on fish in mercury impacted areas may be at risk. Chronic exposure to moderate levels of methylmercury results in symptoms including: visual constriction; numbness of the extremities; impairment of hearing; impairment of speech; and impairment of gait. In cases of acute intoxication, muscular atrophy, seizures and mental disturbance are prominent. Women of childbearing age and their children are particularly susceptible, as methylmercury readily crosses placental barriers and is considered to be a developmental toxicant (Grandjean, 1999). Depending on the frequency and degree of exposure, effects can range from sterility, and spontaneous abortion, to mild to severe neurological symptoms.

In addition to mercury, exposure to other potentially toxic metals (e.g. cadmium, lead) can also occur through inhalation (i.e. of dust) or consumption of contaminated drinking water and food. This can be facilitated by metals mobilization, in association with acid rock drainage, or direct uptake from tailings into crops or grazing animals. Heavy metals can result in a host of negative health effects. Chronic exposure to cadmium, for example, can have effects that include kidney stones to osteomalacia, a form of rickets (WHO, 1996).
In a number of communities targeted by UNIDO’s Global Mercury Project, abandoned pits have been described as veritable “death traps.” In Rwamagasa Village, Tanzania, abandoned pits reach depths between 2 and 20 metres (Tesha, 2003). In Galangan, Indonesia, depths typically range from 5 to 50 metres (Purwana, 2003). Animals and people walking in these areas, particularly at night, have been known to fall into pits and drown during the wet season when pits are covered by thick grasses. Flooded pits have also been shown to provide breeding grounds for mosquito-borne diseases, such as malaria (Mergler, 2003).

One of the major community health risks from ASM relates to water contamination, not only from mercury used in gold processing and metals leached from mine waste, but also from domestic wastes, such as sewage, detergents and other chemicals (Hentschel et al, 2003). Often these same waters are also used for domestic purposes, including consumption. Inadequate infrastructure, in particular nonexistent water treatment and sanitation systems, coupled with limited access to health services, lead to a host of diseases and ailments. In a major international project targeting ASM sites in Latin America, Asia and Africa, community health assessments documented widespread diarrhoea, typhoid and parasitism, and poverty-related ailments, such as malnutrition (Ibrahim, 2003; Darmutji, 2003; Mtetwa and Shava, 2003; Purwana, 2003; Wagner, 2003; Shoko, 2003).

In informal economies in particular, the natural environment is critical to women’s abilities to generate income and satisfy household needs. In addition to crop production, women are typically the main providers of water and biomass fuels, and further rely on the natural environment for medicinal plants and resins. Due to the direct link between women, family health and the natural environment, women can be highly effective in land management and particularly influential in advocating practices that prevent environmental damage and related human health effects. As individuals and groups are less likely to invest time and resources into more sustainable practices on land they do not own (Sass, 2002), the significance in terms of gender-differentiated control and ownership of mineral rights is especially pertinent.
2.4 ASM and Socio-economic Transformation

Many regions throughout the world have relied on ASM for centuries and even millennia. In these situations, mining is a culturally significant tradition and its continuation could be viewed as critical to maintaining community security. In Keana, Nigeria, where salt has been mined by indigenous women for the last 700 years, salt is viewed as a gift from the gods (Onuh, 2002). Mining culture also runs deep in the Indian state of Rajasthan, where marble was mined for construction of the Taj Mahal (Chakravorty, 2001). In established ASM communities in Mozambique, Mondlane and Shoko (1993) documented combined power structures comprised of local/state government officials, traditional and indigenous leaders, and mine camp leaders. Miners often continue to honour their religious beliefs by proffering gifts of gold to traditional chiefs and participating in ancestral worship.

In many cases, ASM is a migratory or quasi-temporary phenomenon that has tremendous capacity to create profound changes at the household, community and regional level. With the exception of stone quarries and clay brick production in peri-urban areas, artisanal or small scale mines are typically located in remote, rural areas with deficient infrastructure and poor services (Hentschel et al, 2001). In the case of metallic minerals and gemstones, in-migration can be extremely rapid upon discovery, with mine camps emerging in the course of a few days and, in some cases, population increasing to tens of thousands in a matter of months. Although these camps typically evolve into permanent settlements, due to the “temporary” and ad hoc nature of these settlements, public health and government officials rarely allocate resources to these communities (Hentschel et al, 2001). In these “rush” scenarios, a familiar cycle occurs: “discovery, migration, and relative economic prosperity are followed by resource depletion, outmigration and economic destitution” (Veiga and Hinton, 2002:14).

The ad hoc communities that form (or existing communities that transform) around ASM are often characterized by drug and alcohol abuse, prostitution, disease, gambling, and violence (Hentschel et al, 2001, Veiga and Hinton, 2002). In Rwamagasa Village in Tanzania, malaria, tuberculosis, and sexually transmitted diseases including HIV/AIDS are the dominant causes of morbidity and mortality (Wagner, 2003).
Cultural values can be severely impacted in ASM characterized by migration and transience. In some cases, 50,000 to 100,000 of miners and their families can migrate to a mining area over the course of months (Weber-Fahr et al., 2001), bringing with them a host of different values, practices, opportunities and risks. The promise of real or imagined riches often lures local residents from their traditional ways of life (Hentschel et al., 2001). The pressure felt by local people to make the transition into mining is further exacerbated by the escalation of food and service costs, which frequently occurs as mining stimulates the cash economy.

This allure was captured in a major study conducted on ASM in Latin America, stating that the living conditions of girls and women in these communities are “usually on the boundary between poverty and misery” (Veiga, 1997). Living in extreme poverty-stricken situations, many girls and young women are enticed to remote areas in the Amazon region to work in “night clubs”. Initially, they are loaned money to escape their poverty but very few can repay their debts, particularly given the exorbitant cost of food and accommodation imposed on them. Controlled by violence, most women work seven days a week and often suffer from malnutrition and sexually transmitted diseases.

ASM communities can be marked by conflict and insecurity. Conflict may be between nomadic miners and the local community, mainly over natural resources such as land and water, conflict between miners and mining companies and conflict between miners. For example, in 1993, miners invading traditional Yanomami lands in the Brazilian Amazon massacred more than 40 Yanomami men, women and children (Guzman, 1993); in the Madre de Dios Basin in Peru, where 9,500 of 15,000 families are dedicated to gold mining, conflicts with surrounding 43 indigenous communities are frequent (Kuramoto, 2001); in Papua New Guinea, trespassing of artisanal miners onto tribal land is an ongoing source of violent conflict (Susapu and Crispin, 2001). For example, increases in acts of violence by Amerindian men in Guyana have been attributed to the influence of miners and the “mining culture” (Anon, 2001). When men migrate to mining regions, they can return with modified values, sometimes weakening women’s position in the household. In the Sierra region of Ecuador, for instance, it has
been documented that men return home with a greater sense of “machismo” than is traditionally observed in indigenous Sierrans (World Bank, 2000).

Incidences of violence towards women in ASM communities have been documented throughout the world. In Guyana, rape of Amerindian girls by foreign miners has been reported (Anon, 2001). In addition, increases in acts of aggression by Amerindian men have also been attributed to the influence of miners and the “mining culture”. Martha Bitwale of the Tanzania Women Miners Association has described the fear of sexual abuse associated with women conducting mining and exploration in remote areas (Machipisa, 1997). Maroon women admittedly battle sexual harassment and other hardships (e.g. malaria) only because of the absence of viable alternatives (Heemskerk, 2000). In the mining camp Huaypetuhe in the Madre de Dios gold mining region of Peru, high crime rates and incidences of rape and violence are, in part, attributed to the absence of police and lawlessness common in many ASM communities (Kuramoto, 2001). Escalating violence in Ecuadorian communities has been attributed to rising poverty levels and inequity between men and women (World Bank, 2000).

Growing up in a stone quarry or any mine, babies and infants are likely to spend the first years of their lives strapped to mothers back or sitting nearby as she conducts her work at the mine site (Hinton et al, 2003). Over time, small tasks are introduced at the mine site and, before long, the child becomes a miner, in some cases, becoming apprentices of men and women who see the value of transferring their skills. More than 1 million children work in ASM – from stone quarries to gold or metal mines, from clay pits to gemstones (IPEC, 2004). In the best cases, a child works side by side with siblings and parents. Often, ASM is the only alternative to young orphans with few skills and fewer resources. In the worst cases, a child is “lent” or given to a mine operator in payment of debt of forced under threat of violence to spend days and even weeks entering small tunnels deep within a mountainside.

Child labour in mining is considered by the International Labour Organization (ILO) as one of the “worst forms of child labour,” because it usually means a denial of children’s rights to healthy development, education and physical well-being. Children’s
developing bodies are far more vulnerable to the chemicals, dust, compression of bones from hauling far-too heavy loads or muscle hardening from repetitive motions can doom a child to chronic pain or illness throughout life (Wasserman, 1999). This vulnerability can also extend to sexual exploitation, physical assaults or psychological abuse.

Despite these difficult conditions, Labonne (2002) asserts that ASM provides a source of much-needed employment for both women and men in regions where productive alternatives are lacking. In regions with long-established mining histories and for many industrial minerals sites, stable communities are more likely to develop and mining is more likely to make a positive social contribution (Weber-Fahr, 2001). In the village of Keana, Nigeria, where 100% of the mining workforce is comprised of women, revenues generated from salt mining have enabled mothers to sponsor their children to attend school at rates well above the surrounding communities (Onuh, 2002). In the Laroo quarry region in Gulu District of Uganda, women are also predominantly engaged in mining, prompting a shift in gender relations that has enabled them to control family finances (Anon, 2004). In Suriname, Heemskerk (2003) confirmed that women’s status in the household can strengthen with increasing financial contributions from ASM, a contention asserted by other researchers (Fontana et al, 1998). Elucidating the multiple factors determining improved socioeconomic status (SES), for instance related to education, income, participation and voice, among others, has considerable potential to better understand how transformation of gender relations is or can be supported within different contexts.

2.5 ASM and Informality, Disorganization, Rationality and Recognition

At the 1995 International Roundtable on Artisanal Mining, it was concluded that none of the challenges facing the ASM sector could be overcome until a prime need was met: legal titles (Barry, 1996). Recognized as a critical precursor to advancement of the ASM sector, enabling legislation provides a foundation for change. Siegel (2007) states that “by not extending rights to the extralegal economy, the institutions of the State are denying economic freedom to what is in fact the overwhelming majority of the World’s people”, which is an “irrational move... wasting an enormous tax base that could support the emancipation of developing countries from much foreign aid.”
Poverty is believed to be both a catalyst and consequence of informality. In the case of ASM, informality can perpetuate poverty as it prevents security of tenure and reduces access to the financing and technical support needed for improved economic, environmental and social performance. Conversely, informality somehow benefits many in the mineral supply chain in terms of evasion of taxes, capacity to exploit women and men miners and relative ease of eviction of miners, among others.

Around 80% of the World lives in the “informal” or “extralegal” economy (Siegel, 2007) and, in Uganda, this reliance likely exceeds 90% of the population. Many view the informal economy as a reasonable response to formal systems that are inaccessible, impractical and even dysfunctional (Pelon, 2005). Formalization is founded on the principle that extralegal systems, social arrangements and organizational structures exist for legitimate reasons and the law itself should be an evolving and enabling instrument that reflects the changing ways people live (Siegel and Veiga, 2009). With consideration of the overarching need for protection of human rights, formalization is the process of integrating rather than controlling extralegal enterprises by recognizing local arrangements in legislation, reducing barriers to legalization and creating clear benefits from participation in the formal system.

In an assessment of livelihood decision making in a gold mining region of Suriname, Heemskerk (2002) used ethnographic decision-tree modelling to analyze and predict occupational choices made by Nduka maroons. Using a gender-sensitive model that identified the factors dictating livelihood choices of men and women, Heemskerk ascertained that decisions to participate in gold mining were 'rational', given the limited alternatives available to miners and relative income generating capacity of ASM. I.e. both male and female miners had considered available options prior to entering mining, had the means to enter the mining workforce (e.g. time, transportation) and had some awareness of the health risks associated with mining.

Informality is frequently used interchangeably with disorganization. Women and men miners in Uganda have a diversity of work arrangements based on what makes sense given their differential financial, social and technical constraints (Hinton, 2009a). This
ranges from small, semi-permanent work groups of 6-10 miners to owner (buyer) controlled licensed enterprises to family-group seasonal miners to independent miners. In many cases, benefit-sharing through agreements with land owners and fees to subcounty governments serve to reduce conflict risks and provide a sense of formality at the local level. Understanding the gender division of labour and power relations within these different scenarios can yield insight into appropriate measures to support formalization while transforming (rather than exacerbating) the gender relations critical to poverty reduction and improved wellbeing.

Much ASM legislation has enshrined the formation of cooperatives as a pre-requisite for small scale mining licenses and indeed thousands of cooperatives have been formed for the sole purpose of obtaining a mining title. Most, however, are not true, benefit-sharing, member-owned institutions (Veiga and Hinton, 2002). For example, a regional ASM cooperative (AMOT) in the Tapajos Region of Brazil handles registration of sites and miners for up to 100,000 artisans. Although somewhat effective in terms of advocacy, AMOT is rotationally run by about 10 “bosses” and buyers, who use the institution to identify and monopolize sites across the vast region for their own purposes (Hinton, 2004). At the Kias Gold Mine in Philippines, all members of its mining association are men, but women are often contracted by miners to conduct panning in exchange for payment in tailings that contain residual gold (“linang”) (Bugnosen, 1998). Externally promoted organizational structures run the risk of exacerbating gender inequalities, particularly if current arrangements (and reasons for their existence) are not recognized and differential constraints faced by women and men are not understood.

Ultimately, women and men miners will choose to work within a regulatory framework only if (a) they have the capacity to participate; and (b) it is obviously advantageous to do so (Veiga and Hinton, 2002). The majority artisanal miners are unable to satisfy costs associated with taxes, royalties, fees and rents and time and money spent in transport, while technical capacity to complete applications, regular reports and other bureaucratic requirements present additional challenges.
Most ASM policy reform and related interventions seek to elevate activities at the subsistence or “artisanal” end of the ASM spectrum to a formal, “small scale” enterprise. Recognizing the role of both women and men in the ASM sector, Jennings (1999:87) stated “women’s lack of schooling, their higher rate of illiteracy than men and their general lack of knowledge of mining constitute formidable barriers.” In recognition of their domestic responsibilities, socio-cultural bias and technical, legal and financial constraints, Jennings (1998:87) called for gender analysis in ASM communities prior to policy reform and interventions, further stating “Where women have overcome these constraints they have generally been very successful. Re-thinking assumptions about organization, formalization and legal reform through gender analysis of the systems and work arrangements that exist is likely to achieve better, long terms outcomes while advancing gender equity and development of sustainable livelihoods.
3 THEORETICAL FRAMEWORKS

This action-based research examines the gender-differentiated constraints facing women and men salt miners, in particular, and main assets or poverty reducing measures to which they have access through the set of lenses provided by the Social Determinants of Health. As it provides a structured means with which to examine these multi-faceted determinants and captures environmental influences on health and wellbeing, the Ecosystem Approach to Human Health was also used as a guiding theoretical framework. These approaches aid in focusing the research by providing a basis for including or excluding related literature, mainly by clarifying the key issues and variables, while providing guidance in the design and execution of the case study research in the salt mining community of Katwe-Kabatooro Town Council in Kasese, Uganda.

3.1 Social Determinants of Health

It has been clearly demonstrated that the risk of disease and death cannot solely be attributed to genetic and physio-environmental factors, such as smoking, blood pressure, age and exposure to toxins, etc (Evans, 1994). Health and wellbeing is a result of the complex interplay between factors that include, but are not limited to, income level and disparity, social support networks, education, employment, working and living conditions, physical environments, social environments, biology and genetic endowment, personal health practices, coping skills, healthy child development, health services, gender and culture (Evans, 1994; Health Canada, 2004; Marmot, 2001; Mach, 2004). These determinants function at an individual and collective level (Corin, 1994). Social determinants of health refer to both “specific features of and pathways by which societal conditions affect health and that potentially can be altered by informed action” (Kreiger, 2002:11).

These social processes and conditions are factors that “set certain limits or exert pressures” but are not necessarily deterministic (Kreiger, 2002:11). Corin (1994) contends that the social determinants must be seen as a “network of interacting variables” which can exacerbate or mitigate health outcomes (Fig. Two). In addition to this interactive relationship, the social determinants of health are marked by
interdependencies. As Nobel Laureate, Amartya Sen states “the deprivation of health is bad even for the economy because people's productivity depends on their level of nutrition and health. The functioning of the economy suffers from illness-related absenteeism” (Mach, 2004). The cyclical relationship between health and social determinants is also illustrated by education. Low education levels reduce opportunities to acquire employment and move up in socioeconomic status, yet low incomes, poor health and high financial and psychosocial strains on families tends to keep children from attending school (Buchmann and Hannum, 2001).

Socioeconomic position or status (SES) is one of the most significant determinants of health (NALD, 2001). Across nations and cultures, it is widely recognized that health status generally decreases with SES, i.e. the rich and powerful live healthier, longer lives than the poor and disempowered. “While death is ultimately quite diplomatic, deferral appears to be a privilege correlated with rank” (Evans, 1994:9). SES refers to the relative position of an individual or family in a hierarchal social structure. It is based on resource-based factors, such as income, wealth and educational levels, and prestige-based factors, such as influence, power and rank in a social hierarchy (Krieger, 2002, Mueller and Parcel, 1981). The linkages between SES and health have not been fully elucidated; however, they are commonly measured by income, education, and working conditions or occupation (Adler et al, 1994). In addition to these factors, Mechanic (2000) states that “privileged positions provide the social arrangements, skills, information, and tools to capitalize on the most advanced knowledge and practices that facilitate health”.

Socioeconomic status and health are classically linked to behaviours or exposure to environments that place individuals at increased risk (Hertzman et al, 1994). Contemporary perspectives suggests that overall health can be attributed to a number of factors including nutrition, access to health services, degree of control over life conditions, and housing conditions, factors which may be lesser in lower socioeconomic groups and therefore increasing their susceptibility to various conditions (Fig. Two). It is believed by many that health status varies as a continuous gradient across socio-economic hierarchies, i.e. health status improves up “steps” of the socioeconomic status “ladder” (Adler et al, 1994; Hudson, 1994; Mustard and
Frank, 1994), while others contend that consideration of health status are better captured within “cleavages” in societies (Bromley, 1994). Regardless of the nature of partitioning within and between social groups, in societies throughout the world, there is virtually no evidence of high wealth, income or social status inversely correlating with overall health status (Hertzmann et al, 1994). Hierarchal social structures, which tend to be stable over time, can be found in virtually all human groups (Adler et al, 1994). These structures may serve to decrease hostility within social groups, serving as a protective factor for those with high status, while in unstable groups higher “ranking” persons may be at greater risk of disease and illness (Adler et al, 1994).

Although there are multiple components of SES, income levels are commonly used to bridge the gap between SES and health. Wilkinson (1996) contends that GNP per capita is the most effective indicator of health status. Marmot (2001) attributes this to both the inability to acquire the material goods necessary for good health (i.e. deprivation) and insufficient means for social participation. Evans (1994) and Coburn
(2004) suggest that relative and not absolute income levels better characterize the relationship between income and health, i.e. even at low income levels, the equitable distribution of wealth may result in good health. For instance, certain social characteristics, such as high levels of maternal education, can cause good population health even at low income levels (Evans, 1994). Using both qualitative and quantitative methods, Coburn (2004) explains that in least developed countries (LDCs), there is considerable variability in health status below incomes of $5-10,000 GNP per capita that can be linked to income disparity at a local, regional and even national level.

Most studies examining the influences of SES on health fail to concurrently assess a broad range of factors contributing to SES (Adler et al, 1994). Coburn asserts that although income inequality is a major determinant of poor health, this is mainly because it is a proxy for conditions associated with inadequate material goods (e.g. food) and SES. Psychosocial health outcomes, such as low self esteem, and poor social cohesion result from inequities in SES, and impact health through psycho-neuro-biological pathways (Fig. Three) (Wilkinson, 1997, Kawachi et al, 1997). Income inequity is only one factor affecting socioeconomic status. Another component of SES, education, may be a better correlate of health than income (Buchmann and Hannum, 2001, Hertzman, 1994, Mechanic, 2000). In a study which explored the role of income inequity versus education in mortality in the US, Muller (2002) established that lack of education was a more significant predictor than income, attributing the connection to health via “economic resource deprivation, risk of occupational injury, and learnt risk behaviour.” Education is a critical step in reducing inequities in SES and, thus, health. “Once begun, inequality is a cumulative process, with each added disadvantage leaving children further and further behind” (Mechanic, 2000).

It has further been suggested that higher levels of education may influence health as it may facilitate more supportive relationships, thereby reducing social isolation (Ross and Wu, 1995). Social isolation, which refers to the separation of individuals or groups by physical, social or psychological barriers, is an established determinant of health, mainly due to its impact on stress\(^5\) (Bower, 1997). Stress is often the linkage between

\(^5\) Stress generates a physiological response vis-à-vis the interpretation of the external social environment by receptors of the nervous system. This, in turn, generates a response by the endocrine system, which is typically experienced as a “burst of adrenaline”. If prolonged, physiological damage, including heart disease, can result. (Evans, 1994).
social determinants and physiological outcomes. In addition to the linkages between SES, psychosocial health and stress, a state of continued anxiety may be anticipated in conditions of prolonged vulnerability, such as may be experienced by low SES people, as it is conducive to a heightened awareness of outside threats, e.g. of violence, droughts or other external “shocks”.

In examining the social determinants of health, it is important to appreciate that time, as well as space, are the foundations of context (Hayes, 1994). Thus, those factors identified as determinants, in part as they are difficult to link causally to expressions of health, often vary significantly over a lifetime, making them difficult to quantify (Coburn, 2004). The stages of the life cycle must be considered in order to account for latency effects, i.e. events experienced in one stage may result in an outcome in a later stage in life (Hertzman et al, 1994). “At issue are people's developmental trajectories (both biological and social) over time, as shaped by the historical period in which they live, in reference to their society's social, economic, political, technological, and ecological context” (Kreiger, 2002:13).

Kreiger (2002) suggests that four types of time must be considered. Elapsed time accounts for the delayed effects between time an event occurs and the impact on health. Biological time is based on the point in the life cycle (e.g. infant, adolescent, children, working age, adults, elderly). Cumulative time relates to dose/length of exposure to a toxicant (e.g. cumulative exposure to silica dust until “sufficient” to cause manifestation of silicosis). Finally, historical time depends on the point in history as well as the subsequent course of events (e.g. exposure followed by availability of treatments). Hertzman et al (1994) indicates that, as establishing causal links is confounded by “latency effects” for many health outcomes, the highest education level attained, which tends to remain more or less constant later in life, is arguably one of the best determinants of health “with all other measures of social class serving as proxies.” (Hertzman et al, 1994:84).

In addition to the complexity of time, generalizing research across space, i.e. from a single context to a broader cultural context, is fraught with uncertainty (Corin, 1994). Achieving both generalizability and cultural validity is an ongoing challenge. For
instance, the meaning of certain emotions may vary from culture to culture and thus its health and wellbeing implications may also differ.

A model of social relationships is critical in advance of any investigation of the effects of various social factors (Blomley, 1994). The inequities that differentially impact the poor that effect health are contended to be consequences of systematic oppression and marginalization. In his critique of the report by Canadian Institute for Advanced Research (CIAR) on the Determinants of Health, Nicholas Blomley (1994) stated that “a positivist framework is good at identifying immediate causal links yet is not up to the job of mapping some of these complex causalities.” (Blomley, 1994:54). Arguing that health may actually be socially constructed, Blomley suggests that the classical epidemiological approaches to health are inadequate to address the dynamic influence of culture in response to various changes.

In a subsequent critique of the CIAR report, McCarron et al (1994) contended that approaching the determinants of health must consider the value and meaning of individual experience. Further, health must not be viewed as a product of past events and circumstances but a dynamic process experienced by societies and individuals. The stratification of peoples (e.g. by gender, class, economic status, etc) may serve to neglect the individual experience that may provide much needed insight into the health of individuals. Factors derived in “nature”, such as genetics, age, gender must be appreciated and considered in a comprehensive system in conjunction with factors based in social structure, such as religion, lifestyle, ethnicity, values and beliefs (Hayes, 1994). In order to develop such an approach, it is clear that a relation between various factors must be studied in a variety of ways.

Study of the determinants of health has been predominantly undertaken using quantitative classical epidemiological approaches founded in positivism/empiricism, a factor that has been challenged by many researchers (Elliot and Baxter, 1994, McCarron et al, 1994, Blomley, 1994). If the determinants of health are to be modeled in a comprehensive socio-ecological model, the classical epidemiological criteria for judging causation (i.e. establishing correlations between outcome and exposure) are
no longer appropriate, at least independently (Elliot and Baxter, 1994). Hayes posits that determinants could simply be “mechanisms that give rise to observed outcomes.”

Millar (1994) asserts that conditions in the social environment (key components listed by CIAR being level and distribution of income, the wealth creating ability of a population, social support networks, work environment, employment levels and early childhood development) cannot be causally linked to health outcomes using classical epidemiology as is the case for most environmental (e.g. exposure to toxicants) and genetic factors. After surveying prominent academics and health bureaucrats, Millar concluded that “social and economic factors in health can only be assessed for causality by ecologic and other “subjective” investigation techniques drawn from the social sciences” (Millar, 1994, p. 202).

This research seeks to explore the influence of social and environmental factors on health and wellbeing in an ASM community. Elliot and Baxter (1994) suggest that the psychosocial impacts are reliant on four aspects, specifically the characteristics of: the individual; the environmental stressor; the social network; and the community system. Understanding the psychosocial impacts of these stressors requires understanding of the interrelationships between these dimensions as well as the effects on the individual. The efficacy of employing the social determinants framework in a developing world context, where these issues have been largely unstudied, are also explored.

Each specific context differs in terms of the gender bias and analysis of its causes in specific contexts has been called for (Anderson, 2004; Rico, 1998). The relationships between sustainable development, the environment, and socio-economic conditions, such as organization of labour (both in productive and reproductive spheres), production and consumption patters and distribution of economic, political and technological power, among other factors, can determine vulnerability and agency, or capacity to mitigate and respond to impacts.
Figure 3: Determinants of Health
3.2 Ecosystem Approach to Human Health

Understanding the interconnectedness between human health and the social, political, ecological and economic environment is increasingly recognized as critical to effectively responding to current health challenges. In 1987, the Brundtland Commission highlighted the sensitivity of human health to environmental change. At the ensuing Earth Summit in Rio de Janeiro in 1992, the United Nations Commission on Environment and Development (UNCED) further espoused the importance of characterizing relationships between human health and environment, poverty and socio-economic conditions, and development. More recently, this convergence was discussed at the World Summit on Sustainable Development in Johannesburg and the World Health Organization (WHO) was charged with developing an action plan on health and the environment.

The Ecosystem Approach to Human Health emerged with the recognition that a framework to address the multiple factors impacting human health and wellbeing is direly needed. Also known as the Ecohealth Approach, the Ecosystem Approach to Human Health is a systems-based methodology that recognizes that health is reliant on the nature of all biological systems, from the individual up to the biosphere (Lebel, 2003). The approach puts “human health at the centre of development”, while recognizing the critical interrelationship between health and the ecosystems which humans are a part of (Forget and Lebel, 2001). Ultimately, it recognizes that development will only be sustainable when the wellbeing of both human beings and the ecosystem are considered.

A fundamental component of the approach involves identifying solutions while developing the integrated model of an ecosystem. This is undertaken using an iterative and action-based (i.e. participatory) approach to research, which attempts to enhance understanding of the components of and linkages between human health and the ecosystem (Figure Four). The approach views ecosystems as interacting heterogeneous units, or “holarchies”, whose influence extend beyond the sum of the individual units, i.e. effects extend beyond simple, linear cause and effect relationships.
Three pillars of the ecohealth approach are transdisciplinarity, participation and equity. According to the ecohealth approach, health and wellbeing is influenced by multiple determinants as well as interactions between such determinants. These determinants span culture, biology, socio-economics, environment and beyond. Identifying and structuring the multiple issues within the ecosystem logically necessitates a transdisciplinary approach. In addition to collaboration with those with various fields of expertise (ranging from microeconomics to epidemiology), local knowledge is also an essential component.

Within the ecohealth approach, local knowledge is as important as scientific knowledge. Thus, the approach calls for in-depth local participation in the research process, beginning at early stages of definition of the research question through to analysis. This participatory approach enables identification of the research needs of the communities participating in the research and supports the development of context-appropriate responses to the challenges identified. Despite concerns that local researchers may be ill equipped to participate effectively to this extent, the ecohealth
approach contends that these issues are superseded by one of the primary goals of the approach: to establish communication channels between researchers and communities in order to better understand and respond to health problems (Lebel, 2001).

The third pillar of the ecohealth approach requires in-depth consideration of equity issues and incorporation of methods which capture the gender dimension of the research problem and variations between social groups. Thus, gender-differentiated data collection and understanding the lives of women and men within various social and cultural groups is critical to the research.

Indicators used in the approach extend beyond those that track both properties and processes in the ecosystem to ascertain its health (e.g. such as primary production, rate of nutrient consumption, the energy cycle). Forget and Lebel (2001) contend that although such indicators provide information on the nature of function of the ecosystem, they do not consider health and wellbeing. In the ecosystem approach to human health, co-development of indicators with the target community is critical to the validity of the process.

Using an ecosystem framework combined with a pressure-state-response model in a mining region of Goa, India, Noronha (2001, 2004) suggested that important determinants of wellbeing include availability and command over goods and services, participation in decision making processes, good governance and social capital. This is consistent with a review of women in ASM conducted by Hinton et al (2003), which contended that, in addition to determining the gender-based division of labour, understanding the impact of ASM on the wellbeing of women necessitates consideration of factors including: “women’s and men’s access to and control of resources; their ability to attain knowledge, their decision-making capacity or political power; and beliefs or attitudes that support or impede the transformation of gender roles” (Hinton et al, 2003:13).
3.3 Gender, Human Rights and Sustainable Livelihoods

The Sustainable Livelihoods Approach (SLA) essentially evolved from sustainable development frameworks that, despite addressing broader dimensions of environmental, social and economic sustainability, did not sufficiently address inequities in access and poverty, particularly from the perspective of social analysis (Carney 1999; Ellis and Bahigwa 2003; Moser et al., 2001). Ownership, access and control of assets is widely acknowledged as the means through which women and men can develop pathways out of poverty (Moser, 1998). For example, within the context of ASM, trading up assets of manual labour and basic tools to minerals to savings to better tools to work in teams to group savings to small equipment is an example of how human, physical, natural, social and financial assets can be accumulated and used to improve wellbeing over time.

The principle components of the SLA are, therefore, assets or capitals (DFID, 2001):

- **Natural Capital**: The natural resources and natural processes that make certain livelihoods possible (e.g. arable land, forests, minerals, water).
- **Human Capital**: The ability to work, achieve good health and the skills and knowledge that jointly enable people to attain livelihood objectives.
- **Financial Capital**: The financial assets people need (such as income, credit, savings and market access) to accomplish livelihood objectives.
- **Social Capital**: Social resources that assist people in pursuing livelihood objectives including networks and social connectedness, membership in formal and informal groups, and the nature of trust and reciprocity between individuals and groups.
- **Physical Capital**: Physical capital is the infrastructure, tools, equipment and goods necessary to support people to undertake their livelihoods.

The “escape route” out of poverty is far more complex than a characterization of assets. The level of wellbeing at an individual and household level depends on the assets to which an individual or household has access (financial, human, social, natural and physical capital), the factors influencing access to these assets (e.g.
gender norms, how markets operate, local politics), and the broader context (e.g. history of local development, shocks such as conflict and drought, and policies and institutional practices) (Lawson et al, 2006). These circumstances can change over time, with specific factors increasing or decreasing vulnerability. Consider that:

“A livelihood comprises the capabilities, assets and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base.” (DFID, 2001:1)

Much like the ecosystem approach to human health, the SLA calls for a holistic understanding of encompassing systems, influencing institutions and socio-environmental context as well as the processes determining the capacity or constraints of an individual or community to access, use and accumulate assets in order to escape poverty. According to Kabeer, gender relationships are “governed by social rules and norms which determine how assets are distributed between occupants of different relationships, how authority and status are assigned, and how labour is allocated” (1994:58). Given that the SLA identifies the (a) main constraints people are facing to improving their wellbeing; and (b) assets or poverty reducing measures to which they have access; the framework lends itself well to understanding gender relations from a perspective of identifying differential issues and processes that affect livelihoods and the interconnections between them (DFID, 2001).

Moser et al (2001) proposes an adapted SLA framework wherein human rights and gender are more explicitly recognized. Grounded in the concept of rights as “claims (of one person or group on another person, group or institution) that have been legitimised by social structures and norms”, the revision enables more thorough examination of differential power and vulnerability.

Using a right-based perspective to understanding poor people’s vulnerabilities and opportunities within informal economies, such as in ASM communities, can strengthen insight into how policies, institutions and power structures are supporting or impeding
their advancement. This adapted approach strengthens the SLA by bringing questions of accountability, governance and transparency so crucial to outcomes to the forefront (Moser and Norton, 2001).

3.4 Theoretical Model for Research

The World Health Organization (WHO) defines health as “a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity.” It is evident that the health and wellbeing of women in ASM communities is a function of a complex interplay of social, cultural, ecological, occupational, political and economic

![Theoretical Model for the Research](image)

Figure 5: Theoretical Model for the Research
factors. The Theoretical Model for Research explores these facets of wellbeing by building on the growing scholarship establishing causality between social determinants and wellbeing and is buttressed by ecohealth approaches necessitating transdisciplinarity, participation and equity and bringing greater understanding of health within the context of household, community, national and natural environments. The SLA provides a clear framework to understand the vulnerabilities, assets and processes specific to a context while the information and indicators derived from social determinants and ecohealth approaches are both essential to their comprehensive characterization of such “components” while defining reasonable boundaries for the research.

The model employed in this research, therefore, examines the realms put forth by the ecohealth and social determinants frameworks through a gender lens while structured within an adapted sustainable livelihoods approach (Fig. 5). In applying this model, this research seeks to avoid reduction approaches that simply study division of labour by sex. It aims to account for social processes in production, power and constraints and opportunities women and men face with respect to access to resources and assets. Rather than focusing solely on women, this research seeks to understand how resources are managed socially and the factors determining different and same benefits and opportunities available to women and men.
4 METHODOLOGY

4.1 Rationale for Methodological Approach

The primary aim of this research is to examine a largely unknown phenomenon, specifically how different and same social determinants affect the main assets or poverty reducing measures to which women and men salt miners have access. As the current state of knowledge on this issue is limited, particularly within Uganda and even more so within ASM, quantitative methods were supplemented by a qualitative inquiry process to significantly enrich understanding of the impacts of ASM on an individual, household and community level. In order to explore a range of environmental, social and economic elements within the chosen community, this research was grounded in the case study tradition of inquiry, which draws on multiple sources of information and supports holistic analyses of the phenomenon (Creswell, 1998).

Participatory, or action-based, research methods were also employed as this approach has the capacity to increase the voice of communities in identifying relevant issues; undertake research that better responds to community needs; encourage skills and knowledge building in target communities; supports cultural appropriateness of research methods; and strengthen relationships between research participants and with related organizations and institutions. Participatory research is defined as a process of “systematic inquiry, with the collaboration of those affected by the issue being studies, for the purpose of education and taking action or effecting social change” (Green et al, 1994).

There are several models of participatory research and a spectrum of approaches with varying degrees of participation, each of which are believed to be equally valid. Typically, these approaches all involve: (a) some type of collaboration between the researchers and those being studied; (b) knowledge sharing, or mutual education of the researchers and the researched; (c) an objective of the generation of local knowledge in order to improve conditions or practices (Macauley et al 1998). Participatory research ultimately recognizes that the process of undertaking research is as important as the outcome.
Participatory methods can require a greater time commitment from collaborators throughout a project; however, the end result is often information that is more relevant to the target community. Further, it has been stressed that “community control (of health related efforts) may itself be a critical determinant of health” (Gordon, 1994: 208). A community-driven process can support ownership of research and therefore will increase the likelihood of mitigating some health and wellbeing concerns identified through the process.

A structured household sample survey and structured survey of women and men miners, the design of which was informed by preceding data collection and findings, further strengthened this research. Although surveys are sometimes criticized because of limitations in eliciting deeper meanings of social actions, because both qualitative and quantitative methods were used, it is believed that a more comprehensive and explanatory picture is yielded, thereby further strengthening the evidence needed to inform development of appropriate policy measures (De Vaus, 1996; Kanbur, 2001).

As the research was based on existing conceptual frameworks adapted for the research objectives, the household and miners’ surveys did not seek to elaborate a quantitative instrument for wellbeing in ASM communities based on standardized measures, scale or indices. It did intend to (i) further characterize the context and aid in triangulation of data derived from prior qualitative research within the framework of the proposed theoretical model; (ii) identify if any relationships exist between gender and/or livelihood and key variables such as demographics (e.g. education, origin), savings and assets, health and access to formal and informal networks, among others; and (iii) supplement qualitative findings suggesting the degree of vulnerability and nature of livelihood strategies used by households and individuals.

The holistic research was further complimented by a two-day focus group with host community representatives wherein earlier findings were reported back, data gaps filled, critical conclusions drawn and solutions identified together with participating community representatives. The participatory design was drawn from methodologies established to elicit practical and strategic gender needs based on the differential and
same roles and obligations of women and men, rights and entitlements and capacity to meet needs, redress gender imbalances and ultimately escape poverty.

4.2 Justification for Site Selection

Although mining activities have taken place at least since the 19th century, the hallmark of Uganda’s mining history has been centered on activities in Kasese District, and more specifically the Kilembe Mine, located in the Western Region of the Country. Copper and cobalt were produced at Kilembe from the mid-1950’s until the late 1970’s, during which time it provided up to one third of foreign export earnings for the country (UNDP, 1996). The collapse of the formal mining sector, which was marked by the closure of Kilembe and retrenchment of hundreds of trained miners, was an important catalyst in the development of Uganda’s artisanal and small scale mining sector.

Despite the overshadowing influence of Kilembe Mine in Kasese, mining activities throughout the district significantly pre-date those at Kilembe. Artisanal and small scale miners of limestone, salt, building materials (clay and aggregate) are active throughout the district. A larger producer of limestone is also found at the Hima Cement Plant, which runs its own limestone quarry to serve its cement production needs.

Within Uganda, few ASM communities can compare with the salt mining community of Katwe-Kabatoro Town Council (hereinafter referred to as “KKTC”) in terms of history, economic significance, cultural diversity and unique interconnection with a biologically sensitive environment. Salt mining has been practiced in Lake Katwe for the past 500 years. After a comprehensive review of multiple ASM sites in more than 14 districts, discussions with women and men mining both metallic and industrial minerals, and consultations with the Dept. of Geological Survey and Mines (DGSM), Lake Katwe was identified as a high priority site within the country. Factors cited included: the dire socio-economic, environmental and human health conditions at Lake Katwe; large workforce (seasonally ranging from 2,500 to 12,500 people), approximately 70% of whom are women; and, through technological improvements, considerable potential to satisfy the salt for human consumption market in Uganda (60,000 tpa). Furthermore, KKTC is a small deagged area within the Queen Elizabeth National Park (QENP)
boundaries, presenting a unique opportunity to understand the interconnections between environmental protection, livelihood vulnerability and opportunities within an ecologically sensitive area.

4.3 Introducing the Research Questions
Based on the core issues, concepts and theoretical frameworks outlined in Chapters 1 to 3, the central research question guiding the study is:

“How do main social determinants of health and wellbeing of women and men salt miners influence the assets or poverty reducing measures to which they have access and control?”

The research specifically aims to address the following questions:

1. What are the primary factors affecting differential vulnerability of women and men in KKTC and how do national and local policies and processes ameliorate or exacerbate these vulnerabilities?

2. How do households and individual women and men reliant on ASM compare to households dependent on other livelihoods in terms of health and wellbeing?

3. What are the main assets or poverty reducing measures which women and men in KKTC have access and control of and what role does ASM play?

5. How can policy and intervention support transformation of gender relations in order to advance gender equity and poverty reduction in KKTC?

4.4 Study Design and Methods
This single-site case study was conducted in four phases. The initial phase provided insight into the macro-level context, particular that related to the nature of ASM in Uganda and policy, legislation and governance at national levels, while laying the foundation for subsequent work at a community level. The second phase involved a holistic case study of the target community based on qualitative data collection in response to the research questions. Consistent with qualitative and participatory inquiry, the specific details of the research design emerged as the study progressed. In
the third phase, a household and miners’ survey was conducted in order to better understand the social determinants of health and wellbeing in KKTC and similarities and differences between specific livelihoods. The fourth phase involved a final two-day workshop with community representatives wherein some earlier findings were reviewed, critical gaps filled, conclusions co-identified and recommendations put forward.

It is important to recognize that the scope of this research did not (nor did it intend to) capture a rich description of the individual experiences of women and men lives in KKTC and relationships between them. In accordance with the theoretical model put forth, the research sought to elaborate the complex interplay between social, cultural, ecological, occupational, political and economic factors from a perspective of understanding related gender differentiated opportunities and constraints.

### 4.4.1 Phase One: Secondary Data Collection and Preliminary Assessment

Between May and July, 2005, a broader understanding of the national and local context was obtained with respect to policies, legislation, and demographics. Extensive information was provided by the Department of Geological Survey and Mines (DGSM) in Entebbe, who also aided in making links with the Ministry of Health (MOH), Ministry of Gender, Labour and Social Development (MGLSD), Uganda Bureau of Statistics (UBOS) and other government agencies as well key NGOs (Council for the Economic Empowerment of Women in Africa, CEEWA; DevNet and others). Reconnaissance visits to ASM sites in 19 Districts visits included preliminary discussions with local women and men miners, local leaders and district officials in order to provide an overview of ASM issues in the country. Commodities mined at these sites included gold, cassiterite, coltan, wolfram (tungsten), limestone, marble and salt. This led to a collaborative review with DGSM wherein criteria for site selection were co-identified together with ASM stakeholders. Criteria included: significance of mining to the region, importance of the mineral commodity in Uganda, number of women and men miners, accessibility of the sites, security issues, need and willingness of the local community.
Upon selection of KKTC as the target community for the research, a comprehensive review of available documents provided insight into the context and issues that may arise during on-site data collection and analyses. In addition to published reports and national databases (e.g. census), grey literature, in the form of unpublished reports from agencies, not for profit organizations and academic institutions were collected.

Sources of secondary data (collected before, during and after field work) included:

- Uganda Bureau of Statistics (UBOS), including the 2002 National Census.
- NEMA, Ministry of Trade, Tourism and Industry, Ministry of Finance, Planning and Economic Development, Ministry of Health;
- Department of Geological Survey and Mines;
- Village, sub-county, town council and district officials;
- Makerere University (library search) and dissertations from other institutions;
- Local clinics and schools;
- World Bank (Development Indicators for Uganda), UNDP (Human Development Report), and World Health Organization (WHO); and
- Internet searches, inclusive of published scholarship.

The UBOS Census Data was particularly useful as data it was sex-disaggregated and provided data down to the parish level. Unfortunately, it did not identify “mining” as a livelihood. The KKTC Development Plan and Kasese District Development Plan were also useful as they supplemented these demographics and provided more specific information on land use, livelihoods and livelihoods needs as well as infrastructure and services related to public health, roads, schools and housing, among others.

Secondary data collected included the following:

- Demographics (population, literacy rates, language, ethnicity, average income, employment rates);
- Health (prevalence of HIV/AIDS, malaria, tuberculosis, other major diseases);
- Education (facilities, levels of completion, literacy);
- Economic activities and livelihoods (agriculture, farming, fisheries, etc);
- Mining (commodity type and production, employment statistics, accident statistics);
1. Land Use (forest cover, agriculture, fisheries, protected sites, road maps);
2. Infrastructure and Services (hospitals and clinics, number of schools, teacher to student ratios, primary and secondary school enrolment and completion, drinking water access, basic sanitation access, roads, energy sources, housing construction, communication services); and

Sex-disaggregated data was sought wherever possible. This review of available documents provided insight into the context and issues that might arise during on-site data collection and analyses. In the case of questionable reliability of data sources, multiple sources were used to corroborate data where possible. Secondary data collected is referenced throughout this work.

4.4.2 Phase Two: Participatory Community-based Research
This phase, conducted between September and October 2005, sought to understand the local context, different livelihoods and their significance, identify productive, reproductive and community roles of women and men and related issues and impacts. Data collection, as described further below, relied on a combination of focus groups, one-on-one interviews, observation, document review and visualization and diagramming methods (Creswell, 1997).

An initial scoping visit to Katwe-Kabatooro Town Council was undertaken in June, 2005. During this visit, brief meetings were held with women and men miners, officials (District and Town Council Councillors, leaders and technical officers, the Town Clerk, and other officials) and local residents. These preliminary meetings provided insight into the key issues associated with mining in Kasese District, affirmed a need and interest to better understand issues (particularly related to development) and demonstrated the willingness of the community to participate.

Services of a research assistant were deemed critical at the outset of the research because of the language barrier and obvious benefits in terms of gaining access to the
community from persons familiar with local socio-cultural norms. In addition to one local Community Development Assistant (CDA), the DGSM also recognized the importance of building their capacity to respond to broader development issues in ASM and identified 10 officers with backgrounds ranging from mining and mineral processing to social science and environmental management to participate.

Due to the diverse backgrounds of assistants and limited “hands on” experience in the methodologies, training was necessary. Prior to field-based data collection, a three-day intensive training and feedback workshop was held with research assistants from the DGSM. This included discussion and refinement of the research issues and approaches and training in secondary data, interviews, focus groups, sample surveys, and participatory methods as well as research ethics (dealing with confidentiality, consent and sensitivity), requirements for interpretation and translation and personal bias. Five subsequent one-day collaborative planning and training sessions revisited these topics and reviewed secondary data, co-developed and pre-tested semi-structured interview questionnaires, focus group agendas and survey questionnaires. Subsequent review and discussions of findings with assistants, 3 of whom were from the region, provided further insight during interpretation of results.

**Sampling**

Participant identification for interviews was conducted via “snowball sampling”. Through initial meetings with District and Local Officials and visits to the mining area, key local informants were identified. Through networks established through DGSM and Community Development Assistants (CDAs), key informants were located who, through preliminary interviews, provided insight into key issues in the community and can recommend subsequent contacts (Creswell, 1997). In association with initial interviews, subsequent participants were recommended by key informants. Subsequent interviewees were also asked to refer other potential participants. As snowball sampling can sometimes lead to exclusion of certain groups, independent “starting points” for the snowball were interviewed whenever possible. Sampling was also purposive, i.e. participants were targeted based on their appropriateness - their ability to inform the research and to sufficiently describe the phenomena. For instance, salt pan owners, salt producers and others performing specific functions were
specifically singled out in order to obtain specific information concerning mining and mineral processing. Data was triangulated by using many descriptive sources to explore the same issues with the aim of establishing an accurate interpretation of issues outlined in the theoretical model for research.

Sampling for focus groups was undertaken in conjunction with Community Development Assistants (CDAs) and other community mobilizers (e.g. heads of key organizations, parish chiefs) and was further informed by preceding interviews. Focus group participant selection was careful to consider political representativeness (as an election was imminent), gender and vulnerable groups (e.g. disabled, the elderly).

For both interviews and focus groups, representatives of “key groups” were sought. Key groups were initially identified in consultation with DGSM personnel upon review of secondary data and following discussions held during preliminary visits and were subsequently adapted as qualitative field work indicated.

Qualitative data was collected through the following:
1. Nine individual semi-structured interviews with:
   - Two female and two male miners;
   - Two heads of active local women’s associations; and
   - Three Civil Servants/Political Representatives: Primary School Teacher, Head Nurse, Town Councillor for Women.

2. Eleven focus group interviews with:
   - Three women’s associations;
   - Women and men salt miners (three) including representatives of two mining associations and one ASM cooperative;
   - Women and men engaged in fishing and related activities including representatives of the Beach Management Unit (BMU) and one fishing association;
   - Women and men engaged in trading and service provision;
   - Cattle Keepers Association (all men);
   - Environmental NGO members and Uganda Wildlife Authority (Park Ranger);
   - Town Councillors (inclusive of Councillors for women, the disabled and youth);
Data Collection

Acting as interpreters and focus group co-facilitators, co-researchers played a pivotal role in designing and undertaking the research, as well as gaining access. In accordance with the theoretical model for research (Section 3.4), data was collected on issues spanning environmental, socio-cultural and economic issues including: sources and amounts of income; work history; role of various family members in family spending; nature of family expenditures; perception of local environmental issues and personal health; participation in local organizations, access to information, education, technology, health services, and transportation; and water availability and quality. A detailed profile of mining activities (technical practices, production, environmental impacts, proximity to homes, participation of men, women and children, etc) was also be conducted.

Interviews: Tape-recorded, one-on-one, semi-structured interviews were conducted with 9 participants in KKTC (6 women, 3 men). Semi-structured interview questionnaires were developed and pre-tested during collaborative planning meetings with DGSM partners and were refined as the research progressed and themes emerged, enabling for the inclusion of new concepts and issues that arose.

Focus Groups: Focus groups were comprised of 6-23 participants from each of the target groups. Themes included: community needs and priorities, impacts and benefits of ASM, land use and management, community leaders and organizations, linkages between different livelihoods and ASM and, for mining specific focus groups, technical, environmental and socio-economic issues related to mining. The content and agenda of focus groups was developed with assistance from DGSM researchers. A core set of questions was used for each group, however adaption given the nature of the group (e.g. women’s development associations versus cattle keepers) was necessary and the research approach was flexible in order to incorporate new concepts and issues that arose.

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6 English is the official language of Uganda. While English was widespread and fluency was variable. Thus, local languages were primarily used during data collection. Languages spoken in KKTC included: Runyankole, Rutooro, Luganda and Swahili, reflecting the diversity of origins of community residents.
Meetings with Officials: Discussion with agencies and individuals active in the region was also undertaken to ascertain key issues and, in some respects, gain a point of entry into these communities who could facilitate preliminary visits. At the District Level, meetings were held with the Chief Administrative Officer (CAO), LC5 (District) Chairman, District Environment Office, District Planning Unit, District Health Office, among others. District Labour, Probation and Community Development Officers supplemented the data collection. At the Town Council and Village Level, key figures included the local chairpersons, health officers, environment officers, water officers and community development assistants.

Other Methods of Data Collection: Observations and detailed field notes were collected, as was photographic⁷ and written data documenting conditions in the community. Several visits to the salt lake in both rainy and dry seasons yielded critical data on mining methods and units of production, production rates, organization and gender division of labour, numbers of salt pans (validated during a circumference transect walk), salt quality, and environmental conditions, among others. Discussions with health officials, water officers, security and welfare officers, teachers, KADNET (Kasese District Network of Civil Society Organizations) and Save the Children, yielded additional secondary and primary information to supplement interviews and focus groups. Data was collected on issues including but not limited to: housing conditions, water and sanitation, roads and modes of transportation, land use, proximity and conditions of rivers and forests, proximity to mining activities, etc.

Additional data collection included compilation of maps, official documents, health data (from local or regional centers), and other reports about the region or community.

Preliminary analyses of information derived from interviews, focus groups and supplementary meetings took place concurrently with data collection in conjunction with the co-researchers. Key aims of the preliminary analyses was to identify issues emerging from the data, particularly in reference to the main project objectives, ensure the data being collected is satisfying the objectives of the project, identify important actors to be targeted for subsequent interviews, and to identify themes and categories. Notes on interviews or group meetings were also reviewed on an ongoing basis.

⁷ All photos presented herein were taken by the author unless otherwise sourced.
Data Analysis
Data analysis included transcription of tape recorded interviews and systematic review of transcripts to identify repeated and inferred themes and concepts as well as patterns and relationships between them. Themes and concepts were discussed and reviewed with co-researchers and, in the final analysis, patterns observed in the case or related theories were recontextualized, or placed in the context of current knowledge, in order to make them generalizable to other settings or populations (Morse and Field, 1995). Main themes and concepts are captured within the theoretical model for research as shown in Table 1. Additional issues related to vulnerability and livelihood strategies of specific groups were derived during subsequent research.

Table 1: Main Themes and Concepts Identified from Qualitative Methods

<table>
<thead>
<tr>
<th>THEORETICAL MODEL CATEGORY</th>
<th>RECURRENT THEMES, ISSUES AND CONCEPTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Assets</td>
<td>Quality and quantity of salt.</td>
</tr>
<tr>
<td></td>
<td>Seasonality of salt production.</td>
</tr>
<tr>
<td></td>
<td>Queen Elizabeth National Park and its benefits and impacts.</td>
</tr>
<tr>
<td></td>
<td>Quality and quantity of fish stocks.</td>
</tr>
<tr>
<td></td>
<td>Capacity to engage in farming.</td>
</tr>
<tr>
<td>Financial Assets</td>
<td>Incomes and savings capacity.</td>
</tr>
<tr>
<td></td>
<td>Access to credit and capital.</td>
</tr>
<tr>
<td></td>
<td>Distance of the town to main markets.</td>
</tr>
<tr>
<td></td>
<td>Costs of health care.</td>
</tr>
<tr>
<td>Human Assets</td>
<td>Occupational health risks to miners at the salt lake.</td>
</tr>
<tr>
<td></td>
<td>Sanitation and hygiene related diseases.</td>
</tr>
<tr>
<td></td>
<td>Access to training and tools for alternative, improved mining methods.</td>
</tr>
<tr>
<td></td>
<td>Drop-out of boys and girls from school to engage in mining or fishing.</td>
</tr>
<tr>
<td></td>
<td>Capacity of civil servants or political representatives.</td>
</tr>
<tr>
<td></td>
<td>Fear of rebel incursions from groups in Democratic Republic of Congo (DRC).</td>
</tr>
<tr>
<td>Social Assets</td>
<td>Levels of mistrust between livelihood groups and towards local government.</td>
</tr>
<tr>
<td></td>
<td>Organization, trust between miners and ability to stockpile salt in rainy season.</td>
</tr>
<tr>
<td></td>
<td>Viability and effectiveness of existing organizations.</td>
</tr>
<tr>
<td></td>
<td>Formal social safety nets needed, particularly for orphans, elderly and disabled.</td>
</tr>
<tr>
<td></td>
<td>Transparency and accountability of Local Government.</td>
</tr>
<tr>
<td>Physical Assets</td>
<td>Distance to equipped hospitals and clinics and costs of transport and treatment.</td>
</tr>
<tr>
<td></td>
<td>Fresh water and pit latrine availability at the salt lake.</td>
</tr>
<tr>
<td></td>
<td>Access to and costs of public transportation</td>
</tr>
<tr>
<td></td>
<td>Degradation of houses and vehicles attributed to salt dust dispersion.</td>
</tr>
</tbody>
</table>
Additional sub-themes related to vulnerabilities and strategies emerged from these themes and concepts and their similarities and differences according the gender were further explored. These issues provided an important foundation for subsequent design of the household and miners’ survey (Phase Three) and the final participatory workshop (Phase Four).

4.4.3 Phase Three: Household and Miners’ Surveys

The household survey was designed and pre-tested with co-researchers from DGSM and informed, in its early phases, by discussions and guidance from the Uganda Bureau of Statistics (UBOS) statisticians. Its format, question design and wording as well as the coding system was strongly guided by the Uganda Bureau of Statistics (UBOS) census survey and household survey questionnaires. This was particularly useful as (i) the UBOS questionnaires had been scrupulously pre-tested in regions throughout the country and developed in a way such that the content and wording would be comprehensible to potential respondents; and (ii) consistency with complimentary indicators (e.g. related to origins, health, housing conditions) enabled reflection on additional indicators not included in the KKTC Household Survey. The UBOS Census Data was sex-disaggregated and available down to the parish (or ward) level, however lacked distinctions with respect to mining as a livelihood.

Findings derived from the KKTC survey were further supplemented by statistics put forth in the KKTC Development Plan and Kasese District Development Plan, particularly related to additional demographic data, and provided more specific information on land use, livelihoods and livelihoods needs, as well as infrastructure and services related to public health, roads, schools and housing, among others.

In order to fill livelihood distinction gaps in earlier census data and ultimately support assessment of differential health and wellbeing in mining compared to non-mining households and men compared to women reliant on different livelihoods, the survey addressed a broad range of issues. Certain issues were captured in terms of individual household members and others were more practically limited to the household level. Data was collected for individuals for: basic demographics (e.g. age, sex, origin,
education levels of household members); participation in identified livelihoods (mining, fishing, trading and other); and occurrence of significant illness or injuries in the prior twelve months, the frequency of the occurrence and number of work or school days lost for each occurrence. Data was collected for households on: primary source of household income (livelihood) and seasonal alternatives (if any); cash and non-cash savings; household assets; formal and informal credit sources; access to water and health services; nutrition; housing conditions and land ownership; organization and trust in the community; and perceptions of mining (of household head). Understanding variations between mining and non-mining households and between women and men within these households was the foundation for questionnaire design.

Those households reliant on mining were requested to conduct an additional, brief Miners’ Survey. This survey addressed issues including: production rates (validated during site visits); mining related assets (e.g. equipment) to health impacts and safety practices to productivity. A sample of the Household and Miners Survey is shown in Appendix One.

**Sampling**
The questionnaire was administered to a random sample of households in the three wards of Katwe Kabatooro Town Council (KKTC). As a household listing was not available, a technique was used wherein, in each parish, four teams of research assistants shared a common, geographically central starting point. Research teams (each comprised of one male, one female) were assigned a specific bearing (north-south-east-west) and an initial random number between one and six ("n"). Starting with this n\textsuperscript{th} household and a sampling interval of eight, survey teams continued in their given direction until the pre-specified number of surveys was completed.

As the Town Council populous was confined within a relatively small geographic area, this method proved to be appropriate and, due to the lack of a formal household listing needed to generate a standard random sample, surveyors exceeded the target number of households (based on 1616 households).
As shown in Table 2, the Household Survey was conducted in 183 households in three wards of KKTC (11.5% of the 1616 households). The response rate was high and no surveys were disregarded.

Although somewhat contrary to gender equality concepts, current convention in Uganda (including that used by UBOS in its national census and other surveys) is to identify household “heads” on the basis of sex. I.e. a woman is almost invariably only identified as the household head if she is un-married, divorced or separated (her estranged spouse living outside the home) or widowed and, if an adult man is present, he is invariably identified as the household head. Exceptions may include the presence of an elderly male dependent or adult son residing in the home. This contention was discussed and confirmed with Ugandan co-researchers, KKTC key informants and UBOS statisticians prior to this assumption. Thus, consistent with Ugandan norms, household heads were self-identified by household members. Interestingly, women “headed” households (N=66) constituted more than one-third of the sample, enabling useful examination of the differential assets and vulnerabilities of these households in comparison to households “headed” by men (N=118).

Table 2: Distribution of Questionnaires Administered in KKTC

<table>
<thead>
<tr>
<th>Ward (Parish)</th>
<th>Total No. of Households*</th>
<th>Male Headed HH</th>
<th>Female Headed HH</th>
<th>% of Total Households by Ward</th>
<th>Number of Households Surveyed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kyakitale</td>
<td>367</td>
<td>24</td>
<td>19</td>
<td>11.7</td>
<td>43</td>
</tr>
<tr>
<td>Kyarukara</td>
<td>571</td>
<td>43</td>
<td>23</td>
<td>11.6</td>
<td>66</td>
</tr>
<tr>
<td>Rwenjubu</td>
<td>678</td>
<td>51</td>
<td>24</td>
<td>11.1</td>
<td>75</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1616</td>
<td>118</td>
<td>66</td>
<td>-</td>
<td>184**</td>
</tr>
<tr>
<td>Mean</td>
<td>538.7</td>
<td>39.3</td>
<td>22.0</td>
<td>11.45</td>
<td>61.3</td>
</tr>
</tbody>
</table>

*Source: Katwe-Kabatoro Three Year Rolling Development Plans, 2004/5-2006/7.

The Miner’s Survey (N=121) was conducted as a supplement to the household survey in cases where mining was identified as the main livelihood of the head (engagement in production, hauling, loading, pan ownership or construction). Due to high rates of non-response, particularly for questions concerning estimated production and incomes, 20 surveys were disregarded and analysis was limited to 79 men miners and 22 women miners, all of whom were full-time residents of KKTC.
Descriptive statistics of the sample (composition of households, age, education, origins etc) are presented in Chapter Six.

**Data Collection**

To ensure gender balance and language proficiency of the six survey teams, execution of the survey was undertaken in conjunction with local partners, who were intensively trained over a two-day period prior to the survey. Training included the main objectives and components of the survey and issues related to consent, personal bias and behaviour. A critical component addressed adequate interpretation of the survey in local language in order to ensure meanings were communicated as intended. Prior to the decision to use local assistants, the questionnaire content was reviewed with assistant researchers and selected key informants and it was confirmed that its nature was not sensitive which may otherwise lead to false or non-responses.

Household surveys were conducted in local languages with self-identified household heads during a nine-day period in April, 2006. Surveys took approximately 30 minutes and were preceded by a brief statement of study objectives, issues related to confidentiality, voluntary participation and obtaining consent.

**Data Management and Analysis**

Household and miners surveys were entered by two assistant researchers into Excel using a numbered coding format corresponding to the survey. Hard copies of sample surveys were retained in a locked filing cabinet and electronic versions were kept on a single laptop, with one backup of the data retained by the author. Data was cleaned and imported into the Statistics Package for Social Sciences (SPSS, Version 12) for subsequent analysis.

Although a proportion of the data presented is simply based on descriptive statistics (frequency and crosstabs), inferences were sought between selected key variables
and their relations with gender and/or livelihoods. A confidence level for ANOVA established at 95% (alpha = 0.05)\(^8\) (Norman and Streiner, 2008).

The association between sex and livelihoods was significant (p=0.04). Given that sex and livelihoods were both categorical variables (i.e. nominal categories with no implied order between them) that were taken to be independent, tests were performed for dependent interval or ratio variables (such as value of assets or age) based on the following (after Norman and Streiner, 2008):

- When nominal variables contained only two groups (e.g. male and female in sex), statistical significance of differences between means of subgroups was tested using an independent t-test.
- For groups of 3 or more, means were compared through analysis of variance (ANOVA) or the Welch Test was used and, if dependent variables were ratio variables (e.g. income in shillings).

When all variables were categorical (e.g. livelihood, gender, own or rent land) then chi-squared tests or, when frequency of cells was less than five, Fisher’s exact tests were performed.

Results were deemed to be statistically significant when p\(\leq\)0.05. For nominal variables (e.g. sex, livelihood and other named categories), the mode rather than the mean or median is presented while the median is used for ordinal data (ordered or ranked categories). Under any circumstances where results are not statistically significant but data is presented for descriptive purposes, they are described in the context of the sample alone, i.e. conclusions are not drawn from these statistics and non-significance is explicitly stated. A summary of results of analysis of variance and significance is presented in Appendix Two.

\(^8\) The alpha (\(\alpha\)) is the probability that a null hypothesis is rejected when it is true. If the probability calculated from the sample mean is less than \(\alpha\) then the result is determined to be significant and the null hypothesis is rejected (Norman and Streiner, 2008).
4.4.4 Phase Four: Interpretation, Validation and Defining a Course of Action

Preliminary data analysis and interpretation was undertaken between May 2006 and 2007 and was aided by discussion with and feedback from Ugandan research assistants. This was followed by preliminary write-up of key findings and discussion of results. This included placing conclusions in the context of current knowledge, in order to make them generalizable to other settings or populations (Morse and Field, 1995). In addition to other published scholarship, similar research undertaken by the author within other Ugandan communities aided in interpreting and validating findings.

A two-day workshop was subsequently held in KKTC in September 2008, designed based on key findings from earlier phases and main data gaps. Comprised of 25 women and 25 men miners and other community representatives, the agenda was guided by a human-rights based approach (UNDP, 2006). Issues such as human rights, land rights and mineral rights were addressed via participatory discussions. This was supplemented by a series of small groups of women working separately from small groups of men, each of which was followed by reporting back and group discussion. Using established gender analysis methodologies (CEDPA, 2002), the workshop was at times broken into small groups of 7-9 persons separating women and men in order to focus on access, control and ownership of resources and their benefits and identification of strategic and practical gender needs in KKTC. Key conclusions were drawn with participants and specific recommendations elicited for individual, community, local government, NGOs and several agencies in central government. Input from this participatory workshop proved crucial to finalization of the dissertation.

4.5 Ethical Considerations

Ethical guidelines employed during this research include:

- **Informed consent**: Where possible, written consent was obtained from study participants in advance of data collection. However, high rates of illiteracy and predominance of five languages necessitated reliance on oral tape-recorded consent. Participants who were involved in multiple interviews or focus groups were asked to reiterate their consent periodically. In all cases, consent was obtained from potential respondents prior to administration of the survey. High
rates of illiteracy and the more than five languages prevalent in the diverse community often precluded written consent and thus,

- **Confidentiality:** All information collected from participants was held in strict confidence. Tapes of recorded interviews were coded alpha-numerically and correspond with a separate list of participants in order to assure confidentiality. Actual names of participants are not be used in this written work or discussions of any aspects of this research.

- **Sensitivity of Topics:** Potentially sensitive issues, such as those of a political or personal nature (e.g. related to gender disparity, drug use, reproductive health or sexual behaviour), was cautiously approached and guided by discussion with co-researchers.

### 4.6 Strengths and Limitations

This research was considerably strengthened by a number of factors including:

- **Strong support from the Uganda Dept. of Geological Survey and Mines (DGSM) under the Ministry of Energy and Mineral Development,** whose officers played an invaluable and insightful role as assistant researchers, and gave considerable feedback throughout the duration of the work. In accordance with commitment to action-based research, capacity of assistant researchers (and their relationships with and understanding of artisanal miners and gender) was, by all accounts, improved considerably.

- **As one of the first studies of the impacts and benefits of ASM in Uganda, and the first related to integrated approaches to gender,** considerable guidance and input was also received from counterparts in the Ministry of Health, Ministry of Gender, Labour and Social Development and National Environmental Management Authority as well as the Uganda Bureau of Statistics.

- **A preliminary submission of findings and recommendations following the first three phases of research to the DGSM was compiled in a preliminary summary report and 26 DGSM Officers (including two Assistant Commissioners) subsequently received two-day gender training from the Faculty of Gender Studies, Makerere**
University. This considerably strengthened capacity to assist follow-up workshops of the fourth phase and generated a notable shift in thinking with respect to gender.

- The participatory nature of approach had multiple benefits. Not only was the research relevant to the community, it supported knowledge building of the principal researcher, DGSM assistant researchers and local participants and significantly strengthened relationships between these parties. Repeated visits to the area by Government Officers over a period of three years have resulted in a remarkably positive shift in thinking by the DGSM with respect to both ASM and gender. As DGSM is the government agency that is primarily responsible for regulation and support to ASM, an indirect positive outcome was achieved, even prior to conclusion of this research. The final, two-day workshop focused on conclusions and recommendations further demonstrated the value of participatory, action-based research, not only in terms of research findings and conclusions, but with respect to the potential benefits of any research.

Naturally, a number of problems and limitations were also encountered during the execution of this research. First and foremost, being a white woman who had grown up in a very different, largely privileged agricultural setting on the Canadian prairies, personal biases about the social and cultural setting inevitably played a role in earlier assumptions and interpretations. However, strong and ongoing peer review with Ugandan research assistants, both from the target district and other cultures in Uganda, yielded insights enabling what is hoped to be correction of interpretations to an extent that the research problem that has done proper justice to the outcomes. Every effort was made to objectively report perceptions of a version of reality.

Qualitative and quantitative research also requires critical reflection on the role of the researcher and an awareness of how the researcher’s assumptions can influence the research (methods, analyses, interpretation), impact participants and the outcome. Preconceptions on the part of the community may have also (at least initially) limited the degree of trust achieved and honesty of responses, particularly as most assistant researchers represented a government authority. The participatory nature of the research and multiple visits over an extended period of time aided significantly in
developing a trusting relationship between the research team and community members.

As qualitative research sampling was purposive and a limited number of participants engaged, qualitative findings are not generalizable in a quantitative sense. Qualitative findings were, however, recontextualized by placing the findings in the context of other published research while the supplementary quantitative research aided tremendously in increasing the generalizability of findings.

The household survey was deemed necessary to answer central research questions although the author initially possessed limited background in population statistics. Consultative meetings with the Uganda Bureau of Statistics (UBOS) and detailed review of their guidelines, coupled with a related literature review, provided considerable insight in the design phase of the household and miners’ questionnaires. Although it is fair to say that some relations have been established, causality cannot be, and is not, assumed.

Most participants did not speak English requiring heavy reliance on the interdisciplinary team of co-researchers who undertook translation, transcription and interpretation. Although social scientists played integral roles in the team, most co-researchers were not well experienced in socio-economic data collection and interpretation. Although their capacity development in interdisciplinary research methods was an important positive outcome of this work, in some cases, repeatedly ensuring rigorousness was maintained with respect to translation and interpretation was a time consuming venture.

Additionally, field activities of assistant researchers were funded by the World Bank, with funds administered via the DGSM. Numerous bureaucratic delays in release of necessary funds (fuel, allowances, etc) required repeated revisions to the field schedule. Primary data collection ultimately took place over the period of a year, with the final phase of the research being implemented two years after the sample surveys. In anticipation of potential frustration by some local community members, the
community was updated during brief and periodic visits, supplemented by telephone communications with local counterparts.

Finally, the nature of the data collected and its analysis and interpretation sought to inform a holistic, integrated depiction of gender-differentiated power, access, impacts and benefits with a view towards identifying factors and processes that determine them. Any research has limitations in scope, and this study was limited in that it did not (nor did it intend to) fully and richly capture the *individual* experiences of women and men lives and relationships between them. It did, however, generate a multi-faceted understanding of the factors determining vulnerabilities and opportunities of women and men in a multi-livelihoods scenario that enabled understanding of their inter-relationship within a framework of social determinants of human wellbeing.
5  ASM, GENDER & RIGHTS: THE NATIONAL MACHINERY

Institutional structures, policies and legal provisions play a critical role in supporting or impeding the realization of human rights and sustainable livelihoods. This chapter broadly depicts ASM and its gender dimension in Uganda and outlines the national policies, legislation and structures that may influence distribution of power, access and control of resources, individual and civil society rights and a host of other factors that can differentially determine health and wellbeing of different groups in ASM communities.

5.1 ASM: Value, Visibility and Vulnerability in the Minerals Sector

Mining and production of iron in Uganda has been dated back to ancient times (Tuhumwire, 2002). Between the early 20th century and the early 1960’s, primarily British owned companies operated a number of mines through the Southwest of the country, producing, gold, tin, beryllium, gypsum, lead, iron ore, limestone, columbite-tantalite and wolfram (UNDP, 1996). Most of these activities were relatively small to medium in scale9 and strongly reliant on cheap, local labour. A notable exception was the Kilembe Mine, where copper and cobalt was produced from the mid-1950’s until the late 1970’s. During its operation, 271,000 tonnes of blister copper was produced and, supplemented with cobalt revenues, provided up to one third of foreign export earnings for the country (UNDP, 1996). The collapse of the formal mining sector, marked by the cessation of colonial activities (around the time of independence in 1964), closure of Kilembe Mine and resulting retrenchment of hundreds of trained miners, was an important catalyst in the development of Uganda’s artisanal and small scale mining sector (Hinton, 2005).

Unlike neighbouring Tanzania, Democratic Republic of Congo (and to a lesser extent Kenya and Rwanda), mining activities of the magnitude undertaken by large multinationals (e.g. DeBeers, Barrick, BHP Billiton etc) are not found in Uganda. Aside from two cement factories operating limestone quarries (Hima Cement Ltd., Tororo

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9 Designations for small, medium and large scale mines vary from country to country. Characteristics such as annual production, duration of activities or areal footprint of the mine are often used to classify the scale of an operation. Although a distinction for small scale operations is used in Uganda on the basis of annual expenditures, no formal classification of medium and large scale mines has been established in the Country.
Cement Ltd.), the Ugandan minerals sector is comprised of three main groups of players (Hinton, 2009a):

1. **Foreign Exploration Companies:** Large licenses are held by less than five mainly Canadian- and UK-registered exploration companies. Most work is at the green fields stage although preliminary drilling has been undertaken for nickel and uranium.

2. **Ugandan and Foreign Small Scale Investors:** The current license registry is largely dominated by small Ugandan, Chinese, Indian and other foreign companies. Several intend to establish or scale-up small mining operations; however, a significant proportion are mainly interested in speculative license trading, attracting foreign joint venture partners or buying from artisanal miners active on their sites. Although some companies hold “Location Licenses” for small scale mining, these operations essentially just formalize buying arrangements from ASM, with no real support vis-à-vis equipment, tools, safety gear or training. Recently, smaller investors have shown interest in industrialized salt extraction from the research site, Lake Katwe.

3. **Artisanal and Small Scale Miners:** Almost 200,000 Ugandans use basic tools (like picks, hammers, shovels etc) to extract a wide range of minerals including gold, tin, wolfram, coltan, salt, limestone, marble, stone aggregate, sand, clay, kaolin and gypsum. Locations of active ASM areas are shown in Figure Six.

With less than 1,000 women and (primarily) men employed in cement production and exploration, artisanal and small scale miners, by far, dominate the Ugandan minerals sector.

The ratio of women to men in ASM in Uganda is near parity, with women’s participation exceeding that of men in stone quarries, salt production and gold in Northeastern Uganda and men dominating gold production in other regions of the country, as well as clay, sand and limestone. For other commodities, women’s participation ranges between 10-50%. Gender differentiation of participation varies significantly according to the type of ASM occurring in a given location as described below (after Hinton, 2009a):
Community Miners constitute more than 90% of the ASM workforce. Using the most rudimentary of methods and tools, these unlicensed miners work individual or in small (often family) groups. With the highest proportion of female participation than other types of ASM, miners work near or in established communities where they reside and often mine as a compliment to seasonal farming activities. Main commodities mined include: gold, tin, stone aggregate, clay, sand, limestone, marble and salt.

Micro-enterprises comprise ~8% of the ASM workforce and consist of teams of 6-10 mostly male miners who work together regularly to mine mainly alluvial and hard rock metallic miners (gold, cassiterite, coltan, wolfram) in East, Northeast, West...
and Southwest Uganda. Although somewhat migratory, movement is typically only within a district and relationships with local government and communities are usually reasonably well-established. Women usually comprise less than 10% of micro-enterprises though may be involved in food and some service provision. Micro-enterprise scenarios can also be found for clay and sand production throughout Central Uganda.

- **Small enterprises**, most of which are involved in production of metallic commodities (gold, cassiterite, coltan, wolfram) in Western and Southwestern. These consist of small groups of 6-20 miners working at the same site, usually on the location license held by a Kampala-based “boss” or owner who also acts as a buyer and supplier of basic tools. With the exception of cassiterite production (where men and women are almost equally engaged), women’s direct participation is typically less than 25% Although licenses are often held, no formal labour agreements exist and miners are paid based on production at a negotiated price. Although tools may be a slight improvement over the crudest of methods employed by some community miners (e.g. manually crushing rocks with harder rocks or pieces of iron), there is generally little difference in technology between small enterprises, micro-enterprise or community ASM.

- **Small Companies** hold Mining Leases and, although somewhat mechanized (e.g. with crushers, mills, bulldozers), reliance on manual labour (particularly in extraction/digging) is still typically high. “Workforces” of 30-50 occasionally have labour agreements with the company (rather than paid-by-production set-ups) and are mainly men, usually with the exception of 2-5 women typically employed as cooks, secretaries or cleaners.

The various types of ASM generate useful questions concerning gender-differentiated constraints to participation in more organized, permanent ASM. Most evident, proximity to home, reliance on subsistence farming and domestic responsibilities likely restrict women’s engagement in micro-enterprises or small companies. Most small enterprises, however, are usually fixed in location and provide flexibility through payment based on production rather than time, thus, the lack of women’s participation
(particularly given that they may be engaged in “community mining” in the same areas) suggests more profound limitations.

Furthermore, the latter three ASM types are generally more organized (formally or informally) than community mining, suggesting more systemic barriers related to gender bias (which may be held or sustained by both women and men) that can create an inhospitable environment and restricted autonomy (particularly given that micro- and small-enterprises are commonly viewed as a formal “job”). This lack of autonomy may be attributed to traditional patrilineal structures influencing customary law and practice that regard women as minors without legal status or rights, a scenario which is believed to be more pervasive in Uganda than in other parts of East Africa (Kabeer, 2007).

The gender-division of labour provides additional insight. Men undertake a broad range of tasks, including extraction (digging and rock breaking), while women are almost exclusively fixed to mineral processing and related services (crushing, grinding, hauling, panning etc). While both women and men may sell mineral products, buying is almost solely by male intermediaries (mineral dealers). Even in male-dominated community mining scenarios, those engaged in digging often control the mine, while processors are often viewed (or sometimes paid) as labourers and typically obtain lower revenues. When women are present, their work in processing may even go unpaid or is turned over to their husbands. Conversely, in micro-enterprises, regardless of the role or function, revenues are typically shared evenly between team members and salaries in small companies are generally the same for jobs in the pit and the mill (Hinton, 2009a).

Questions of value, visibility and vulnerability for ASM – and women’s work in ASM in particular – become even more prominent when contributions to the national economy are explored.

5.1.1 ASM and the National Economy
In the 1960’s, at the height of Kilembe Mine productivity, mining provided 30% of foreign exchange earnings and in the 1970’s it constituted 8.5% of total export
earnings. At this time it contributed to ~5% of the gross national product. Following the instability that continued until the mid-1980's, development of a favourable investment climate spawned considerable growth in the mining sector at a rate of approximately 11% per annum (DGSM, 2003).

Uganda’s minerals sector is rapidly expanding with growth more than doubling in terms of licenses granted and non-tax revenue collected between 2004 and 2008 (DGSM, 2008). This is largely attributed to the recently enacted Mining Policy (2001), Mining Act (2003) and Mining Regulations (2004), increasing prices of gold, cassiterite, coltan and wolfram and substantial increases in industrial minerals fueling construction sector demands, which experienced 10.8% growth in 2008 (UBOS, 2009).

In 2008, reported mineral production amounted to more than 44 million USD with contributions of more than 1.9 million USD in non-tax revenue like royalties, fees and rents (DGSM, 2009). More than 1.2 million USD in royalties was shared between central government (80%) and district government (17%) while the remaining 3% royalty share accrued to landowners has largely not been paid out due to lack of awareness of this right and bureaucratic procedures in its release from Ministry of Finance, Planning and Economic Development (MFPED).

These formal statistics exceedingly undervalue the contribution of ASM to Uganda’s economy. In a recent assessment of ASM participation and production across the country, Hinton (2009a) estimated that:

- With ASM mineral production valued at more than 700 million USD in 2008, the contribution of ASM to total GDP is more than 4%, well above the 0.3% attributed to mining and quarrying in National Statistics. If formalized, ASM would yield an additional 9.8 million USD to Government coffers in the form of royalties.

- Only 0.6% of the Ugandan population is directly engaged in ASM as miners compared to 73% in agriculture, forestry and fishing to which 23.7% of the GDP is attributed. This suggests that the average woman or man miner contributes almost 20 times more to GDP than the average person engaged in these other sectors.
• Women and men miners spend most earnings in the local economies where they live. Estimates put this direct annual contribution at US $337 million, providing a significant stimulus for local enterprise development and increase to the cash component of household incomes.

• Based on ASM production of gold, coltan, cassiterite and wolfram, whose export value was estimated at US$92 million in 2008, ASM (if formalized) would be the third highest foreign exchange earner after coffee (US$403 million) and fish and fish products (US$124 million).

As a non-agricultural, mainly rural livelihood alternative, ASM further reduces rural-urban migration and directly benefits local government in the form of taxes and licensing fees, in some cases amounting to up to 90% of subcounty operating budgets (Hinton, 2005). Indeed in one government poverty assessment on Wakiso District surrounding Kampala, clay mining and brick making was cited as “the main source of livelihood for male youth in both rural and urban sites” yet the assessment itself focused on agriculture and trading as the main livelihoods. Although in the same area, women constitute 60-70% of stone quarry workers, the report continued that “female youth are left out completely from brick making since its labour-intensive”, reflecting both the significance of the activity to local government and biases that can preclude women’s involvement (including by government officers who prepared the report).

Although ASM is increasingly cited in local government development plans, its invisibility in terms of contributions to the national economy inevitably influences (and is influenced by) the policies, legislation and the extent and nature of institutional support received from government.

5.2 The Institutional and Legal Framework for ASM

Around 80% of the World lives in the “informal” or “extralegal” economy and, in Uganda, this reliance likely exceeds 90% of the population. Even when legal

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10. *Foreign Exchange Earnings* refer to the dollar value for all financial assets that are available to the central monetary authority for use in meeting a country’s balance of payments. It includes foreign currency and gold, as well as a country’s holdings of Special Drawing Rights in the International Monetary Fund. Simply put, foreign exchange earnings are used to finance foreign currency liabilities (debits) for both the public and private sectors.

provisions exist for formalization and licensing of ASM, accessibility is commonly a function of privilege and status. As a consequence, legislation may actually serve to exacerbate socio-economic inequalities rather than alleviate them (Reeves and Baden, 2007). Thus, the national legal and institutional context governing ASM is a critical factor determining access to rights, capacity to claim them and benefits (or disbenefits) accrued from them.

5.2.1 ASM Legislation and Regulation

The importance of creating an enabling environment for legalization of the ASM sector was recognized by the Government of Uganda in the late 1990’s and is reflected in the new Mining Policy (2001), Mining Act (2003) and Mining Regulations (2004). Among progressive changes in the legislation, Article 14 of the Mining Act has lifted an earlier ban on women’s participation in mining, stating:

“Notwithstanding the provisions of any other law to the contrary, a woman may be employed in any underground work in any mine or in any operation or activity relating to or associated with mining.”

Women and men miners can now obtain Location Licenses, whose requirements are far more appropriate to ASM than those for Mining Leases acquired for larger scale investments. Specifically, ASM is referred to in the context of “small scale operations” or “prospecting or mining operations which do not involve expenditure in excess of five hundred currency points\textsuperscript{12} or the use of specialized technology” (Mining Act, 2003). In order to acquire a location license, applicants or association members must hold Ugandan citizenship or be comprised of a joint venture with more than 50% Ugandan ownership. Applicants that fit these criteria can apply for an exclusive “location license”, which is granted for a two year period, at which time it may be renewed. Given expenditure limits (and that the only other mining licensing category applies to large scale investment), artisanal miners face major barriers in becoming responsible small scale operations through reinvestment in mechanization.

\textsuperscript{12} In 2008, five hundred currency points was equivalent to 10 million Ugandan Shillings (~6000 USD).
Location license applicants must submit a statement concerning the location, proposed mining methods and mineral, and the applicant’s capacity in terms of financial and human capital (Mining Act, 2003). In lieu of a detailed Environmental Impact Assessment (EIA), applicants append a simple “Project Brief”, which describes basic measures for environmental protection, reclamation and rehabilitation, such as backfilling of pits and use of sedimentation ponds to prevent siltation of rivers (Kyakonye and Nyakaana, 2004).

The channels through which artisanal miners can access and claim their rights can reflect whether the existence of these rights can empower or disempower. Insight can be drawn in terms of access and capacity of artisanal miners to obtain a Location License from a brief description of the application procedures:

- A prospecting license costing 150,000 USh (~75 USD) is needed before applying for any other mineral right. Although the process simply requires filling of a simple form, payment procedures are extremely bureaucratic and time consuming, as described for location licenses below.

- Applicants must verify from DGSM (Entebbe) that the area of interest is available.

- Although the two-page application form is simple, assistance from a DGSM Officer is typically needed to undertake this, prepare the Project Brief (typically 5-10 pages) and 1:50,000 map sheet of the area. DGSM personnel can provide considerable guidance in preparation of applications, with costs for services related to Project Briefs and site map preparation range between 150,000 and 800,000 USh (~75-420 USD). Due to lack of field officers in regional DGSM offices, this normally must be done in the DGSM Central Office in Entebbe.

- The completed application must be taken to the Chief Administrative Officer (CAO) in the district of work for endorsement. This usually requires an additional district-specific processing fee (50,000-200,000 USh or ~25-100 USD).

- With a signed application in hand, applicants must return to the DGSM in Entebbe to obtain a Bank Payment Advice Form (BPAF) in the amount of 650,000 USh (~340 USD) for a one year license or 850,000 USh (~450 USD) for two years. This
payment includes mineral rent (200,000 USh per annum) and fees (preparation: 400,000 USh and registration: 50,000 USh).

- The BAPF Form is then taken to a specified bank in Kampala, who provide a Uganda Revenue Authority (URA) receipt upon payment. This procedure alone typically takes 4-8 hours.

- The URA receipt is taken to the Accounts Division at the Ministry of Energy and Mineral Development (MEMD) in Kampala where another receipt is obtained. This MEMD receipt is taken to DGSM in Entebbe for recording in the Accounts Section and the Location Application is submitted.

- Review and processing can take several weeks and, although it does not guarantee approval, if it has been submitted before other applicants for the same area, it is typically granted (i.e. first-come, first-serve basis). Typically, refusal of an application is associated with concurrent claims for the same area or the presence of pre-existing claims and not with inappropriately completed applications.

From the procedures in place alone, it is not surprising that community miners or micro-enterprise associations have not yet acquired a Location License in Uganda. Even when miners are aware of the possibility to obtain a Location License, constraints related to language (all documents are in English), literacy, licensing costs, transportation, accommodation and unforeseen, unofficial facilitation costs as well as the potentially intimidating experience of navigating the bureaucratic channels of Central Government present major barriers.

Women in Uganda are typically more constrained with respect to these factors and many face the additional challenge of time and autonomy. For instance, many women tin miners in Ntungamo District report needing permission from their husbands to take sick children to health clinics just a few kilometres from home (Hinton, 2009b). Thus, travelling more than 300km to spend several days in large cities pursuing a license obviously presents an even greater challenge. This situation is exacerbated by the lack of areas available for licensing, with most ASM metallic mineral sites being held under exploration licenses held by others. Thus, even if barriers of time, autonomy and
financial and technical capacity were overcome, there remains little recourse for formalization and legalization.

5.2.2 ASM and the Institutional Framework

The Mining Policy (2001) now mandates the Department of Geological Survey and Mines (DGSM) under the Ministry of Energy and Mineral Development to:

“Regularize and improve artisanal and small scale mining through light-handed application of regulations, provision of information on production and marketing, provision of extension services through miners associations and implementation of awareness campaigns targeting artisanal and small scale miners.”

There has been a deliberate effort within the Department of Geological Survey and Mines (DGSM) to encourage the participation of artisanal and small scale miners within the legal framework. In-office guidance is sometimes provided to small scale miners on issues ranging from technology use to mineral markets. These efforts are recognized as an important step towards enforcing compliance with other aspects of the legislation and developing mechanisms of support for the ASM sector. The DGSM is, however, inhibited by a lack of resources for monitoring and site-based assistance, precluding enforcement of and advisory support as outlined in their mandate.

In association with a 7-year World Bank Project in MEMD, ASM has recently increased its profile in DGSM, resulting in design and initiation of training programs for more than 1,000 women (43%) and men (57%) in 17 communities. The gender dimension has received attention during gender training of 26 key DGSM Officers in 2006, explicit gender mainstreaming requirements for the training program and subsequent gender consultations and development of a related *Strategy for Promotion of Gender Equity in Mining* (which is partially informed by preliminary findings from this research). Although officers involved in these efforts have demonstrated remarkable dedication to ASM and sensitivity to related gender perspectives, multiple DGSM priorities (primarily focused on promoting larger investment) and limited resources reduce the likelihood of sustained institutional commitment.
Under the Uganda Gender Policy (2007), all government institutions (inclusive of MEMD) are “expected to identify entry points and opportunities for networking and collaboration to ensure synergy and maximum impact in addressing gender inequality” by mainstreaming gender in all sectors and ensuring gender responsiveness in work programmes in their areas of mandate (UGP, 2007: 30). In conjunction with recent changes to the National Budget and Planning Process (2009), line ministries have been called upon to explicitly incorporate gender objectives within their annual performance and work plans while Ministry of Finance, Planning and Economic Development (MFPED) is responsible for ensuring that gender-targeted activities are given priority in budgets.

Because the gender dimension of ASM has recently come to the forefront, this represents an important entry point for DGSM to obtain necessary funds and is a significant opportunity for women and men miners to receive additional government assistance as per the DGSM mandate. Despite this, the absence of engendered objectives, performance targets and budgets in 2010 DGSM workplans reflects a reticence likely due to marginal resources, lack of political will or a combination of both (Hinton, 2009b). Throughout Uganda, there is “concern about the depth of ownership of economic reforms and poverty reduction policies among politicians and civil servants” (Ellis and Bahigwa, 2002: 998). Gender mainstreaming and poverty reduction within the mining sector is likely no exception and, in fact, if insincerely promoted, a potential exists for any related resources allocated to primarily service existing underfunded priorities.

### 5.2.3 ASM and Other Government Agencies

Although permitting and reporting requirements are far less stringent for Location Licenses, they are still bound by the multitude of regulations present in Uganda. In addition to the Mining Act and Regulations, artisanal and small scale miners must comply with a host of other laws and regulations. These include the National Environment Regulations (2001), the National Water Resources Regulations (1998), the Land Act (1998) and the National Environmental Management Regulations (2000).
Intersecting responsibilities and contradictory positions of these agencies, combined with limited resources, hinder efficient enforcement and monitoring of the ASM sector and create an additional barrier for miners who may have limited skills to comply with these regulations. Furthermore, most regulating agencies charged with addressing specific subcomponents of these activities (e.g. Ministry of Local Governments, Ministry of Defence, Ministry of Internal Affairs, National Environmental Management Authority (NEMA) etc) frequently lack understanding of the minerals sector (and even more so ASM), related legislation and the varied needs of its different players, providing an added constraint to effective management.

Intersections with the Land Act (1998) are particularly relevant. Although the Mining Act states that mineral rights cannot be granted for a place of religious significance, the onus is on the landowner, who often resides “off-site”, to attest to this value (Kyakonye, 2005). As the land owners receive compensation for mining activities on his/her land, there is little motivation to preserve either culturally significant sites or the rights of land occupiers. The differing rights of land owners and lawful occupiers in Uganda and those rights temporarily granted for mineral extraction or exploration are often a source of conflict in many mining areas. It is useful to recognize that, under current practices, unlicensed artisanal miners typically give a portion of mining proceeds to land owners in lieu of rent, an arrangement that often more acceptable to land owners than pursuing 3% royalty returns from MFPED.

The discourse on governance in Uganda cannot go without recognition of the current significance of decentralization, particularly as it relates to service delivery, accountability and execution of policies at the community level. Uganda has gone through various phases of decentralization and centralization, including abolishment of the post-independence, pro-decentralization Constitution in 1966 in favour of full powers vested in the President, followed by re-instatement of decentralized governments with the ascension of the National Resistance Movement and President Yoweri Museveni’s enstatement in 1986 (Okidi and Guloba, 2006). Particularly since the Local Government Statute (1993) and submission of the first draft Poverty Eradication Action Plan (PEAP) in 1997, Uganda has enthusiastically pursued decentralization as a core policy instrument for poverty reduction (Ellis and Bahigwa,
2002). In current day Uganda, decentralization of key government services and functions to local administrations, particularly to district (LCV), subcounty (LCIII) and village councils (LCI), is firmly entrenched in the national machinery\textsuperscript{13}.

Although administration is overseen by the Ministry of Local Government (MoLG), most line ministries have vertically linked technical staff at District and Subcounty Levels with mandates complimenting the transdisciplinary challenges faced by ASM. These include District Community Development Officers (CDOs), Environment Officers (DEOs), Health Inspectors (DHIs), Welfare Officers (DWOs), Labour Officers (DLOs), Planning Officers (DPOs) and others, in some cases, working within specific units (e.g. Planning Unit). Although technical staff are most common at the district level, most subcounties also often employ a range of environment, health, agriculture and water officers, among other technical staff, to act as extension service providers at the grassroots level.

Located in relatively close proximity to ASM sites (and with only three marginally active DGSM Regional Offices providing limited services), District and Sub-county officers are, \textit{in theory}, better positioned to provide services essential to wellbeing of women and men miners and their communities. In reality, most miners report that the interaction between ASM and other agencies is negligible with government officers citing deficiencies in resources, motivation and awareness of mining and inadequate technical capacity to fulfill mandates as key constraints. Saito (2000) identified a “perception gap” between service providers (e.g. teachers, health workers, agricultural extension officers) and service receivers in Uganda, wherein the former report that decentralization has improved services while the latter frequently affirms the contrary view. In a multi-livelihood, multi-community study undertaken in Kamuli, Mbale and Mubende Districts, Ellis and Basigwe (2002) found that agricultural, fisheries and other extension agents were prevalingly viewed by community members as “unhelpful”.

\textsuperscript{13} Local Councils are comprised on a chairperson, vice chairperson and councillors who are supposed to be elected based on individual merit rather than party or other lines. District (LCV), County and Municipal (LCIV) and Subcounty and Town (LCIII) councils are Local Governments with legislative, financial and administrative powers while Parish (LCII) and Village Councils (LCI) are administrative units (World Bank, 2003).
Given gender divisions in labour and inequities in power, autonomy and resource control, extension services may be even less accessible to women. Indeed, USAID (2006) has suggested that this phenomena is endemic, indicating that, worldwide, only 5% of agricultural extension services are directed at women farmers.

Miners further report that, when interactions with decentralized government officers do occur, it is typically one of acceptance (live and let live) or, in some cases where local officials have an awareness of legislation, exploitation (extortion) of illegal miners occurs. Women and men in one Kampala stone quarry, for instance, report that the Local Village Council (LCI) Chairman visits the site on a monthly basis to collect a fee of 100,000 USh (~60USD) in exchange for allowing them to work illegally. Similarly, male gold miners in forest reserves report threats of eviction or imprisonment by some forest rangers if gold is not preferentially sold to them. Taxation by local government (e.g. permits, fees imposed on mineral traders etc) with unseen benefits or unclear terms of their use have also been common complaints of miners and mineral dealers, particularly for more visible, high volume mineral commodities (e.g. stone, sand, limestone, cassiterite etc).

In principle, decentralized services can arguably reduce poverty by ensuring context-specific needs are identified and met through more cost-effective service delivery to poor communities. Whether decentralization is part of the ASM poverty cycle or part of the solution is subject to debate. Local governance in Katwe Kabatooro Town Council (discussed in Section 7.9) lends further insight, suggesting that issues of voice, participation, autonomy and capacity to exercise legal claims to rights figure prominently.

5.3 Gender and Rights Regimes in Uganda
The State is ultimately obligated to respect, protect and fulfill rights as enshrined in law. Opportunities for women and men to claim their rights and yield benefits from the exercise of rights are partly determined by the way in which rights are not just defined but interpreted and implemented (Moser, 2001). Although full provision of rights - such as clean water and education – is unlikely to be achieved in many developing
countries in the short-term, it is primarily due to progressive changes in Ugandan legislation for which the country is commonly heralded as a model for its support for women’s participation in politics, girl child education through Universal Primary Education policies and recognition of women’s land rights, among other key areas (Ahikire, 2009; Lakwo, 2006). Legislation provides a powerful platform on which institutions, structures and processes can be mandated to advance pro-poor objectives, however it is the outcomes on women’s and men’s lives that denote efficacy of both policies and implementing institutions.

5.3.1 Hallmark Advances in Legislation

Much of the progressive evolution of Ugandan legislation has been framed on the Constitution of Uganda (1995), which declares in Article 21: “…all persons are equal before and under the law in all spheres of political, economic, social and cultural life and in every other respect and shall enjoy equal protection under the law”.

Numerous articles in the Constitution supplement this declaration. Article 31 of the Constitution of Uganda (1995) entitles men and women to “equal rights in marriage, during marriage and at its dissolution”. This would be given effect through the Domestic Relations Bill, which deals with marriage, separation and divorce, marital rights and responsibilities, foundations for breakdown of marriage, rights on dissolution of marriage, co-ownership of property and other related issues. The Bill was first put forth over 20 years ago and has been shelved several times, attesting to the difficulty in achieving consensus on appropriate laws to support gender equality.

Article 33 further states:

- “The state shall recognize the significant role that women play in society”.
- “Women shall be accorded full and equal dignity of the person with men”.
- “The state shall provide the facilities and opportunities necessary to enhance the welfare of women to enable them to realize their full potential and advancement”.
- “The state shall protect women and their rights, taking into account their unique status and natural maternal functions in society”.

90
“Women shall have the right to affirmative action for the purpose of redressing the imbalances created by history, tradition or custom”.

“Laws, cultures, customs or traditions which are against the dignity, welfare or interest of women or which undermine their status are prohibited by the Constitution”.

Two years following adoption of the Constitution (1995), Uganda experienced a hallmark year for the advancement of gender equity in Uganda. In 1997, the National Gender Policy (NGP) was adopted in order to explicitly place gender in the development agenda of Uganda. Guided by the NGP, the Ministry of Gender, Labour and Social Development (MGLSD) was established in the same year, providing the machinery through which gender-responsive development is to be coordinated and gender advocacy advanced in all sectors (CEDAW, 2002). Implementation of the Universal Primary Education (UPE) policy, wherein government committed to sponsoring four children per family (two of which must be girls) soon followed.

In the same year, support for the advancement of women was additionally built into decentralization policy via the Local Government Act (1997). In Article 180 (l) (b), the Act obligates local government to ensure that at least one-third of councils, statutory commissions and committees have to be women, the main intent being to address inequitable political representation of women (Akiiki, 2002). However, although one-third of female representation at local government level is secured, true participation is not necessary attained. Although the Local Government Act seeks to ensure non-discrimination on political, social, cultural and economic fronts, it has perhaps realized its most significant achievements in exposing women to experience in public leadership and political participation, despite challenges reported by women in making their voices and issues sufficiently recognized in these fora.

Progress in the following year was marked by adoption of the Land Act (1998), wherein the law explicitly protects the rights of spouses on “family land”, i.e. land on which a family resides or sustains the basic necessities of life. Under the Act, if a spouse who is title holder wants to sell, lease, exchange, transfer, will or mortgage family land he or she must first get written permission from his or her spouse in writing.
in a prescribed form (Land Act, 1998). Explicit courses of action, via the Administrative General’s Office, present opportunities to redress violation of these terms.

Adoption of the National Action Plan on Women (NAPW) for the period 1999-2004, sought to further advance equal rights and opportunities for women and men by empowering them to participate in, and benefit from the social, economic and political development and affirmative action to close gender gaps. Formulated on the Beijing Plan of Action (1995), four target areas outlined in the NAPW were:


(ii) *Reproductive health and rights*, an objective explicitly captured through numerous policy objectives of the National Health Policy and Strategic Plan;

(iii) *Legal framework and decision making*, which is complimented by primarily institutional organs such as the Uganda Human Rights Commission, Uganda Law Reform Commission, Uganda Women Parliamentary Association and National Association of Women Organizations in Uganda (NAWOU).

(iv) *The girl child and education*, which received subsequent support from UNICEF, World Bank, USAID and other partners, primarily for complimentary and alternative education programs.

In 2007, a revised National Gender Policy (NGP) was adopted with the purpose of providing “a *clear framework for identification, implementation and coordination of interventions designed to achieve gender equality and women’s empowerment in Uganda*” (UGP, 2007: 14). Building on growing international and Ugandan knowledge and experiences acquired in the preceding decade, the 2007 UGP has adopted priorities specific to “gender and livelihoods, rights, governance and macro-economic management”. Included in the policy is more explicit commitments of MGLSD to support other line ministries as well as non-governmental actors and increased responsibility to MFPED to ensure budget allocations prioritize gender-targeted activities.
Despite the GOU commitment to a number of key policies, conventions and programmes, progress has been slow in terms of overcoming patriarchal behaviour, breaking down harmful stereotypes and countering attitudes concerning women’s subordination to men (CEDAW, 2000). This is exacerbated by low awareness with respect to constitutional provisions related to non-discrimination and lack of enforcement of relevant legislative measures. Indeed, past Ministers of the MGLSD have reported negative responses from some male counterparts when gender-related issues have been brought to the floor of parliament (CEDAW, 2002).

Ultimately, policy and legislation is a platform on which change in terms of gender equity can be founded, however it does not, in itself, affirm that transformations have or will be achieved in terms of gender relations and biases. Lakwo (2006) further asserts that incorporation of women in the political system via quotas (e.g. one-third mandated representation in government) does not reflect “women’s capacity to influence norms, rules and practices” as much as it represents the degree to which men control political processes. He goes on to cite the use of women’s groups by local government leaders as a means to “win votes” as further indicating that genuine shifts in political commitment have yet to be demonstrated in Uganda. The status of men and women in Uganda provide further insight into the effectiveness of the national legislative context and its machinery in advancing gender equity.

5.3.2 The Status of Women and Men in Uganda

According to the 2005 UNDP Human Development Report, Uganda’s steady 6-7% annual economic growth rate is attributed to macroeconomic adjustment and structural reforms since the early 1990’s. This growth, particularly in industry and services, has reduced the share of agriculture’s contribution to GDP from 68% in 1985 to 31.8% in 2005. Economic growth, however, does not always equate to improved wellbeing of a nation’s people. Uganda has one of the highest population growth rates in Sub-Saharan Africa (3.4%) and 73% of the population of 30.1 million still relies primarily on subsistence agriculture, forestry and fishing to which 23.7% of the GDP is now attributed (UBOS, 2009). Lakwo (2006) suggests that, due to population growth and an annualized inflation rate of 7%, average income is actually lower than it was in 1970. Although the proportion of Ugandan’s living in absolute poverty has dropped from 56%
in 1992 to 38% in 2004, marginal changes in agricultural methods, lack of savings accumulation, rising rates of HIV/AIDS, and a corruption ranking of 17th in the World, put improvements in poverty reduction at risk (Lakwo, 2006). This economic growth and progressive changes in pro-gender equality policy and legislation does not implicitly indicate that the gender gap is closing.

National statistics do not, by any means, fully describe gender differences in terms of vulnerability, access or control, nor do they convey how poverty is differently experienced by women and men or the causes of inequities in status or power. A few key indicators, nevertheless, provide insight into the status of women and men in the Ugandan context:

- The ratio of women to men for earned income is 0.67, indicating that women make 33% less than men (UBOS, 2009). Significantly, women produce about 80% of Uganda’s food and constitute 70% of unpaid agricultural labour and generally dominate most subsistence, informal activities (74%); yet, these activities are not captured in the “income gap” suggesting a harsh underestimate of this gender gap (Kabeer, 2007; UBOS, 2009).

- Although marked improvements from a 58% literacy gap in 1991, literacy rates show 15% disparity, with 76% of adult males and 61% of adult females being capable or reading or writing in any language (UNDP, 2005). These improvements are largely attributed to enrolment increases in primary education (from 3.4 million in 1996 to 7.3 million in 2002 with a ratio of boys to girls of near parity), however this rise does not account for population growth, nor does it address the systemic factors that girls may enroll in school but are more commonly prematurely removed from school than boys due to household responsibilities, sexual harassment from male teachers or students, fears of pregnancy on the part of parents, among other factors (GOU, 2007; Kabeer, 2007; Lakwo, 2006).

- In 2006, 31.7% of seats in Parliament were held by women, an increase from 27% in 2000, yet not yet reflective of the population (~1:1) (UNDP, 2006).

- Violence against women continues to go tolerated in Uganda (despite zero tolerance policies) with the prevalence of sexual and domestic violence against
women is 74% in the eastern region, 62% in eastern-central region, 60% in north east, 41% in Kampala and 24% in Central Uganda (MGLSD, 2009).

- Although 97% of women have access to agricultural land, only 7% own land through customary tenure and 8% under leasehold land tenure (UNDP, 2006).

Although the national machinery is in place, these statistics call into question whether real change has been achieved with respect to the status of women and men and genuine transformation of gender relations that is so profoundly influenced by entrenched values and beliefs. The impact of national institutions, policies and processes at a community level provides further insight into how reported improvements are being experienced on the ground.
6 KATWE KABATORO: INTRODUCING THE HOST COMMUNITY

In order to appreciate the socio-cultural, environmental and economic impacts and benefits of ASM in Katwe Kabatooro Town Council (KKTC), it is necessary to understand the social context in which ASM takes place. In order to lay the foundation for this research on mining as a livelihood among a community of other livelihoods, the people and place – the context – are introduced.

6.1 Location

Located in Western Uganda, Kasese District borders the Democratic Republic of Congo (DRC) to the West, and the districts of Bundibugyo to the North, Kabarole to the North East, Kamwenge to the Southeast and Bushenyi to the South (Fig One). Approximately 17% of the District area (2724 km²) consists of water bodies, including Lake Edward and Lake George, with a significant area also covered by Queen Elizabeth National Park (QENP) (32% of the area) and Rwenzori National Park (RNP) (24% of the area) (KDLG, 2004).

Katwe-Kabatoro Town Council (KKTC), degazetted from the national park in 1995, borders QENP in the north, east and west and Lake Edward in the south. Being

Figure 7: Location of Katwe Kabatooro Town Council
bounded by QENP and the lake, KKTC faces unique challenges due to the small area covered by the Town Council and unique livelihood constraints related to QENP. KKTC has three parishes (also called wards), Kyarukara, Rwenjubu and Kyakitale.

6.2 Climate
KKTC experiences two rainy seasons annually, from March-May and September-November, resulting in an annual average rainfall 800-1000 mm in the savannah characteristic of KKTC, while more mountainous parts of neighbouring subcounties achieve rainfalls of 1000-1200 mm (MDP, 2004; KDEP, 1996). Across both rainy and dry seasons, the average temperature in Kasese District is 23°C, from the high mountainous areas to the savannah plains, with daily sunshine averaging 5.5-8 hours per day. In more arid areas, temperatures average several degrees higher. The aridity observed in the lowland savannah is attributed to higher evaporation rates than precipitation.

These climatological factors influence all livelihoods to varying degrees, with the rainy-dry season variations driving efforts by many to engage in multiple activities on a seasonal basis. Reportedly due to climate change, rainfall distribution has been increasingly unreliable and uneven.

6.3 Topography
The western border of Uganda with the DRC is marked by the Western Rift Valley, which extends, in Kasese, from the basins of Lakes Edward and George, and continues north up to the Lake Albert and to the Nile. Kasese District topography is marked by the southwest-to-northeast trend of is the Rift Valley, which essentially splits the District into two components. In association with up-faulting during rift formation, the Rwenzori Mountains in eastern Kasese District rise to elevations as high as 5110m at Mount Stanley, the highest point in Uganda (KDLG, 2004). The mountains are deeply incised and drain towards the rift valley floor in the east.

The rift valley floor, where KKTC is situated, consists of plains lying between 90m and 180m above sea level (KDLG, 2004).
6.4 Population and Age Distribution

The estimated annual population growth rate (4.7%) of Kasese District exceeds the national average of 3.3% and has resulted in a population density of 232 people/km² in settled areas, well above the national average of 124 people/km². In 2002, the population of Kasese District was 584,272 (51% female, 49% male) (UBOS, 2002).

As shown in Table 3, the population of KKTC in 2005 was 6,150 with a ratio of males to females of 1.2:1 (KDLG, 2005). Youth and children comprise a large proportion of the total population (48%)\(^{14}\) which equates to a large number of dependents and can readily increase the burden on households and create pressure for youth to leave school and engage in income earning activities.

Between the ages of 5 and 14 years, 9% of boys and 7% of girls were reported to start work in mainly mining and fishing to “help pay for school fees... but it's only after school and on weekends.” This number increases dramatically for 15-18 years olds, where 41% of boys and 42% of girls, of which 67% engage in mining.

Table 3: Population and Age Distribution in Katwe- Kabatoro Town Council.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Population(^a)</th>
<th>Survey Sample</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male(^b)</td>
<td>Female(^b)</td>
<td>Total</td>
<td>Missing</td>
<td>% Male(^c)</td>
<td>% Female(^d)</td>
<td>Mean</td>
</tr>
<tr>
<td>Households(^d)</td>
<td>1616</td>
<td>118</td>
<td>66</td>
<td>184</td>
<td>0</td>
<td>64.1</td>
<td>35.9</td>
<td>50.0</td>
</tr>
<tr>
<td>Individuals</td>
<td>6180</td>
<td>484</td>
<td>424</td>
<td>908</td>
<td>3</td>
<td>53.3</td>
<td>46.7</td>
<td>49.8</td>
</tr>
<tr>
<td></td>
<td>3,389 M; 2,761 F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age Distribution</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Children under 5 yrs</td>
<td>1258 (20%)(^e)</td>
<td>60</td>
<td>65</td>
<td>125</td>
<td>0</td>
<td>48.0</td>
<td>52.0</td>
<td>2.45</td>
</tr>
<tr>
<td>Children under 18 years</td>
<td>2966 (48%)(^e)</td>
<td>198</td>
<td>179</td>
<td>377</td>
<td>1</td>
<td>52.8</td>
<td>46.8</td>
<td>7.3</td>
</tr>
<tr>
<td>Adults 19 years and older</td>
<td>3214 (52%)(^e)</td>
<td>236</td>
<td>239</td>
<td>515</td>
<td>16</td>
<td>53.3</td>
<td>46.7</td>
<td>22.4</td>
</tr>
</tbody>
</table>

\(^{a}\) Source: Katwe-Kabatoro Three Year Rolling Development Plans, 2004/5-2006/7.
\(^{b}\) Coding designated 1=male, 2=female.
\(^{c}\) % given as valid percent, i.e. missing values excluded.
\(^{d}\) Male and female in the Household row refers to sex of household head.
\(^{e}\) Source: UBOS Census 2002, sex-disaggregated data on children not available.

\(^{14}\) The proportion of children and youth under 18 years in the sample was 41.5%. Children under 5 years was also lower than UBOS (2002) statistics at 13.8%.
6.5 Ethnicity
The complex history of immigration, conflict and economic changes - in part associated with the establishment of QENP as well as the rise and collapse of various economic activities - have resulted in highly heterogeneous and ethnically diverse communities. In KKTC, the Bakyingwe, Banyabindi and Basongora are recognized as the “original tribes”, although immigration associated with both the fish and salt industries has led to an influx of peoples from around the country. Other tribal groups include: the Batooro, Bakonzo, Banyankole, Bakiga, Bacholi, Iteso, Banyoro, Lanki and Banyarwanda. Traditional territories of major ethnic groups are shown in Figure 8.

Figure 8: Traditional Territories of Major Ethnic Groups in Uganda
(Source: Nzita, and Mbaga, People and Cultures of Uganda, (Fountain publ,) © 1998, reprod with permission)
Despite the broad range of ethnic groups in KKTC, tribal conflicts are believed to be minimal, with most divisions on the basis of local politics, rather than ethnicity. Livelihood differentiations are even less distinct in terms of ethnicity with ASM and other livelihoods being undertaken by a number of tribes jointly.

This situation differs somewhat from neighbouring subcounties where farming and cattlekeeping are more significant activities. In nearby Muhokya Subcounty, some cattlekeepers have indicated that tribalism is a factor hampering local development and providing them with inadequate political representation. For example, the Banyabindi were identified by some as being a marginalized and vulnerable group in a neighbouring subcounty that are restricted from speaking in public. Also, land disputes associated with their livelihoods (i.e. farming versus cattle keeping) have also been reported. Due to the nature of their activities, the Basongora cattlekeepers tend to be somewhat migratory, particularly in the dry seasons, and frequently cross into crop land of the farming Bakonzo.

Civil war in the 1960’s to 1970’s resulted in death of many local Batooro and Bakonjo involved in the conflict (and catalyzed inter-tribal tensions which continue to this day). A slight Batooro majority and affiliation of the Toro Kingdom with colonial and post-colonial powers saw other tribes, such as the Bakonzo, Baamba and smaller groups, feeling neglected and disenfranchised.

In 1961, the Batooro requested a separate district and subsequent installation of a king. Upon denial of these requests by the government, a movement was mobilized, which remained active for several decades. Reportedly, the political alliances traditionally held over past decades have led to some degree of political divisiveness along tribal lines. Some groups report that past elections have been based on tribal grounds and not necessarily capabilities and suitability, thereby “denying quality leadership” and resulting in the economic decline in the area.

Elders and clan leaders within KKTC and continue to play an active advisory role in land disputes (and to a much lesser extent in serious marital or domestic disputes) and as ceremonial leaders at weddings and funerals. However, there seems to be little
ongoing collaboration between these leaders and individuals within the community, despite a reportedly deep respect for their positions. Clan leaders do have an audience with Town Council administration, but reportedly possess only marginal influence on governance issues. In KKTC, many have difficulty clearly identifying clan leaders and elders and suggest that marginal adherence to traditional cultural activities (e.g. dancing, drama) has diminished recognition of elders as formal leaders.

6.6 Religion
The dominant religions in KKTC are Roman Catholicism, Anglicanism, Protestantism, Islam and Pentecostal (Table 4). Other religious groups include the Orthodox, Seventh Day Adventists, Baptist and Jehovah’s Witnesses. Traditional beliefs are also reported, but little is known about the extent of this as practitioners apparently avert attention from this.

Table 4: Religious Affiliations in KKTC (% of population)

<table>
<thead>
<tr>
<th></th>
<th>Catholic</th>
<th>Anglican</th>
<th>SDA*</th>
<th>Pentacostal</th>
<th>Muslim</th>
<th>Other</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kasese</td>
<td>35.0</td>
<td>45.0</td>
<td>8.4</td>
<td>3.4</td>
<td>6.5</td>
<td>1.7</td>
<td>0.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Katwe Kabatoro Town Council</td>
<td>50.1</td>
<td>24.3</td>
<td>1.0</td>
<td>4.7</td>
<td>18.8</td>
<td>0.7</td>
<td>0.3</td>
<td>100.0</td>
</tr>
</tbody>
</table>

* SDA = Seventh Day Adventists

Many KKTC residents indicate that the influence of local religious leaders is largely constrained within the realm of religious matters with little influence on issues related to land, economics or development.

However, women interviewed cited cases where religious leaders were involved in domestic or marital issues. For example, when a wife is considering leaving her husband due to regular physical abuse (to which many women attribute to “over-drinking” alcohol by their husbands), some consult religious leaders for guidance. Many of these cases are reportedly handled by clan members.\(^{15}\)

\(^{15}\) Sexual and gender based violence (SGBV) are further discussed in Section 7.7.2.
7 THE FOUNDATIONS FOR SUSTAINABLE LIVELIHOODS

Understanding the foundations for livelihoods means characterizing the assets or poverty reducing measures to which people have access, factors affecting their vulnerability and understanding livelihood strategies used to improve or maintain their wellbeing. Key components of the foundations for livelihoods include:

- Access, control and ownership of natural resource stocks from which resources can be used to enable (or constrain) certain livelihoods;
- Governance and the institutional environment that affects the capacity of women and men to fulfill livelihood objectives and participate in decision-making;
- Social networks and connections that support knowledge development, innovation and psycho-social wellbeing;
- Skills, knowledge and ability to work and achieve good health that jointly enable people to meet their needs and achieve their livelihood objectives;
- Personal security, or the “freedom from threats or violence”, that enables both mental and physical wellbeing and the continued engagement in a livelihood to meet personal and family needs and objectives;
- Access and control of decisions in the use of infrastructure and public services that support or hinder women’s and men’s livelihood choices; and
- Financial resources that people require to attain their livelihood objectives.

Access, control and ownership of resources are the primary means through which women and men can develop pathways out of poverty (Moser, 1998). For example, within the context of ASM, trading up resources of manual labour, basic tools and minerals to savings to better tools to work in teams to group savings to small equipment is an example of how human, physical, natural, social and financial assets can be accumulated and used to improve wellbeing over time. Each of these elements jointly influences the capacity of an individual woman or man, their families and community to drive poverty reduction and benefit from growth and development. This chapter described the research findings in each of these critical areas as a basis for discussion in Chapter Eight.
7.1 The Livelihoods

There are five main livelihoods in KKTC: salt winning, fishing, trading, wage income earners (e.g. people working in shops, restaurants and bars; casual labourers and a small proportion of civil servants) and agricultural livelihoods (subsistence farming and animal husbandry). In terms of agriculture, cattle-keeping is, in particularly, is identified as being important by community residents. Due to their relative wealth, perceived or real political influence and sometimes negative relationship with salt miners (primarily due to cattle grazing on the hillslopes of the salt crater lake), they are considered by many residents to be prominent community members. Indeed both cattle keeping and farming were historically significant prior to establishment of Queen Elizabeth National Park (QENP) in the early 1950’s.

However, as shown in Table 5 and observed during field activities, the number of households and individuals reliant on these activities are quite few compared to other livelihoods. Therefore, for purposes of quantitative analysis, they have necessarily been integrated with “other” economic activities in the sample. Cattle keeping, as well as subsistence farming (which was found to be an important livelihood strategy for the poorest of the poor), are nevertheless considered in qualitative terms.

Reliance of KKTC residents on specific livelihoods were identified as “the household’s main source of household income in the past twelve months” (hereinafter referred to as “primary” as opposed to secondary or tertiary livelihoods). In terms of a primary livelihood for individuals in households, results indicate that 49.0% of men and boys and 48.8% of women and girls surveyed in KKTC are primarily reliant on mining (Table 5). Upon comparison with Kasese District and national averages, where 1.3% and 0.6% of the population are officially engaged in mining, respectively, ASM is undoubtedly a key component on the socio-economy and environment in KKTC. Fishing and related activities (fish smoking, net mending, fish vending to dealers etc) are the next most important activity, supporting 20.7% of residents surveyed.

Rwenjubu Ward is significantly different from the other two parishes in KKTC in terms of the high concentration of those in fishing (33.3% men, 43.5% women) and relatively limited numbers of miners (27.1% of men, 47.2% of women), particularly compared to
Kykikale Ward. This is not surprising given its close proximity to the fish landing site and distance from the salt lake. Conversely, miners are concentrated in Kyakitale Ward, nearest to the salt lake, while those primarily reliant on fishing are altogether absent.

Table 5: Primary Livelihoods of Residents of KKTC (% of household members)

<table>
<thead>
<tr>
<th>Ward</th>
<th>Sex</th>
<th>Mining</th>
<th>Fishing</th>
<th>Farming/Livestock</th>
<th>Trading</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Kasese District</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>1.9%</td>
<td>2.8%</td>
<td>66.2%</td>
<td>n/a</td>
<td>29.1%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>0.8%</td>
<td>0.7%</td>
<td>84.6%</td>
<td>n/a</td>
<td>13.9%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td><strong>Katwe Kabatoro Town Council</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Kyakitale</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>74.8%</td>
<td>0</td>
<td>0.9%</td>
<td>13.0%</td>
<td>11.3%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N=86</td>
<td>N=0</td>
<td>N=1</td>
<td>N=15</td>
<td>N=13</td>
<td>N=115</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>69.1%</td>
<td>0</td>
<td>7.4%</td>
<td>13.8%</td>
<td>9.6%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N=65</td>
<td>N=0</td>
<td>N=7</td>
<td>N=13</td>
<td>N=9</td>
<td>N=94</td>
<td></td>
</tr>
<tr>
<td>Kyarukara</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>59.1%</td>
<td>22.6%</td>
<td>0</td>
<td>6.3%</td>
<td>11.9%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N=94</td>
<td>N=36</td>
<td>N=0</td>
<td>N=10</td>
<td>N=19</td>
<td>N=159</td>
<td></td>
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*Source: Kasese District Development Plan, 2004-2007. n/a = not available. M = male; F = female. Livelihoods: Pearson Chi Square (6) = 172.2, p<0.02; Gender not significant by ward.

Distinctions in terms of the gender division of labour (as discussed below) and the relative impacts and benefits of various livelihood strategies provide more holistic insight.

7.1.1 Mining

Kasese District has historically been the hub of mining in Uganda. Historically, the Kilembe Mine, where copper and cobalt was produced from the mid-1950’s until the late 1970’s, was the most significant mine in not just the District but, indeed, the country (UNDP, 1996). When in full operation, Kilembe Mine directly employed ~7000
men, not including those employed at the roaster (just outside of Kasese Town) and smelter (in Jinja). From the mine operation alone, this equated to indirect benefits to at least 50,000 more\(^\text{16}\). With closure of Kilembe Mine and collapse of the formal mining sector under Idi Amin, hundreds of trained, unemployed miners shifted into ASM, providing an important stimulus for growth of the subsector (Hinton, 2005).

Currently, the largest mining operation active in Kasese District, the Hima Cement Ltd. limestone quarry exemplifies a well-mechanized, medium-scale operation. Staffed by at least 18 men, this quarry produced more than 280,000 tonnes of limestone in 2004 (Kyakonye and Atuhairwe, 2004; DGSM, 2005). In addition to employment at the quarry and cement plant, Hima Cement Ltd. supports the livelihood of artisanal miners through the purchase of minerals from ASM operations in Kasese (limestone), as well as Bundibugyo (gypsum), Kabarole (volcanic pozzolana) and Kabale Districts (volcanic pozzolana and iron ore). A few other medium limestone producers can be found in the district, most of whom who produce lime. Specifically, the equally well-mechanized Kasese Copper Cobalt Company Ltd. (KCCL) limestone quarry currently produces and consumes 200 tons of lime daily on average while the Kilembe Mines limestone quarries have up to five kilns with a capacity of 30 tonnes each used for lime production (Kyakonye, 2005).

**History of Mining Activities at Lake Katwe**

ASM at Lake Katwe reportedly began when the Kingdoms of Uganda were established in the 1700’s and salt, much like gold, was a highly valuable, traded commodity (Connah, 1990; Briggs, 2002). By the 19\(^\text{th}\) century, it held both economic and political significance, in particular to the Kingdoms of Toro in Lake Katwe and Bunyoro (at Kibiro in Hoima District) (Connah, 1990; Briggs, 2002). Upon arrival of European explorers in the mid-19\(^\text{th}\) Century, a number of crater lakes in the area provided important sources of salt and have since dried up but the most significant, by far, was Lake Katwe (formerly known as Myiko) (Connah, 1990; Briggs, 2002). In the 19\(^\text{th}\) century, salt production was largely under control of the Toro Kingdom, was then taken

\(^{16}\) Indirect benefits commonly refer to dependents of employees and indirect service provides (e.g. food stuffs, local merchants etc serving employees and their families). These discludes benefits and related multipliers from the service providers to the mine (e.g. equipment, maintenance) not directly employed, and those employed at the roaster and smelter.
over by the Banyoro in the late 1870s and, shortly thereafter in 1890, by a British-Toro coalition led by Captain Lugard, an agent of the Imperial British East Africa Company (Briggs, 2002).

Despite the fact that mining methods are marked by intensive manual labour, both women and men miners express a sense of pride that salt production methods have gone unchanged over the centuries. The quality of salt, its value, the number of miners and gender division of labour have, however, changed significantly. In 1890, Lugard observed salt piles, “some beautifully white and clean” and suitable for human consumption (Briggs, 2002:290) while, in 1930, A.W Groves reported that this purest salt was Grade No 1, obtained naturally from the lake edges (Harben, 1993). A 76-year old male miner, having begun working at the age of 7 with his mother (who retired at the age of 94), displayed a small handful of Grade I salt, and confirmed the marginal availability of Grade I salt around the lake edges compared to the past and commenting on its declining abundance “now, this is all we get.”.

Groves further observed an issue that continues to this day: solar evaporation salt from pans was considerably contaminated with mud since the “natives” worked directly in the pans, thereby stirring up the black mud that constitutes the bulk of pan walls (Harben, 1993). Rock salt, the most impure form of salt produced and sold at Katwe, was usually bright pink and visibly consisted of a mixture of multiple salts, as well as mud and algae. He reported that any “native” was allowed to work for one third of their production while the remaining two-thirds went to the store of the Native Government (Harben, 1993).

Prior to World War II, mining was not of major importance to the Ugandan protectorate government and, in the period just after the Second World War, salt was imported from Pakistan by Asian merchants, largely due to the low quality and limited supply at Katwe (Syakuha-Muhindo, 1996; Elkan, 1957). Various unsuccessful attempts were made to improve the quality and quantity of salt produced at Lake Katwe between 1948 and 1967 by Katwe Salt Trust (1948–50), Uganda Development Corporation (1954–58) and the Geological Survey of Uganda (1966–1967) (Harben, 1993). At the
time, more attention was given to development of export markets rather than industrialization of mining, and these efforts largely failed on technical grounds.

In the late 1940’s, the move to support export crop production, especially cotton, coupled with construction of a fish processing plant in nearby Kasenyi and opening of the Kilembe Mine in the 1950’s attracted many men from the salt lake to fishing, cash crop production and large scale mining (Syakuha-Muhindo, 1996). It was at this time that a tremendous shift occurred in the gender balance of the Lake Katwe labour force. This was further catalyzed by the establishment of Queen Elizabeth National Park (QENP) in the early 1950’s, which restricted women from planting crops in gazetted areas and civil strife in Zaire (now DRC) which drew many women refugees to seek work at the salt lake as labourers. As a consequence of these events, women continue to dominate the salt mining workforce today.

In the 1940’s and 50’s, the import of salt, locally referred to as ‘Hindia’ (due to its association with the Asian merchants), reduced the size of the market of Katwe salt. Imported salt was generally considered to be cleaner and of better quality, particularly since Katwe salt was perceived to give a strange taste to sauces and soups containing animal protein. However, the importation of salt had not fundamentally undermined the market for Lake Katwe salt as many of the rural and urban poor still preferred Katwe salt to the imported salt, especially in cooking of legumes, greens, yams and other root tuber foods. Rock salt continued, and continues, to be used as the main cattle lick resource for the pastoral communities in Ankole, Toro, and Bunyoro and, with the influx of imported, high-quality Hindia, the emphasis shifted towards Grade III (cattle lick quality) salt in pan production also (Syakuha-Muhindo, 1996).

In the 1950’s, construction of roads linking Katwe to the Mbarara-Kasese Highway and Katunguru opened up the salt market and reinvigorated male participation as traders. This led to increases in outputs from 150 tpa to 5,000 tpa (Syakuha-Muhindo, 1996).

A veteran of 40 years of salt mining at Lake Katwe explained that, in the early 1960s, there were only about 80 salt miners, mostly men of Bakonjo, Bakingwe and Batoro origin. Famines in Busongora and Bukonzo in the 1930’s and early 1940’s were early
migration catalysts. These were later on joined by Baganda from central Uganda who engaged in both fishing and salt mining. The shift to a multi-cultural workforce over the past century is indicative of the regional and national forces, including the events described above, many of which have driven cross-border and tribal immigration throughout the country.

Between the 1960’s and early 1970’s, Muhokya Township, located approximately 50 km from KKTC along the Kasese-Mbarara Highway, became the second largest cosmopolitan center in the district after Kasese Town (Syakuha-Muhindo, 1996). This period saw the immigration of Arabs, Indians, Congolese, and various Ugandan tribes, driven mainly by the establishment of Sterling Astardi, who employed up to 300 men in its limestone mining and lime production operation. At this time, a large fish processing facility was also operating in the Muhokya Sub-county and a local potent alcoholic drink called “Kasese-Kasese”, was uniquely distilled there on a quasi-industrial scale.

A series of events eventually brought about the cessation of Sterling Astardi operations along with many other key activities and with this, a rapid economic decline ensued. Among these, between the 1960’s and late 1970’s, marginalization of the Bakonjo tribe resulted in a civil war that saw the outmigration of many local Batooro and Bakonjo tribes from Muhokya Subcounty, with the former – who occupied the rich lowlands - facing demands to leave the area (Syakuha-Muhindo, 1996). This catalyzed intertribal tensions which continue to this day. The closure of the rail line (with cessation of activities at Kilembe Mine) saw increased prices for transportation and, Kasese-Kasese liquor was increasingly copied throughout the country, undermining the monopoly earlier enjoyed in the district.

Each of these factors caused a migration to nearby Lake Katwe which was further stimulated by Amin’s declaration of the “Economic War” that saw expulsion of most Asians from Uganda in 1972. This created a massive salt shortage and, by 1975, Lake Katwe was the only source of salt available to a large proportion of Ugandans and neighbouring regions (Harben, 1993). This prompted Amin’s military regime to put pressure on Uganda Development Corporation to hasten the construction of a salt factory at Katwe in order to produce refined salt.
Between 1975 and 1980, a German firm, Thyssen Rehinstalin Technik installed a chemical extraction plant that was intended to put the artisanal salt workings on an industrial footing (Fig. 9) (Ddungu, 1990). The saline waters of Lake Katwe were to be pumped to the plant site located on the Lake Edward shoreline, where they would be passed through an evaporation and purification system to yield a high grade product. However, after commissioning by the Uganda Development Corporation (UDC), the plant operated for a few months until it failed, reportedly due to poorly designed heat exchanger tubes; and has since then been virtually useless as a commercial asset to the Lake Katwe community. Attempts to repair the plant and resume production in the mid 1980’s encountered financial management problems and the plant has since remained inoperative.

By the late 1980’s, the salt pans along the Katwe Lake shores numbered about 2000, with 600 – 900 owners (Harben, 1993). Considering that a single pan is usually worked
by four to six people, Ddungu (1990) calculated that the number of salt miners was about 12,000 during the peak seasons. A “salt pan” is a constructed pond (typically ~8m x 12m) with mud-and-stick lined walls where brine is directed via trenches through temporary openings in the pan wall. Solar evaporation leads to precipitation of salt, which is collected from the pan bottom. Throughout the process, cleaning of secondary, low quality precipitates that form on the surface helps to reduce impurities in salt. This process is overseen by pan owners, who often also engage in the work, and workers are paid as labourers and/or in exchange for salt. Salt is also harvested as “rock salt”, which is only undertaken by men and involves prying hard salt precipitated on the lake floor. In 1990, this activity was limited to only 80 licenses (granted by the Town Council) with the intent of ensuring sustainability of the resources.

By the early 1990’s, employment from 2220 salt pans was estimated at around 12,500 during the dry (peak) season, including about 300 women engaged in provision of food and other goods and services (Harben, 1993). Although more than 50% of the Lake Katwe workforce was, and continues to be, women, in 1993, less than 3% of the salt pans were owned by women (Harben, 1993). Production at this time was estimated to be between 8,500 and 12,000 tpa. At this time, the price of salt ranged between 0.35 USD per 20 kg bag (~0.02 USD/kg) in the dry season and USh 0.92 per 20 kg bag (~0.05 USD/kg) in the wet season when production declined. Gradual reductions in the districts’ cotton production due to decreased demand from Nyakalonzi Cotton Cooperative and inadequate regulation of the fishery resulting in near decimation of fish stocks since the early the late-1990’s has since attracted thousands of more new miners to the salt lake.
Currently, Lake Katwe has formed the basis for an artisanal industry that is a primary source of livelihoods for more than half of KKTC households and a secondary or tertiary source for 35% more. In the rainy season, 49.3% of “primary” salt miners surveyed engage in other livelihoods, including fishing (13.8%), farming (12.3%)\(^{17}\), trading (16.9%) or other activities (4.6%) (p<0.01). Salt mining is exclusively practiced year-round (although not as intensively or regularly) by 50.6% of resident salt miners.

**Current and Projected Mineral Production**

Lake Katwe is irrefutably the most important producer of salt in Uganda. Salt produced in Lake Katwe reaches markets across Uganda as well as in Rwanda, Tanzania and the Democratic Republic of Congo (DRC). Traditionally, it has been the source of three different types of salt that have been used for human consumption, animal feed and in tanning hides and skins:

1. **Grade I – Human Consumption:** In the past, crystallized salt, referred to as No. I grade salt was extracted seasonally from the lake using grass hurdles to collect salt blown ashore by winds during the very long dry seasons (Harben, 1993). Local miners generally indicate that this grade of salt has not formed for almost 20 years although small handfuls of the pure salt can be collected on an extremely marginal basis.

2. **Grade II – Human and animal consumption:** Salt referred to as No. II grade salt is produced mainly during the dry season in man-made mud-lined salt pans by surface brine evaporation. It is produced in two forms – crude, known as “ekihabure”, which is used as a cattle lick, and washed grade II salt sold for human consumption.

3. **Grade III – Animal feed:** This grade, known as rock salt is extracted from the crust at the center of the lake beneath the surface brine, and floated to the shore of the lake on trains of ambatch rafts. The crust beneath the brine consists of different layers and is formed as a result of natural salt crystal formation in the salt lake. It is extracted throughout the year.

\(^{17}\) Included due to engagement as labourers in commercial farming (mainly for cotton) in surrounding subcounties as well as subsistence farming due to lack of alternatives.
KKTC administration, through a tendered contract, collects taxes on the salt at a rate of $0.35 USD per 50kg of crude salt. Salt mining is the largest income earner for the Town Council local government with estimated monthly revenue of 7,300 USD coming from salt taxes. Based on these average monthly revenues, current crude salt production may reach 967 tonnes per month (11,600 tpa). However, this only takes into account the salt sold and does not include salt stockpiled or salt consumed by miners. Furthermore, as the contract for tax collection is on a flat rate basis, this does not reflect salt produced and taxed, but not reported to Town Council administration.

Based on the number of salt pans, average productivity per pan, number of rock salt miners and their average productivity, salt production\(^\text{18}\) is more likely on the order of 18,112 tpa. Breakdown on the basis of salt grade is estimated at: Grade II (washed): 4,029 tpa, Grade II (crude): 5,971 tpa; Grade III: (crude): 8,112 tpa.

Projected salt production at Lake Katwe can be assessed in terms of industrial production and improved artisanal salt workings. On an industrial scale, earlier studies showed that most interstitial brines could be pumped from the lake at a rate of ~60m\(^3\)/hr, providing production of 50,000 tpa of salt (Morton, 1971). It was suggested that this could be sustained for ~10 years before any decline in brine strength would become evident. Concerns of decreased influxes of brine into the lake were largely not addressed in these studies and it is hoped that recent investors who have demonstrated interest in industrial production would undertake more in-depth assessment.

On an artisanal level, current average production per pan is ~5 tpa. If technical, intermediate improvements to salt extraction methods were to double pan productivity and the current number of functioning pans were maintained, annual production of crude grade II salt could increase to 20,000 tpa (Section 8.3). Sequential precipitation of secondary products (such as gypsum) may present an additional opportunity.

\(^{18}\) The number of salt pans is estimated at 2500 to up to 3000, although (due to disrepair) only 75% are assumed to be in production at any given time. Although individual producers report much higher yields, production per pan averages about 5 tpa from a medium sized pan (~8m x 12m). Rock salt production is based on 130 licensed extractors each generating 12 bags (100 kg/bag) per week.
Although overall artisanal salt production may increase, evidence suggests the quality and per person quantity of salt produced may be declining. Heightened anxiety and concern is reflected by one woman miner’s statement “We are told the lake is dying out. Is it true? We don’t know why…” As described throughout, these changes are likely the result of a complex interplay of multiple factors that may include increases in water levels due to influxes from underground freshwater springs, de-vegetation of crater slopes due to mining and cattle keeping activities as well as climate change while the growing number of salt pans, miners, poor erosion control and pan cleaning practices may play prominent roles.

Technological Practices, Division of Labour and Organization of Work

Given the increased number of salt pans around the lake since the 1990’s, it is estimated that up to 14,000 miners are now actively involved in salt mining and trading in Katwe during the peak seasons, a number which decreases by 60-80% in the rainy season. This includes women, men, youth (girls and boys) as well as children who come to the salt mines after school and on weekends.

Pans are located around the 7 km perimeter of the lake and extend as far as 150 m into the shallow water. The lake is located at the base of a crater with banks ~300m high. It covers up to 2.5km² and consists of a circular western portion ~ 1.5km in diameter from which an arm branches off to the north east. Its depth averages ~ 0.75m although this is substantially reduced during the prolonged dry seasons.

Photo 3: (from top) Women mainly engage in harvesting Grade II ekhibure salt from pans.
Photo 4: Only men hold the 130 licenses to pry rock salt from the lake bottom, that is loaded and transported via simple rafts.
Photo 5: Women and mainly men are employed as labourers to haul rock salt for sale to vendors.
Production of salt from Lake Katwe takes two forms: non-mechanised production of salt from small pans located at the shoreline of the lake and mining of rock salt that crystallizes at the bottom of the lake. Using the same labour intensive methods employed for centuries, there is limited control of both the quantity and the quality of the salt. Salt produced does not meet the specifications prescribed for table salt as methods poorly separate impurities such as mud, soda ash, sodium and potassium sulphate, sodium carbonates and potassium bromide.

**Production in Salt Pans:**
Salt production in mud-lined pans constructed around the entire margin of the lake produce Grade II washed salt. About 70% of those involved in salt production in pans are women although very few (~3%) own the pans.

The main activities required to produce salt in a salt pan include: construction of the salt pan, filling the salt pan with brine, harvesting the salt and occasional cleaning by scraping mud from the pan floor. Labour arrangements are often based on the task where harvesting is often on an individual basis (i.e. by pan owners), in a family unit or contracted out while construction, filling and cleaning is commonly undertaken by contracted (i.e. per week or month) or casual (per day or by task) labourers. Men largely dominate construction while women dominate all other activities.
The pans consist of low banks constructed with mud, sticks and grass and are linked to the main lake by small man-made channels (Photo 6-10). Construction of a medium sized pan (~8m by 12m) takes about 3 weeks and costs $90-$100 USD in total, inclusive of hired labour (at a cost of about ~$1 USD per day) and purchase of wooden pegs of up to one meter length (~300 pegs costing $0.05-0.1 USD/stick), 400 bundles of grass (costing $0.08 USD/small bundle), spades and hoes.

The level of brine fed into the pan is determined by the owner but depths generally averages 30 – 40cm. Brine is routed from the lake through mud-lined channels and, once the desired depth is achieved, pan owners begin to monitor for signs of increased salinity as indicated by formation of crystals at the surface or colour changes in the water (Photo 6). Rises in water levels in the absence of rain are also monitored as it suggests seepage through openings on the floor of the pan. Many salt miners believe that these holes bring in fresh groundwater through underground springs and can reduce salinity and slow evaporation. Skilled people are often contracted to locate and block these “holes” with mud.

Initial stages of salt formation are characterized by blackish-grey burkeite crystals (an evaporite mineral resulting from co-crystallization of sodium sulphate and sodium carbonate, \(\text{Na}_6(\text{CO}_3)(\text{SO}_4)_2\)). This crude salt is laborious to clean (by washing and decanting of impurities) and, as is it primarily comprised of non-chloride compounds, it is uneconomical to wash. Crystals are therefore simply scraped from the surface, piled at the sides and sold as unwashed salt (“ekihabure”) for animal feed (Photo 7 and 8).

When evaporation rates are high and salinity begins to increase, a filmy scum of salt crystals begin to form on the surface and, later, at the bottom of the pan. Pan workers occasionally sprinkle additional brine on the scum, increasing crystals to a size that
sink to the bottom of the pan for further growth. Harvesting takes place after about seven days although prevailing temperatures and rainfall determine duration.

Metals scoops or hoes are used to scrape crystals from the pan bottom, which are stockpiled adjacent to pans. This is followed by repeated washing in plastic basins wherein brine from the pan is mixed with the crude salt and trampled with bare feet or kneaded by hand while impurities are intermittently decanted off. The resulting end product is sold for human consumption. This process is repeated 3–10 times (depending on the composition of the salt and amount of silt impurities) to yield one basin. It takes up to 7 hours for a hardworking labourer to produce one full 150kg bag of washed salt containing ~ 6-8 basins of salt.

Casual labourers engaged in harvesting of salt are usually paid partly in cash and partly in salt. In such cases, the labourer receives one basinful of salt (~20kg) at the end of the day in addition to the days pay ($0.5-0.75 USD/d). Sometimes, the pan cleaning and salt harvesting are contracted to one person at ~$2.50 – 7.50 USD per month, or else, individual labour if obtained at a cost of $0.75 USD per day and $1 USD per day for pan cleaning and salt harvesting, respectively.

Most of the salt harvesters and pan cleaners are women. Even those few women who own pans typically work as labourers when their pans are not in production. Although a small number of men engage in salt harvesting on a casual basis, most participate in relatively higher paying activities such as constructing and repairing salt pans, transporting salt from pans around the 7km lake perimeter and loading salt onto trucks. Occasionally, prisoners from local prisons (e.g. the Lake Katwe Subcounty Prison) are employed as labourers at the salt lake. As a means to support their rehabilitation, the District has plans to purchase 10 salt pans for this “training” (and revenue generation) (KDLG, 2004).

**Rock Salt Production**

The number of rock salt licenses, exclusively granted to men, has risen from 80 to 130 in the past decade. Rock salt is extracted throughout the year and, like work in pans, is highly manual and requires spending several hours immersed in the corrosive brine.
Using 2m long, 5kg iron bars, rock salt miners prospect for hard salt rock crystallized on the lake bottom. Once found, the rock is struck to break off salt slabs. The piece is then lifted onto ambatch rafts and, once fully loaded, the train of rafts is pulled to shore and stockpiled for sale. The ambatch logs are obtained from QENP by a licensed contractor who sells to the rock salt extractors.

Prior to 1988, rock salt extractors were hired on temporary basis by wholesale agents (appointed by the Toro District Administration) and were paid per ton of salt produced (Syakuha-Muhindo, 1996). Currently, the salt extractors work independently and sell rock salt to agents (some of whom are women) who in turn sell to buyers, who are predominantly men.

**Hauling and Loading:**

Packing, hauling and loading of salt is an ongoing source of employment at the salt lake. This is largely undertaken by a group of men locally known as “genderaho”. Packing of 150kg bags earns genderaho ~$0.30 USD per bag while hauling and loading onto trucks costs ~$0.60 USD per bag or more for longer distances. Some salt is carried in basins (at a cost of $0.10 USD per basin) and then compressed into bags by another group of men, also at a cost of $0.10 USD per basin. Finally, another group loads the salt on the trucks at a cost of $0.75 to $1 USD per 150kg bag.

Each loader requires an annual $5 USD permit from the Town Council as well as a recommendation from the area LC3 Chief, who likely also requires a facilitation fee. Loaders are organized into groups whose leader helps monitors the work of members.
Salt Traders

About 50 dealers, primarily men, are licensed by the Town Council and buy salt in large quantities. A number of smaller buyers also accumulate small quantities from multiple pans and sell to dealers, most of which are also labourers seeking to supplement earnings from work in the salt pans.

7.1.2 Fishing

KKTC borders Lake Edward, which is diversely populated with a number of fish species, most importantly tilapia, bagrus, clarias, propteroerus and barbus (KDLG, 2004). As custodians of fisheries resources in Lake Edward, the Government of Uganda (GOU) places limits on the number of fishing boats and requires that each boat is licensed and each fisherman and bariya holds a permit. Permits are additionally required for “fish moving” or trade. In order to support participation of poorer boat owners, including women, boat licenses can be shared between individuals (ILM, 2004).

In 2003, a National Fisheries Policy (NFP) was developed and identified Beach Management Units (BMUs) as a means to improve support to fishing communities and ensure effective management of fisheries resources through community-based monitoring and decision-making. BMUs are the first community based organizations in Uganda that are legally empowered under the Fish Act (1964) through the BMU Statute (ILM, 2003). In addition to issuing permits and licensing boats, the BMU is responsible for collecting information needed for fisheries management. They also are empowered to enforce safety guidelines for fish quality assurance, safety practices, sanitation and waste disposal at landing sites.
There are 120 BMU authorized canoes operating on the Katwe landing site\textsuperscript{19}. The BMU is composed of: (i) canoes owners, (ii) ‘bariyas’ (labourers), (iii) fish mongers and (iii) net spreaders. People, primarily women), engaged in smoking fish are not included in BMUs yet constitute large numbers. In addition to issuing permits and licensing boats, the BMU is responsible for collecting information needed for fisheries management. They also are empowered to enforce safety guidelines for fish quality assurance, safety practices, sanitation and waste disposal at landing sites (ILM, 2004).

Despite the presence of Lake George, Lake Edward and several fish bearing rivers, fishing \textit{officially} employs only about 2\% of the district population, of which 90\% are women, who deal in post-harvest handling, smoking and petty trade, which yields far lower incomes than those of men who dominate fishing, market dues collection as well as wholesale trading (Oxfam, 2004). Only 2\% of fishing boats in the district are reportedly owned by women, while in Lake Katwe, this exceeds 28\% (Table 6). What is also likely not captured in formal statistics, 18.4\% of men and 5\% of women miners transition to the fish landing site in the rainy season. Although no women in KKTC are directly engaged in fishing, some do own boats, a fact they largely attribute to revenues from mining in the nearby salt lake. This provides additional earnings year-round through revenue sharing or rental agreements with men who use the boats, providing a valuable supplement to boat owners.

As shown in Table 5, labourers or \textit{bariyas}, 20\% of which are women, working within fishing crews are considered to constitute the most vulnerable group at fish landing sites, largely due to high competition for employment and reduced bargaining power coupled with the low number of bariya licenses. In 2002-03, Katwe had the highest number of licensed boats (134) and greatest number of bariyas (960) of any landing site in Kasese District.

The number of illegal boats is not known but is suggested to be high, particularly from encroachers from the DRC side of the lake. Increasing rates of illegal fishing activities, use of undersized nets and poor fishing methods have caused major declines in

\textsuperscript{19} Facilitated through the Ministry of Agriculture, Animal Industries and Fisheries, the BMU is a community-managed and operated committee that plays a key role in the planning, monitoring, and control for activities at the landing site and in the waters.
productivity, in particular tilapia, the main staple fish in the lake. A development planning process undertaken by KKTC in 2004 identified lack of standardization at landing sites (e.g., net mesh size) resulting in capturing of undersize fish, theft of nets and other fishing supplies, and capsizing of canoes (for instance, during heavy storms) as key concerns (KDLG, 2004). Furthermore, growing numbers of crocodiles in Lake Edward has led to competition for declining fish stocks and continues to threaten the lives of local fishermen.

A lack of “savings culture” among the fish mongers is believed to further impede the escalation of many fish mongers out of poverty. Fish smoke houses and cold storage equipment (i.e., freezers) to preserve their fish have been identified as needs to improve the contribution of fishing to KKTC.

With the lake falling within the Queen Elizabeth National Park (QENP) boundaries, the Uganda Wildlife Authority (UWA) has become increasingly involved in fisheries management in recent years, a move perceived by many community residents as an additional threat to the livelihoods of those involved. The perception that UWA works
more so in the interests of animals than the people continues to fuel discontent towards the organization.

Major markets for fish from Lake Edward are Kisinga and Bwera, while Lake George is mainly sold in markets in Kilembe, Kasese, Bwera and Kinyamaseke (KDLG, 1996, ILM, 2004). Approximately 46% and 62% of the total District catch of tilapia and bagrus, respectively, are caught through the Katwe Landing Site. Other important sources in the District are Kahendero in Muhokya Subcounty, Hamukungu and Kasenyi landing sites on Lake George and Katunguru on the Kazinga Channel. In 2001, NEMA attributed 3% of the total national catch to Lake Edward and Lake George (NEMA, 2002).

7.1.3 Trading and Provision of Other Goods and Services
Trading provides an important source of employment, goods and a venue for exchanges with those engaged in other livelihoods. About 14.0% of women and girls; and 14.2% of men and boys in KKTC are primarily reliant on trading on a household level (Table 5). In addition to minerals, farm produce and fish traders, the many small and varied businesses engaged in buying and selling a wide range of products (from firewood to rope to school supplies) play a significant role in local development. Approximately 7.9% of men and 20.0% of women miners are also engaged in trading, either concurrent with mining or in the rainy season.

The relationship between traders and shopkeepers with other livelihoods is one of reciprocity. Traders have described how low income earnings of the resident community slow the flow of profit to traders, who must “sit on” their wares for extended periods. Traders, however, provide an opportunity to sell key goods (e.g. tools, food, books, etc), that are essential to the wellbeing of households engaged in other livelihoods. For example, import of otherwise inaccessible medications can enable the
good health essential for productivity while introduction of goods that were previously unknown to residents, such as new tools, can help catalyze technological improvements. Furthermore, shops, eating houses and similar sites can provide a hub for communication and social networking, advancing the exchange of information necessary to support initiative and innovation.

KKTC has a diversity of shops, eating houses, pharmacies, barber shops, and boda-boda (motorcycle taxi) transport from which the Town Council acquires a small portion of its tax revenue. As KKTC is well off the main Kasese-Mbarara Highway, and, according to one trader, is actually avoided “for fear of the (effects of the) corrosive nature of the salt” on vehicles, non-resident buyers are limited to area residents and the fish and mineral traders passing through the town.

Trading in KKTC is generally viewed as a step-up from other activities in terms of economic potential but one which is perceived to require a significant amount of capital. Saving money from spreading and selling nets as a youth, one KKTC trader described how he saved $30 by age 18, enabling him to engage in the salt trade in 1993. Slowly he shifted away from salt and into other goods (e.g. clothes, sodas) and, after accumulating some capital, received a loan for $250 (at an interest rate of 5% per week). Since the growth of his business, he now offers credit facilities for his customers (at no interest) and has expanded his activities to include local construction, which inevitably requires local labour. This trader’s story exemplifies how savings, financial management and reinvestment can lead to economic growth, affecting other facets of the local community.

7.1.4 Livestock
Located within the boundaries of QENP and therefore confined by limited available land, as well as the threat of predators under park protection, animal husbandry is a constrained but nevertheless important livelihood in KKTC. Cattle-keeping, including feeding, herding and shelter construction, is overwhelmingly the domain of men. Keeping of smaller, domestic animals (e.g. poultry), however, is typically the responsibility of women.
Although the climate and vegetation are generally favourable for livestock production, the need for dry season migration and lack of corridors to amenable water sources severely hinders this activity, a situation exacerbated by the lack of a veterinary officer and presence of tsetse flies that cause “nagana” (a potential fatal disease to cattle), which is costly to treat (KKTC, 2004).

Most pastoralists in Kasese District practice communal grazing as almost all nomadic and semi-nomadic cattle herders were settled by 1992 (KDLG, 2004). However, lack of water, the proliferation of a weed which hampers grass growth and decreasing pasture land due to population growth in de-gazetted areas has forced many cattle keepers to encroach on QENP and farmland. When caught in QENP boundaries, UWA retains cattle (and sometimes cattle keepers) until a fine of ~50 USD per head of cattle is paid.

Many women and men miners complain that grazing often takes place on the slopes of Lake Katwe, resulting in de-vegetation, erosion and degradation of salt quality due to siltation. This exemplifies the constraints arising from lack of available land as well as low levels of awareness or concern regarding potential effects on salt mining. KKTC cattle keepers have identified a need to increase the grazing area available to local people and provide compensation for both people and livestock killed by wild animals (e.g. lions, leopards). Land constraints and threats from wildlife notwithstanding, many cattle keepers seem to be “overstocking”, perhaps as a coping response to deaths anticipated by disease and drought. Most households reliant on animal husbandry officially report 11-50 heads of cattle, 3-5 goats, 3-5 sheep and at least one pig while the Cattle Keepers Group in KKTC has reported that between its 80 male members, they have 4000 head of cattle, or approximately 50 cows per member (KDLG, 2004).

As shown in Table 7, KKTC livestock holders are not investing in “improved” species of animals, despite their resistance to diseases, such as Newcastle Disease and African Swine Fever. Diseases have significantly reduced the numbers of poultry and pigs, respectively, in recent years; an issue which has increased the vulnerability of those (largely women) reliant on this livelihood. Inadequate extension services and the lack of a veterinary staff compound the problem and livestock owners must travel to Kasese Town to purchase medicine. In KKTC, cattle keepers are treating disease...
themselves – each cattle keeper in the local Cattle Keepers Association has a spray pump for this purpose (KKTC, 2004).

Table 7: Livestock Populations in Katwe Kabatooro Town Council

<table>
<thead>
<tr>
<th>Parish</th>
<th>Cattle</th>
<th>Goats</th>
<th>Poultry</th>
<th>Pigs</th>
<th>Ducks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Local*</td>
<td>“Improved”</td>
<td>Local</td>
<td>“Improved”</td>
<td>Local</td>
</tr>
<tr>
<td>Kyarukara</td>
<td>200</td>
<td>0</td>
<td>279</td>
<td>0</td>
<td>40</td>
</tr>
<tr>
<td>Rwenjubu</td>
<td>500</td>
<td>0</td>
<td>256</td>
<td>0</td>
<td>40</td>
</tr>
<tr>
<td>Kyakitale</td>
<td>200</td>
<td>0</td>
<td>364</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>Total KKTC</td>
<td>900²</td>
<td>0</td>
<td>899</td>
<td>0</td>
<td>130</td>
</tr>
</tbody>
</table>

2. This is far lower than the 4000 head of cattle reported by the KKTC Cattle Keepers Group, Nov. 2005.

Milk production represents an important opportunity in animal husbandry in Kasese District. Currently, however, local breeds of cattle, which are characterized by slow growth, small mature sizes, and low milk production (1/2 – 1 litre per day per head), dominate the livestock population (KDLG, 2004).

Zero-grazing livestock (which are kept in an enclosure typically adjacent to the home and fed by owners) are being encouraged as a means for those facing land restrictions to reduce household poverty in the District. Zero-grazing livestock is predominantly promoted to and undertaken by women in Kasese District and the practice is typically accompanied by the planting of pasture, constraining its application in KKTC. One senior district official has indicated, however, that despite district and national promotion of this, zero-grazing has achieved limited success in Kasese District. Reasons cited include high input costs of feed, water and treatment, to which many people do not have access, and, in the event of animal death, it has actually worsened poverty levels. Furthermore, zero-grazing livestock provides easy prey for wild animals, putting town residents at even greater risk.

7.1.5 Farming
The majority of the population (85%) in Kasese District derives their livelihood from subsistence agriculture (KDLG, 2004). Outside of the gazetted areas of QENP, mixed
crop farming covers great expanses of land, from the mountain slopes down to the plains. The district is endowed with a wide range of geoclimatic conditions – from tropical alpine to semi-arid plains - enabling for the growth of a wide range of crops. Furthermore, the steep terrain provides significant opportunities for irrigation in 17% of the district, a potential which is, as of yet, untapped (KDLG, 2004). Potential sources include Lake George, Lake Edward and the Kazinga Channel, which share borders with the communities of interest.

A much different scenario exists in KKTC. Residents occupy a small area and are encircled by QENP, wild animal incursions and land limitations have resulted in a substantially reduced reliance on crop farming. Although many men work as labourers (e.g. in cotton planting and harvesting) in neighbouring subcounties on a seasonal basis, in KKTC, only 3.2% of households overall and 1.7% and 4.5% of men and women headed households in cited farming as their primary source of income. Nevertheless, likely due to the seasonality of ASM, 10.5% and 15.0% of men and women miners identify farming as their primary off-season economic activity.

For those that are growing small crops, inter-cropping is common, with usual combinations being: cassava/beans; bananas/beans; maize/beans; maize/groundnuts and millet/maize (Table 8) (KDLG, 2004).

<table>
<thead>
<tr>
<th>Crop / Season</th>
<th>Planting</th>
<th>Harvesting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize: 1st season</td>
<td>Mar – Apr</td>
<td>Jun – Jul</td>
</tr>
<tr>
<td>2nd season</td>
<td>Aug – Sept</td>
<td>Nov – Jan</td>
</tr>
<tr>
<td>Beans: 1st season</td>
<td>Mar – Apr</td>
<td>May – Jun</td>
</tr>
<tr>
<td>2nd season</td>
<td>Aug – Sept</td>
<td>Oct – Nov</td>
</tr>
<tr>
<td>Groundnuts: 1st season</td>
<td>Mar – Apr</td>
<td>Sept. – Oct</td>
</tr>
<tr>
<td>2nd season</td>
<td>Jun - Jul</td>
<td>Dec – Jan</td>
</tr>
<tr>
<td>Cotton: Only season</td>
<td>July - Sept</td>
<td>Apr - June</td>
</tr>
</tbody>
</table>

Very few farmers travel to Kasese Town to market their goods due to high transport costs. KKTC does not have a market, requiring travel to Kasindi (Tuesdays and
Fridays), just metres across the DRC border but 25 km from the town. Much like the salt miners, growers lack storage facilities to store goods prior to sale, affecting both quality and resulting in lower selling prices. Although women are predominantly responsible for farming and transporting crops to market, decision-making concerning land use and agricultural practices, as well as sales of produce and use of revenues, are mainly undertaken by men. As one man miner said “The land, it is for them the women (to work). But you can control it, you can come around.”

Food processing facilities are located in adjacent subcounties for agro-processing of grain and cassava. Agro-processing adds value and, together with proper storage and handling facilities, can lead to increased revenues. Local farmers have noted that some of the constraints and opportunities for improved agricultural production could be resolved if they were recognized in the subcounty budget.

7.1.6 Population Characteristics: A Livelihoods Comparison
Some light is shed on the shared or differential constraints and opportunities experienced by those engaged in various activities by examining factors that may contribute to specific livelihood choices. Patterns concerning the origins of miners, farmers, livestock keepers and fishing people were therefore examined, as was the impact of seasonality and migration of the various livelihoods.

Origins
People commonly bond with those sharing similar cultural or traditional values. Over half of KKTC residents were born in the community yet, due to complex history of immigration and more than ten tribal groups now make-up the community (Section 6.5). Thus, birthplace does not denote ethnicity. Tribalism in local politics has nevertheless been cited by many livelihood groups as a barrier to the advancement of specific livelihood or group needs and can be a source of conflict between multiple land users. As women typically move to their husband’s place of residence upon marriage, it is not surprising that 13.9% more women than men originated outside of KKTC.
Table 9: Origin of Women and Men above 18 Years in KKTC (% by birthplace)

<table>
<thead>
<tr>
<th>ORIGIN</th>
<th>MINING M</th>
<th>MINING F</th>
<th>FISHING M</th>
<th>FISHING F</th>
<th>TRADING M</th>
<th>TRADING F</th>
<th>OTHER M</th>
<th>OTHER F</th>
<th>Total M</th>
<th>Total F</th>
</tr>
</thead>
<tbody>
<tr>
<td>KKTC</td>
<td>54.7</td>
<td>48.9</td>
<td>69.8</td>
<td>37.1</td>
<td>34.6</td>
<td>55.6</td>
<td>63.0</td>
<td>24.2</td>
<td>57.1</td>
<td>43.2</td>
</tr>
<tr>
<td>Other Kasese</td>
<td>20.8</td>
<td>30.0</td>
<td>15.1</td>
<td>37.1</td>
<td>26.9</td>
<td>22.2</td>
<td>18.5</td>
<td>24.2</td>
<td>19.8</td>
<td>29.2</td>
</tr>
<tr>
<td>West and Southwest Uganda</td>
<td>18.9</td>
<td>16.7</td>
<td>9.4</td>
<td>17.1</td>
<td>23.1</td>
<td>11.1</td>
<td>7.4</td>
<td>27.3</td>
<td>15.6</td>
<td>17.8</td>
</tr>
<tr>
<td>Other Parts of Uganda</td>
<td>2.8</td>
<td>2.2</td>
<td>3.8</td>
<td>5.7</td>
<td>3.8</td>
<td>3.7</td>
<td>11.1</td>
<td>6.1</td>
<td>4.2</td>
<td>3.8</td>
</tr>
<tr>
<td>DRC</td>
<td>2.8</td>
<td>2.2</td>
<td>1.9</td>
<td>2.9</td>
<td>11.5</td>
<td>7.4</td>
<td>0.0</td>
<td>18.2</td>
<td>3.3</td>
<td>5.9</td>
</tr>
</tbody>
</table>

N 106 90 53 35 26 27 27 33 212 185 397

Gender: Pearson Chi Square (6) = 9.92, p=0.04; Livelihoods not significant. Mode=1 (KKTC) for all groups.

The duration of residence in a given community can overcome ethnic differences and increase the sense of belonging, status and, in some cases, trust needed to realize multiple livelihood development goals. Many residents (49.4%) of KKTC are not born in the community but originate in other areas of the District. The influx of district residents into KKTC over the past 50 years is mainly linked to fluctuating economic constraints in neighbouring districts and subcounties (Section 7.1.1).

Table 10: Duration Residing in KKTC for Women and Men Above 19 years of Age

<table>
<thead>
<tr>
<th>Sex</th>
<th>0-4 years</th>
<th>5-14 years</th>
<th>15-19 years</th>
<th>20-35 years</th>
<th>&gt;35 years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>%</td>
<td>5.2%</td>
<td>11.8%</td>
<td>2.8%</td>
<td>48.1%</td>
<td>32.1%</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>11</td>
<td>25</td>
<td>6</td>
<td>102</td>
<td>68</td>
</tr>
<tr>
<td>Female</td>
<td>%</td>
<td>7.5%</td>
<td>16.0%</td>
<td>6.4%</td>
<td>48.7%</td>
<td>21.4%</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>14</td>
<td>30</td>
<td>12</td>
<td>91</td>
<td>40</td>
</tr>
<tr>
<td>All</td>
<td>Standard Deviation</td>
<td>0.51</td>
<td>0.5</td>
<td>0.49</td>
<td>0.5</td>
<td>0.49</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>6.3%</td>
<td>13.8%</td>
<td>4.5%</td>
<td>48.4%</td>
<td>27.1%</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>25</td>
<td>55</td>
<td>18</td>
<td>193</td>
<td>108</td>
</tr>
</tbody>
</table>

ANOVA: F(4,394) = 6.43; p < 0.01; Post-hoc tests: LSD; Confidence Level 95%; No significant differences between duration and sex or livelihood groups. Based on actual number of years stated by respondents.

Seasonality

Participation in mining and farming (and thus mineral trading) vary throughout the year and understanding the strategies used by women and men to mitigate seasonal
vulnerability provides broader insight into their respective capacities to sustain an income (or at least maintain food security) throughout the duration of a year is often recognized as a key factor in mitigating shocks and stresses (e.g. related to severe illness or a death) at individual and household levels.

Seasonality in the main livelihood activities are summarized as follows (Fig. 10):

- **Salt Mining** is extensively carried out during the dry season where the salt lake labour force increases from 2,500 to up to 14,000 women and men. During these periods, there is a surge in the population of KKTC, resulting in as much as a 60% increase in town population as casual labourers migrate to the salt lake in search of paid work. Productivity increases substantially and the price of salt declines by about 85% in the dry season. Bi-annual outbreaks of cholera in KKTC, coinciding with the height of the dry season have been attributed to influxes of people into both salt and cotton harvesting in areas near to KKTC. Thus, it is not surprising that 41.7% of men and 52.4% of women salt miners who are permanently resident in KKTC transition into other livelihoods in the rainy season (p<0.01). This includes engagement of miners in fishing (13.4%), trading (12.2%), farming (11.1%) and “other” occupations, primarily casual labour (9.8%).

- **Farming** is controlled by growing seasons. Planting takes place just prior to onset of the rainy season, with harvesting dictated by the type of crop and usually the need for a dry period just prior to collection. Despite this, neither women nor men primarily engaged in farming undertake any alternative seasonal activities.

- **Cattlekeeping** is influenced by the dry season in that it requires migration of cattle to watering holes and greener pastures. All cattlekeepers surveyed continued their activities throughout the year. In the rainy season, cattle are more likely to graze on the hill slopes leading to the salt lake (where springs are present and vegetation is growing), resulting in erosion of soils into the salt lake.

- **Fishing** is ongoing throughout the year. Although hindered somewhat by storms which capsize canoes, production peaks during the rainy seasons from September to December and March to May. Rainy season conditions are also less conducive to drying of fish.
• Trading is also a year round-activity with only 14.3% of men engaging in fishing as a seasonal alternative (p<0.01). Some explain they shift to fishing because of seasonal declines of salt lake business. Although traders report their business drops substantially as salt mining wanes, the remainder of traders continue their work throughout the year.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rainy Season</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dry Season</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Mining**

Salt | Intense | Intense | I

**Farming**

Maize | H | P | H | P | H
Beans | P | H | P | H
Groundnuts | H | P | H | P | H
Cotton | P

**Cattle keeping**

M

**Fishing**

O | I | O | I | C

P = Plant; H = Harvest; M = migrating in search of water; O = Ongoing; I = Intense

Figure 10: Seasonality of Main Livelihoods in KKTC

**Migration**

Seasonal migration of primarily male casual labourers into surrounding areas occurs during both planting and harvesting of crops, coinciding with the seasonality of farming (Fig. 10). During periods of intense salt mining in KKTC, particularly at seasonal peaks in February and August, the influx of both women and men labourers is at its highest – this coincides with the end of harvest of many crops and there is likely an exchange between these sectors.

KKTC is quite ethnically diverse and perceptions of migrant labourers are generally positive or indifferent. Social problems associated with migrant labourers in other ASM areas, such as HIV/AIDS or increased violence, have not been attributed by local residents to migrant workers. Their influx is generally appreciated by both women and men residents as they provide earnings in terms of rental housing, consumption of
food and other goods and are generally perceived as aiding the economy. As described in Section 7.3, financial assets of traders and related service providers are strongly linked to the influx of migrants and significantly contribute to both the savings and diversity of goods and services availed to women and men in KKTC.

7.2 Natural Assets

The natural environment is essential to people’s ability to generate cash and non-cash income and satisfy household needs. Natural resources are critical to food security and are relied upon for water, biomass fuels, as well as medicinal plants and resins, the collection of which is primarily the responsibility of women. Interaction with the natural environment itself has also been shown to provide a host of therapeutic health benefits. As natural resources provide the direct and indirect basis for livelihoods, sustainable livelihoods also depends on protection of the integrity of the environment for future generations while harnessing these components to meet current needs.

From farming and animal husbandry to fishing and mining, these livelihoods provide the means for growth and development at an individual and household level and make possible the other livelihoods (e.g. trading, shopkeeping) that add to the economic diversity of the community. Despite the contribution of natural resource based activities (both renewable and non-renewable) to rural economies, the impacts of these activities on the natural environment can present a cause for concern for affected communities and have potential to detrimentally impact natural resource-reliant livelihoods in both the short and long term. The most vulnerable groups are, quite often, both the primary victims and agents of environmental degradation and, given the degree of desperation of many rural poor, promoting practices and values needed for responsible natural resource use and management represents a singular challenge.

7.2.1 Queen Elizabeth National Park

The highest category of wildlife conservation area in Uganda, “National Parks”, are constituted on the basis of importance, nationally and internationally, with respect to conservation (NEMA, 2002). With more than 610 species of birds and 95 mammal species, the remarkable biodiversity of Queen Elizabeth National Park (QENP)
exemplifies the need for environmental conservation efforts, particularly in a country with the 3rd highest population growth rate in the World and increasing scarcity of arable land (UNDP, 2006; Briggs, 2002).

Prior to being renamed during a visit by Queen Elizabeth in 1954, the area was protected as a game reserve as early as the 1920’s followed by the establishment of Kazinga National Park in 1952 (Briggs, 2002). Its formation was, perhaps, the most significant force driving women from the fields into salt mining.

Uganda’s most visited national park, QENP covers an area of 1978 km² and is comprised of a variety of landscapes ranging from grassy savannah to expansive wetlands (particularly around Lake George) to dense forests at Maramagambo and Chambura Gorge, along the eastern extent of the Rift Valley (Briggs, 2002). Located along the Rift Valley floor between Lake Edward and Rwenzori National Park (west of the main road from Kasese to KKTC) and between Chambura and Maramagamo (north and south of the Kasese-Bushenyi Road), more than ten crater lakes (some of which are saline) are found (Briggs, 2002).

Given its striking qualities, QENP draws tens of thousands of visitors from around the World every year. In addition to park fees (20% of which go to development of communities adjacent to or within the park boundaries), the injection of capital from tourists in Kasese, as well as the improvements to infrastructure necessary to draw such crowds, provide some benefits (albeit arguably marginal) to the local economy. QENP is indisputably a major natural asset in the country.

Despite these benefits, one of the most commonly expressed concerns of communities within and around the park related to the detrimental effects of conservation measures – including the large area gazetted and restrictions concerning co-use. Viewed as one of the paramount problems impeding local development, women and men from all facets of the KKTC community repeatedly cited concerns with: (i) enforcement measures employed by the Uganda Wildlife Authority (UWA), the agency responsible for management of QENP; (ii) increasing land use pressures; (iii) inaction and lack of restitution for destruction of property and fatalities from wildlife, and (iv) the slow
disbursement of transfer payments from park fees. An obvious priority for KKTC, these issues are expounded throughout this research and incorporated in recommendations accordingly.

7.2.2 Land

Uganda’s land cover spans 236,000 km² and is comprised of cultivated areas, arable but uncultivated areas, rangelands, mountains and built environments (roads and urban areas) (NEMA, 2002). Main issues concerning land use throughout Uganda –
fragility of ecosystems, increasing pressures due to high population growth, tenure arrangements and land use planning – are also of concern in Kasese District and, more specifically, KKTC. With a population density of 232 people/km² in the District, well above the national average of 124 people/km², these issues perhaps hold even greater significance (NEMA, 2002). This is likely to be more profound for women as they are responsible for more than 80% of subsistence and household food security in general. The agricultural population density on arable lands of Kasese is 137 agriculturalists/km², which is again considerably higher than the national average of 0.88 people/km² (NEMA, 2002).

Poor cultivation practices and soil degradation, particularly on hillslopes, land fragmentation associated with multiple land users and the large area conserved under QENP are key factors. In the district, total land area is 2724 km², 1478 km² of which is arable and 1978 km² of which is covered by QENP (NEMA, 2002).

Major land users in KKTC are miners, livestock keepers, farmers and protected areas (QENP). Issues concerning conflicts between these multiple land users, land rights and ownership are presented in Section 7.2.6 and 7.2.7. Given the pre-QENP reliance of women on subsistence farming, reduced access to land through gazetting was a major driver of the influx of women (and their subsequent domination of many producer/labourer roles) in salt mining

**Land Ownership**

The *formal* rules governing land ownership and management are based on Uganda’s land tenure system and corresponding arrangements that determine and regulate the manner in which land is owned and used. The existing land tenure systems in Kasese District are: customary, leasehold, and freehold, as described in Table 11. In KKTC, land tenure is primarily customary (31.8% of households headed by men compared to 11.1% for women) or leasehold (13.6% of households headed by men compared to 22.2% for women)²⁰.

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²⁰ These results are not statistically significant and are presented solely as descriptive data of the sample.
When KKTC was initially formed in 1995, land that was not “formally” occupied (i.e. with appropriate documentation) became the property of the Town Council. Selling of this land provides an important source of revenue to the Town Council although many

Table 11: Dominant Types of Land Tenure  
(after KDLG, 1996 and EASD, 2006)

**CUSTOMARY TENURE:**
- Most dominant and oldest tenure type in the District.
- Rights to land regulated by local customs with linkages to family lineage and inheritance.
- Not legally recognized until entrenchment in the Constitution in 1995. In the past it was very difficult to compensate such landowners whenever Government initiated its projects on land under customary tenure.
- Often customary tenure superimposed on other systems like mailo and freehold or exists separately as communal land ownership.
- Well understood from long tradition, but doesn’t encourage record keeping and makes conflicts difficult to resolve.
- Often associated with little personal concern for land resources (“Tragedy of the Commons”) resulting in environmental degradation.
- Requires Certificates of Ownership.
- May be converted to Freehold Tenure with registration.

**LEASEHOLD TENURE:**
- Granted for a specified period by the lessee in exchange for payment of rent of an agreed upon amount to a lessor, the State (Statutory Leases) or a private individual (Private Leases).
- Lessor can attach conditions to the lease and revoke tenureship if terms are contravened.
- Leases are costly and difficult to obtain.
- Leases do not generally address environmental issues.
- Declared forests, reserves or national parks cannot be subject to leases; however, there is no legal provision concerning leases in wetland areas.
- Leases on public land may be converted into Freehold Tenure.

**FREEHOLD TENURE:**
- Certificate of title issued.
- Ownership is in perpetuity. Only obligation is for payment of taxes and adherence to rules and regulations concerning land use.
- Initially granted address specific requests, e.g. by religious organizations.
- Similar to mailo tenure but smaller parcels of land.
- Created out of Crown Lands (following the Crown Lands Ordinance of 1903, which conferred British authorities the right to grant ownership) and as a result of the Toro Agreement (1900), Ankole Agreement (1901) and Bunyoro Agreement (1933).

**MAILO TENURE:**
- Created in association with the Buganda Agreement (1900), wherein land was divided between the Kabaka of Buganda, other key persons and the Protectorate Government.
- Two categories of ownership: private and public (previously "official") ownership.
- Certificate of title issued.
- Provides security of tenure.
- Absentee landlordism conducive to squatting and associated environmental degradation from lack of ownership (e.g. deforestation). There are no legal mechanisms to regulate many aspects of environmental degradation on private lands through regulatory agencies.
of those who purchase land fail to obtain the necessary documentation (title) within the allotted time (due to lack of awareness and related district transport and processing costs). In the event of inadequate documentation, the Town Council technically has a legal right to repossess the purchased yet untitled land, although this practice is not widespread.

Issues related to land ownership, registration and minor disputes are relegated to an appointed Land Use Committee in KKTC while major land development projects and conflicts are directed to the District Land Tribunal. Names for members of the KKTC Land Use Committees are usually put forth by the Mayor.

As these are political representatives, the composition of Land Use Committees/local tribunals usually changes with every election and knowledge is poorly transferred to incumbents. Relevant legislation, in particular the Land Act, is largely unknown and most people – inclusive of Land Use Committee/Tribunal members, local leaders and residents alike – are not aware about procedures for acquiring land and the laws governing ownership and use. The need for training in has been put forth by Land Use Committee members themselves, citing confusion and a number of conflicts as outcomes. Although KKTC Administration is restricted from interfering in Land Use Committee matters, the process by which the committee is appointed is suggested by some residents as a major conflict of interest.

Formal measures are in place to deal with land disputes (e.g. evictions, someone obtaining land title where others reside), yet capacity and resources to understand and utilize these processes are typically out of reach of the poor majority. When one party is not satisfied with a judgement from a conflict resolution, they can appeal to a higher level (i.e. from LCII to LCII to the District; or the Town Council Land Use Committee to the District). Appeals can continue all the way to the high court. Any cases or claims involving advocates or lawyers go directly to the District Land Tribunal.

According to the Land Use Committee, freehold land in KKTC is only land occupied by churches, who have leased a large plot to the Uganda Development Company, on which the defunct Salt Factory is constructed. The procedure to acquire land in KKTC
is understood to simply include payment of an amount of money to the Town Council
determined by plot size and location. The Committee believes that lack of awareness
of procedures and land laws is a main cause for limited development in the area.

Lack of title provides somewhat tenuous ground by which land rights are protected and
can result in exploitation and conflict, particularly of those most vulnerable. More than
35% of women heading households in the survey stated they “don’t know” the nature
of their land tenure (compared to 4% of men household heads). Women are therefore
more likely to be more vulnerable to abuse in terms of land, which coupled with
disparity in education, incomes and political power, provides little option for recourse.
This is exacerbated by lack of awareness concerning terms of compensation. Despite
this, local knowledge of who-owns-what is generally high and broadly recognized,
even without formal title. This good-neighbourly awareness provides some form of
protection in the event of conflicts, but gives little clarity from a legal perspective.

Research participants have reported acute inconsistencies in the implementation of
land laws and regulations. Some of the laws are implemented selectively, depending
on the influence, either politically or monetarily, of the individuals involved. Both
women and men in KKTC have expressed concerns that only a few influential people
have large areas of land, whereas the majority either have small plots of land or are
considered squatters (despite self-identification as customary land owners).

7.2.3 Water
An adequate, safe and clean water supply continues to represent a major poverty
reduction challenge in KKTC and, its lack thereof, has generated serious health
outcomes and constrained the livelihood returns needed to ensure growth and
development. Large water bodies within Kasese District - Lakes George, Lake Edward
and Kazinga Channel – occupy an area that, when coupled with 10 crater lake, six
major rivers and a number of tributaries, totals 481 km² (KDLG, 2004).
Lake George:
With a mean depth of 3m, Lake George (area 246 km$^2$) is the shallowest lake in Uganda (KDLG, 2004). Located on the floor of the western portion of rift valley, its maximum length (east-west) and width (north-south) are 30 km and 16 km, respectively. A major feature of the lake is the extensive wetland region located on its north shore, which span 26 km$^2$ and reach depths of up to 14 m (KDLG, 2004). Other smaller wetlands are also found to the south of the lake. The wetlands are fed primarily from drainages sources from the Rwenzori Mountains, and then drains into Lake Edward via the Kazinga channel (Fig. 12).

Kazinga Channel:
The 36 km long and 1.5 km wide Kazinga Channel only has an elevation drop of 1 m across its span between Lake George and Lake Edward (KDLG, 1996). Consequently, the channel, protected as the Kazinga Sanctuary, is essentially lacustrine in nature.

Lake Edward:
The deepest lake in Uganda (averaging 913 m), Lake Edward covers an area of 2203km$^2$, 29% of which is in Uganda (KDLG, 1996). With a maximum length and

Figure 12: Bathymetry and Influents of Lake Edward
width of 76 km and 39km, respectively, the lake falls within Kasese District as well as Bushenyi District, Kamwenge District Rukungiri District and the DRC. QENP borders almost the entire length of the lake on the Ugandan side and its shores are therefore sparsely populated, with KKTC constituting the most significant shoreline population.

In addition to Lake George, Lake Edward receives waters from a number of effluents, most prominently the Nyamugasani River (an important source of water for KKTC) (Fig. 12). With precipitation of only 500-650 mm/yr, the viability of the lake is significantly influenced by the quality and quantity of water from these sources. As in Lake George, this lake naturally has high pH levels (~9) (KDLG, 1996).

**Rivers:**

Only Nyamugasani River, which intermittently provides piped water to KKTC, traverses the Town Council (Table 12).

<table>
<thead>
<tr>
<th>River</th>
<th>Location</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nyamugasani River</td>
<td>Crosses Kyondo, Kyarumba, Kisinga and Katwe sub-counties</td>
<td>Pumping station (intermittently) provides piped water to KKTC.</td>
</tr>
<tr>
<td>Lhubiriha River</td>
<td>Forms the border between Uganda and Democratic Republic of Congo</td>
<td></td>
</tr>
<tr>
<td>Rwembyo River</td>
<td></td>
<td>Serves a small hydroelectric power station (53 watts), supplying power to Kagando hospital. There are plans to expand it to cater for the local people</td>
</tr>
<tr>
<td>Nyamwamba River</td>
<td>Passes through Kilembe and Rukooki sub-counties, and Kasese Town Council, and into the Lake George swamp system.</td>
<td>Carries effluent from both Kilembe Mine and Kasese Town into Lake George</td>
</tr>
<tr>
<td>Sebwe (Isebo) River</td>
<td>Traverses Bugoye and Rukooki sub counties</td>
<td>Supplies water for Mubuku Irrigation Scheme</td>
</tr>
<tr>
<td>Mubuku River</td>
<td>Passes through Bugoye, Maliba and Karusandara sub counties, and then drains into the Lake George swamp system</td>
<td>Supports a hydro-electric power station that supplies power to Kilembe mines, Hima Cement Factory and Kasese Town Council.</td>
</tr>
</tbody>
</table>

**The Crater Lakes:**

At least 35 volcanic crater lakes, a product of volcanic events over the past half million years, are found across a 30 km long area extending from Lake Katwe to Lake Kikorongo to the north (Briggs, 2002). While many lakes are saline, the quality and
quantity of salt is insufficient for production (and most are protected) thus mining is only undertaken on Lake Katwe and Lake Kasenyi (near to Katunguru).

Lake Katwe covers an area of 2.5 km² with its surface 30m below that of the adjacent freshwater lake, Lake George (Kato, 2006). The source of the brine is deep geothermal waters that dissolve salt as waters passes through interbedded layers of salt, clay, sand and silts located between 40m and several hundred meters below the lake bottom (Kato, 2006). Constrained by basement rocks (and their cold interstitial waters) adjacent to the crater pipe, the rate of water inflow and evaporation maintains a water depth of about 0.5 metres in the salt lake.

The Town obtains water from Lake Edward, five protected springs, rainwater and water piped from River Nyamugasani, located 1km from the Town center. In KKTC, 16 public water stand posts serve the population of 6,150 people, in addition to 13 protected springs and 8 unprotected springs (which are all in Kyakitale Parish). There are only 34 domestic users of piped water as the connection fee of $25 USD is prohibitive for the majority of residents.

7.2.4 Flora and Fauna
As the natural environment is a key pillar of sustainable development, biologically significant and sensitive ecosystems must be protected in order to support strong economies, diverse livelihoods, vibrant culture, good health and, in many cases, a peaceful existence in the short- and long-term. KKTC is bounded by one of the most biodiverse national parks in Africa (NEMA, 2002), thus resilience of environmentally sensitive species to shocks and stresses is especially significant. Shocks and stresses may either be natural to human induced and may be manifested in a number of forms – climate change, wild fires, deforestation, wetland destruction or poaching, for example – which individually or in combination may exceed the capacity of an ecosystem to recover.

Biologically significant areas within the research area include: QENP, lakeshores, riparian zones (adjacent to rivers) and wetlands.
**Flora**

Within KKTC, vegetation is largely dominated by grassy savannah with minor acacia coverage. With the exception of gazetted areas, human activities, including encroachment, land clearing, deforestation for fuelwood and timber, have resulted in severe de-vegetation causing erosion thereby reduced the suitability of land for cultivation or grazing. The *Acacia* communities, which are particularly significant to QENP savannah ecology, have been most affected.

Consumption of ambatch trees, found in moist thickets and riparian zones, is extremely high at the salt lake, putting these areas in the QENP savannah at risk. Grasses used in pan construction are collected from the shores of Lake Edward and banks of the Lake Katwe crater and sold (mainly by women), resulting in high erosion rates and declining salt quality. Although primarily acacia deadfall, collection of fuel wood from QENP puts those women responsible for its collection at risk of exploitation and even abuse from UWA Park Rangers (Section 7.8.3).

**Fauna**

A major reason for QENP’s conservation significance is its endowment with an immense variety of wildlife. Briggs (2002) has cited 95 mammal species, “the highest for any Ugandan National Park”, which most notably include ten primates including “chimpanzee, velvet, blue, red tailed, and L’Hoest’s Monkeys, black-and-white colobus and olive baboon”, as well as predators such as: “side-striped jackals, spotted hyena; lion and leopard” and a number of species of antelope such as “Uganda kob, bushbuck, topi and Defassa water buck” (Briggs, 2002:276). Buffalo and elephant can be seen in large herds, particularly in the savannah areas of the park (especially west of the Kazinga Channel), both of which are occasionally joined by herds migrating across from nearby DRC (Thompson, 2010), likely accounting for the similar characteristics observed in species from both sides of the border (Briggs, 2002).
Briggs (2002) further refers to records of more than 610 species of birds (including 54 raptors and a multitude of wetland, forest and woodland birds) in QENP suggesting they represent “possibly the highest total (of species) for any National park in Africa, if not the world” (Briggs, 2002:276). Ddungu et al (1998) documented large flocks of Lesser Flamingo (up to 3,000) that annually migrate to Lake Munyanyange (directly adjacent to Lake Katwe), while the more unique Greater Flamingo can also be seen, but rarely and in small numbers, with the largest recorded number being 11 in 1984.

Species documented in QENP are far from constrained by the park boundaries. A foremost complaint from women and men in KKTC relate to the threat to human life and livelihoods caused by elephants, hippopotami, crocodile, buffaloes and, to a lesser extent, lions and leopard.

These animals migrate to the lake shore just a few hundred metres from homes on a daily basis and often even graze on the crater slopes leading down to the salt lake and within the Town Council boundaries. According to local officials, hippos grazing at night in the Town Council are responsible for 7-8 deaths per annum while fear of encroachment by elephants and buffalo is a barrier to farming within the Town Council boundaries. Women and men in KKTC explain that, because of these fears, a significant proportion of the de-gazetted area under KKTC administration continues to go undeveloped despite high population density and few other areas available for farming.
Formal Access to Flora and Fauna

More than 70% of households in KKTC are reliant on firewood as fuel for cooking (UBOS, 2002). With severe deforestation in the de-gazetted areas adjacent to the communities of interest, collectors (mainly women) who are mainly responsible for collecting firewood, frequently resort to QENP in order to access wood.

Firewood and medicinal plant collection is prohibited in QENP, unless a formal request is submitted and approved. This requires a processing fee and a Memorandum of Understanding (MOU) with the Uganda Wildlife Authority (UWA) in Kampala. The process takes one to two days to complete and requires travel to Kampala. The MOU usually defines terms of the frequency of collection, amount of wood to collect and requirement for women to be escorted by park guards during collection.

All women queried during the research were unaware that they can obtain legal access to QENP even though a UWA “liaison” is present in every Subcounty or Town Council. Although these individuals are commonly well-known formal or informal local leaders, it seems that knowledge of their role in aiding local women to obtain wood extraction permits (and their interest in doing so) is generally low. This situation is exacerbated by the lack of autonomy expressed by many vulnerable women concerning need for permission from their husbands to approach formal authorities and use financial resources as well as the financial and social impacts on the family related to travel to Kampala, over 400km away.

Individuals who do not have permission to collect firewood or traditional medicines to meet household needs but cannot afford to purchase wood or medicine from permitted collectors risk being met by rangers upon entering the park. Typically, collectors have their firewood taken and must pay a fine of about $2. Some women have stated that they have been jailed until fines are paid while some women expressed concerns that some have been raped by park rangers because of violation of these rules and their limited personal security when walking through the park (Section 7.7.2).

CARE Uganda has indicated that harvesting of wood is predominantly undertaken by women and vulnerable persons who rely on sale of these resources as a significant
proportion of their income (Blomley, 2000). Many women have established informal revenue sharing arrangements with park rangers to continue their access.

7.2.5 Minerals
Several economically valuable minerals are found in Kasese District, yet very few have been extracted on a large- or even medium- or small-scale. These include limestone, salt, copper, cobalt, clay, gypsum, stone (aggregate) and agricultural minerals. Only those economic minerals in close proximity or the boundaries of KKTC are highlighted.

Salt
Although a number of crater lakes are saline, only Lake Katwe at KKTC and Lake Kasenyi in neighbouring Lake Katwe Sub-county are economically viable. The Lake Katwe salt deposit, which extends to at least 40 m below the lake bottom, is estimated at 22.5 million tonnes (Ddungu et al, 1998). Groundwater inflows through the deposit and into the lake bring an estimated 2000 tonnes of salt per year (Ddungu et al, 1998). The salt is a mixture of sodium and potassium chlorides, calcium sulphate (gypsum) and sodium bicarbonates (trona) with some ammonium chloride also present.

Agricultural Minerals
A number of minerals have potential to improve soil quality and therefore agricultural productivity. Around Katwe-Kikorongo and Bunyanguru, volcanic deposits contain potassium-rich minerals (up to 7% K₂O) that, given suitable processing, have potential to contribute to growing of foods with high potassium needs, such as matooke (the banana staple food in the region) and potatoes. Minor ultra-potassic tuffs and zeolites are also found nearer to Katwe and follow the trend of the crater lakes in the area.

With a high cation exchange capacity and connectivity between vesicles allowing for transmission of water, zeolites can be used in water treatment. Furthermore, as they have an affinity for ammonium (e.g. as found in manure or compost) and potassium ions, and can enable slow release for uptake by crops, zeolites can be used as a compost or soil additive (Van Stratten, 2002). Additional uses include animal feed additives, as pesticide and herbicide carriers and as potting media.
Clay and Stone Aggregate

Clay is mined in areas throughout the District and within KKTC, mainly for the purposes of artisanal brick production. In addition to bricks, clay can be used for tiles, pottery, pipes and sanitary ware (e.g. basins, toilets). The quality of the clay has not been ascertained.

Stone is also artisanally extracted for aggregate production throughout the District, including from sites just outside of KKTC and on the slopes leading to the salt lake. These are mainly comprised of quartzites, although acidic and basic gneisses (less conducive for building materials) are also found throughout the area. In addition, deposits of sand and gravel – formed from erosion of the flanking mountains - are found throughout the Rift Valley. Little is known about construction material production in the District but, given the potential for significant sand and gravel deposits, it may have significant potential.

Mining and the Natural Environment

The technologies employed in salt winning at Lake Katwe consume natural materials, such as sticks and grass used for pan construction, and “ambatch” trees used to construct rafts that enable rock salt extractors to transport salt ashore. Ambatch trees are obtained from the QENP by a licensed contractor but unregulated felling is an impact of concern to park authorities. Sticks and grasses are also obtained from the park or are transported from Bwera and as far as Bushenyi. Nevertheless, this constitutes an environmental impact on the areas where they are obtained. Taking grasses from the hillslopes leading to the salt lake, as sometimes occurs, may worsen the erosion and siltation into the lake that miners attribute to cattle.

Epps (1994) expressed concern that acid rain generated from hydrogen sulphide and ammonia that seep upwards through the lake floor causes deterioration of nearby roofs and bricks of houses in KKTC, damage to vegetation as well as soil deterioration. Women and men miners cite the cause of this damage, as well as poor growth of grasses (affecting erosion and grazing), to widespread salt dust dispersion. Fishermen have stated that fish stocks are declining and the fish now has a “funny taste” to which
they similarly blame salt dust. There is no data to support this claim but some local officials suggest that the 21 abandoned wells installed to serve the UDC industrial salt plant (located near to the fish landing site) may have created a groundwater conduit between the salt lake and Lake Edward.

The lack of pit latrines around the salt lake may create a minor source of pollution to the lake water where women and men miners are immersed for hours at a time. Miners are largely relegated to use “the bush”, which may cumulatively affect receiving water, particularly when the number of miners skyrockets to over 12,000 in the dry season. Faecal coliform counts, an indicator of contamination by human waste, in the lake water are not known. Poor sanitation and hygiene at the lake is believed to be one of the causes of the twice yearly cholera outbreaks, which coincide with the influx of miners in the dry season.

7.2.6 Shared Natural Resources - Conflicts and Coexistence

Different needs and interests of multiple natural resource users in KKTC have resulted in disagreements, resentment and, in some cases, conflict. To varying degrees, these conflicts serve to undermine outcomes from different livelihoods (e.g. reduced agricultural productivity from land degradation) and exacerbate existing divisions within communities (e.g. livelihood divisions along political lines). Disputed issues concerning land use involve those between:

1. **Cattle keepers and UWA**: Restrictions concerning cattle in QENP have generated frustration and even hostility towards UWA concerning lack of access to water in the park, particularly in the dry season. Confiscation of cattle and heavy fines ($50 per head of cattle) are the main recourse for infractions. Illustrating their frustration, cattle keepers have pointed out that “uwa” means “kill” in Swahili, and have suggested changing the name, as well as their practices.

2. **General Community and UWA**: Local residents consider destruction of crops and property as well as animal and human fatalities by wildlife a serious offence that requires restitution and action on the part of the UWA. Research participants viewed the lack of reciprocity in this respect to be the major source of conflict between UWA and the communities. This is exacerbated as locals are rarely
employed by UWA. Poaching of animals for sale or consumption or, in some cases, “revenge killings” of animals sometimes occur. Community leaders have suggested that construction of trenches and thorny fences (“bwala”) can easily be put in place to deter animals from crossing into settlements.

3. **Fuel Wood/Traditional Medicine Collectors and UWA:** Individuals engaged in fuel wood and traditional medicine collection, largely women, who encounter QENP rangers in park boundaries and are required to pay fines (usually ~2.50 USD) and in some cases face jail time, harassment and sometimes sexual gender based violence (SGBV) (Section 7.7.2).

4. **Cattle keepers and Miners:** Some women and men miners in KKTC have associated declining salt production with cattle grazing and siltation of the salt lake. Degradation of grasses has been attributed to salt dust dispersed throughout the area and may compound this issue.

5. **General Community and Religious Denominations:** As freehold land owners, many churches possess land intended for local development. Negative sentiments towards certain churches were expressed by a number of local residents.

6. **Within the Fishing Community:** At the fish landing site, conflict results from crimes (e.g. theft of nets) and violations of fishing regulations mainly related to use of undersized nets and overfishing. Lack of punishment for fishermen from the Democratic Republic of Congo (DRC), particularly in comparison to Ugandan nationals is a major source of resentment and frustration. DRC fishermen have been accused of encroaching on the Ugandan side of Lake Edward during the night, using undersize nets and cutting or stealing nets from Ugandan fishermen.

7. **Miners and Miners:** Conflicts frequently arise between adjacent salt pan owners/operators – both women and men – associated with expansion of salt pans into the neighbours pans, and destruction or construction of channels between pans resulting in degradation of salt pan walls. In some cases, miners perceive each other as being “lazy” for not cleaning their pans, resulting in sedimentation, and heightened water levels which pour into neighbouring pans. Theft of salt, mainly at night, also occurs at times, generating suspicion and conflict.
QENP and the People
Many residents of KKTC readily admit the importance of tourism and the need for conservation efforts. In addition to QENP’s implicit value as an ecological national asset, tourism makes a substantial contribution to the national economy. In 2003, tourism accounted for 196 million USD and constituted 7.4% of the GDP (MTTI, 2003). Furthermore, 20% levies on QENP gate fees has potential to make a significant contribution to local government infrastructure and service provision, alleviating many of the commonly identified development needs in these areas.

However, these benefits come at a trade-off in terms of the day-to-day lives of KKTC residents. Despite this, at an individual and household level, many residents expressed frustration from not seeing any direct benefits from QENP. Inadequate communication between UWA and KKTC residents exacerbate tensions and mistrust and provide a basis for widespread rumours, such as:

- UWA has taken over management of the fisheries, an issue which has particularly concerned fishing stakeholders;
- QENP is now seeking to expand its boundaries further, involving gazetting of additional land. Communities are concerned that they will lose what little land they have and a resettlement plan for this has not been put in place; and
- Every QENP employee is taught that area residents are a danger to the animals.

The need to reconcile different interests, distribute benefits fairly and improve relations between all QENP stakeholders is broadly recognized and previous and ongoing projects have sought to address these issues. Policies and programmes have included the following:

1. **QENP Resource Access:** In order to obtain local support for conservation of the park, blanket prohibition of the gathering of forest products was deemed untenable. As a result, QENP management has negotiated agreements with boundary communities for the controlled extraction of non-timber products, an issue which significantly affects women who are mainly responsible for fuelwood collection. These can be formalized by Memoranda of Understanding (MoU) signed by the two parties.
Permitted resources include medicinal plants, craft materials and seed collection (for on-farm planting), each of which is particularly significant to women. The MoUs specify responsibilities for both communities and the park, in order to ensure sustainable extraction of the resources. Within this arrangement, the park also allows community members to keep beehives inside QENP to collect honey and bee wax. Beekeepers are required to monitor their area; engendering a sense of responsibility. Resource harvesting is permitted in strictly defined areas of the park. Although these exist, no research participants were aware of such an arrangement and therefore none possessed an official permit to extract resources from the park.

In order to relieve pressures on wood resources in the park, CARE Uganda instituted a tree planting project in fishing villages between 1996 and 1998. Although many lessons were learned through the project, specifically related to undermining already vulnerable groups who subsisted on sales of firewood, battling termites, increased incursions by wildlife and inequitable distribution of benefits, the project saw the establishment of 17 woodlots, comprised of 100,000 trees, in 13 fishing villages (Blomley, 2000). Above all, this project demonstrated that solutions to the problems faced by communities cannot be solved through simple substitution of resources or livelihood activities.

2. **Revenue Sharing:** UWA has instituted a revenue sharing scheme that provides 20% of park entrance fees to parishes/wards on the park boundaries. Local communities are encouraged to submit project proposals for consideration by QENP and the District government administration. Priority is supposed to be given to projects that are environmentally friendly and self-sustaining – or which benefit the parish community as a whole. Money is transferred to the District and then money is paid through the Sub-county or Town Council governments with the stipulation that it will go to approved projects in ‘front line’ boundary parishes (such as those in KKTC) that bear the brunt of park-related problems, e.g. problem animals.

Although transfer payments to communities have supported a few projects (e.g. the secondary school in KKTC), delayed disbursement from UWA, the District, or both on
the order of months or years have generated a high degree of skepticism and fuelled tensions further. UWA representatives indicate that problems in disbursements relate to taxation on these funds by the District and mismanagement of funds by Parishes. UWA suggests that direct disbursement of funds to the Parishes and supervision of projects by UWA would improve outcomes from approved projects. Transparency is lacking on all levels. For example, the number of tourists to QENP, amount generated through park entrance fees, amount transferred to the District and ultimately to receiving communities could not be provided by any official agency interviewed including Kasese District Government or UWA.

“Communities” themselves choose the projects to implement through public meetings, however observed barriers to participation of women and vulnerable groups reduce likelihood that their needs or issues are addressed (Section 8.3.2). Local government officials suggested a need for clear definitions of the roles of all the stakeholders, i.e. local community representatives from a range of groups, local governments, UWA and other relevant government departments and responsiveness to even the most marginalized facets of KKTC has been recognized as major gap.

The impact of revenue sharing has, thus far, been limited by the limited sums of money which are often involved. Revenue sharing is highly dependent on the status of the tourism industry at any given time. Tourism numbers and revenue in some national parks was significantly reduced by insecurity in the Great Lakes region between 1998-2002, although tourism growth has continued on an upward trend until the recent economic crises (MTTI, 2003).

3. Employment: In theory, it is UWA policy to give priority for jobs to the people living around parks. Opportunities include employment within the ranger force and small contracts such as boundary maintenance and camp cleaning. Prior to this policy, all Ugandans were considered equally for posts, irrespective of their origin. KKTC residents complained that employment of ‘outsiders’ denied local people jobs while salary money was sent far away to the employee’s own home area. Currently, only one male resident of KKTC is known to be employed by UWA, although several job applications have reportedly been submitted. Although relations may improve with
local employment, it is probable that local hires would also face extreme pressures
from their communities concerning encroachment in the park and use of its resources
in contravention of environmental protection measures.

4. **Problem Animal Control:** UWA’s efforts to inject benefits into boundary
communities are weakened when financial hardship and injury result from wildlife
incursions into residential areas. Comprehensive solutions to address “problem
animals” have yet to be identified, despite attempts using local and international
methods of control. Around QENP, problem animals include bush pigs, baboons,
elephants, hippos and lions. Control of the first two is relatively simple as they are
considered “vermin” while matters are complicated when the culprits are of
exceptionally high conservation value, such as elephants, hippos and lions.

A range of control methods have been attempted. Some involve active, short-term
responses by local people, e.g. scare shooting, noise making and burning old car tyres
(typically to disperse elephants). Other means are passive and longer term but require
effort and expense to establish. These include Mauritius thorn hedges (*Ceasalpinia
decapitela*) and boundary trenches. Due to financial constraints and the area covered
by KKTC, fencing of protected areas is generally not feasible.

Tension and conflict between KKTC residents and UWA will likely persist in the
absence of serious efforts to tackle these issues. Transparency in revenue sharing,
encouragement of community-based tourism (“cultural tourism”), and UWA-community
partnerships for creative solutions (e.g. use of local labour in trenching projects) have
been proposed by women and men in KKTC as means through which both parties can
realize greater benefits.

7.3 **Financial Assets**
Within Kasese District, a number of survival strategies are employed in order to
increase access to financial capital, many of which are shown in Table 13. This data is
not sex-disaggregated but nevertheless affirms that multiple strategies are needed to
mitigate stresses and shocks and, ideally, move up the ladder of poverty. Although
comparisons between women’s and men’s incomes from salt mining indicate gender disparities, it is multi-livelihood sex-disaggregated comparisons in savings, assets, access to credit and markets as well as fiscal policies that provide greater insight into the differential vulnerability to poverty and capacity to escape it.

Table 13: Common Financial Survival Strategies Employed in Kasese District

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Percentage Livelihood Dependency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earning a wage or salary</td>
<td>37.5</td>
</tr>
<tr>
<td>Buying and selling goods as a trader</td>
<td>49.6</td>
</tr>
<tr>
<td>Doing work in-kind for food or shelter</td>
<td>39.7</td>
</tr>
<tr>
<td>Employing other people to work for you</td>
<td>37.6</td>
</tr>
<tr>
<td>Participating in a community savings group</td>
<td>45.6</td>
</tr>
<tr>
<td>Borrowing money from friends or family</td>
<td>54.7</td>
</tr>
<tr>
<td>Borrowing money from a bank</td>
<td>10.7</td>
</tr>
<tr>
<td>Receiving money from family members working elsewhere in the country</td>
<td>18.7</td>
</tr>
<tr>
<td>Receiving money from family members working in other countries</td>
<td>7.6</td>
</tr>
</tbody>
</table>

Source: A baseline survey report Kasese District Civic Education Core Group by Wilsken Agencies Ltd-Kampala, May 2003

7.3.1 Mining Incomes

According to a district census, 82% of households in Kasese earn $336 per year or less (KDLG, 2004). Household incomes in KKTC have not been ascertained however estimated individual incomes of men and women engaged in mining suggest incomes considerably higher than this household average (Table 14).

Although results are significant, they should be taken with some caution, particularly given that 40.9% of women respondents were unable to estimate their monthly or annual income and a relatively small sample of miners (79 men, 22 women) were engaged in the separate miners’ survey. Furthermore, women and seasonal migrant workers dominate casual labour roles with payment as little as $0.50 USD per day, but competition makes a full month’s work unlikely.

Given that those surveyed are year-round residents, true mean incomes of miners and, in particular women, may be lower than that suggested by the data. This is further
suggested by salt production estimates and their values (Table 15) indicates that, based on an average estimated annual workforce of 8,250, mean annual incomes are more on the order of $67 per annum (rather than $338 per annum indicated in Table 15).

Table 14: Women and Men Miners’ Incomes in KKTC (Reported for Previous 12 Months, Miners Survey)

<table>
<thead>
<tr>
<th>Estimated Income</th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>RANGE*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0,000 – 99,999 USh/year</td>
<td>3.8%</td>
<td>4.5%</td>
<td>3.9%</td>
</tr>
<tr>
<td>100,000 – 499,999 USh/year</td>
<td>43.0%</td>
<td>31.8%</td>
<td>40.5%</td>
</tr>
<tr>
<td>500,000 – 999,999 USh/year</td>
<td>22.7%</td>
<td>9.1%</td>
<td>19.8%</td>
</tr>
<tr>
<td>&gt;1,000,000 USh/year</td>
<td>13.9%</td>
<td>13.6%</td>
<td>13.8%</td>
</tr>
<tr>
<td>Don’t know or declined to answer</td>
<td>16.5%</td>
<td>40.9%</td>
<td>21.8%</td>
</tr>
</tbody>
</table>

SUMMARY*

<table>
<thead>
<tr>
<th>Overall Range</th>
<th>USh</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10,000 - 3,200,000</td>
<td>622,159</td>
<td>728,513</td>
</tr>
<tr>
<td>USD*</td>
<td>6 – 1778</td>
<td>7 – 833</td>
<td>346</td>
</tr>
<tr>
<td>Mean</td>
<td>12,000 – 1,500,000</td>
<td>538,615</td>
<td>419,728</td>
</tr>
<tr>
<td>USD*</td>
<td>608,411</td>
<td>299</td>
<td>338</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>685,822</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>79</td>
<td>22</td>
<td>79</td>
</tr>
</tbody>
</table>

* 1 USD = 1800 USh

T-Test for Equality of Means: Equal Variances Assumed: t = -1.95 df = 99 Sig (2-tail) = 0.05
Equal Variances not Assumed: t = -1.75 df = 29 Sig (2-tail) = 0.09

Nationally, the poverty rate\(^{21}\) in 2002/03 was 41.7% and 12.2% in rural and urban areas, respectively, creating a combined rate of 31.7% (UBOS, 2004). The poverty line was estimated for the western region as ~$12 USD/mo.

Despite the fact that mean incomes may be above the poverty line, results indicate that at least 43% of salt miners earn incomes less than $10 per month. This suggests high levels of disparity between a small portion of miners engaged in specific roles (primarily multiple pan owners and managers of genderaho or haulers and loaders) and low-paid, inconsistently employed labourers.

\(^{21}\) The incidence of poverty (poverty rate) is defined as the proportion of the population living below the absolute poverty line. The poverty line is based on a minimum level of food and nonfood requirements (monthly expenditures per adult equivalent).
Low individual incomes and acute disparities in distribution cannot negate the cumulative economic contribution to mining and non-mining households alike. In KKTC, production estimates and selling prices from field assessments at the salt lake indicate gross revenues from mining exceed 550,000 USD per annum (Table 15). These revenues, the majority of which, according to local miners, is spent within KKTC and nearby trading centers, undoubtedly plays a significant role in stimulating economic development of mining and non-mining households to varying degrees.

Table 15: Gross Revenues from Salt Mining

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Estimated Production Value (USh)</th>
<th>Average Selling Price (USD/tonne)</th>
<th>Gross Revenue (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wet Season</td>
<td>Dry Season</td>
<td>Wet Season</td>
</tr>
<tr>
<td>Grade I</td>
<td>-</td>
<td>-</td>
<td>0 USD</td>
</tr>
<tr>
<td>Grade II (washed)</td>
<td>154,711,307</td>
<td>309,422,613</td>
<td>112.90</td>
</tr>
<tr>
<td>Grade II (crude)</td>
<td>42,991,630</td>
<td>85,983,260</td>
<td>21.20</td>
</tr>
<tr>
<td>Grade III (crude rock)</td>
<td>172,380,000</td>
<td>172,380,000</td>
<td>25.00</td>
</tr>
<tr>
<td>TOTAL</td>
<td>370,082,937</td>
<td>567,785,873</td>
<td>551,706 USD</td>
</tr>
</tbody>
</table>

Source: Estimates extrapolated from individual pan and rock salt production and selling price data, accounting for seasonality and variability from pan to pan.

7.3.2 Savings and Credit

Income by no means provides a complete picture of poverty status, a component of which also includes capacity to accumulate savings and assets. The ability to accumulate, utilize and benefit from assets is determined by multiple facets of natural, social, human, physical and financial capital, the latter of which includes capacity to acquire and save cash beyond needed expenditures.

Due to the length of the household survey, expenditures were not evaluated in the research but are presumed to be high in KKTC compared to many other areas as:

(i) Lack of degazetted land (areas not gazetted by QENP, which strictly limits activities within park boundaries) for growing, poor soil quality of available land and risks of wildlife incursions have deterred growing within the small boundaries of KKTC resulting in almost sole reliance of imported food, with the exception of fish;
(ii) KKTC is not located on a major roadway and most goods must be transported great distances, increasing prices for food, fuel and other goods. Furthermore, residents indicate that some traders avoid KKTC due to the perceived effects of salt on their vehicles; and

(iii) Limited public transport (matatus or taxis and motorcycle taxis/boda bodas) and the distance has resulted in high travel costs to hospitals, district administration, banks and other key sources of day-to-day amenities (~10-15 USD per return trip to Kasese Town).

Savings are comprised of both cash and non-cash (assets) that can be used for investment in livelihoods, land, supplies and services, education, health care or other household needs. Access to formal or informal credit is particularly important when the savings capacity is low, particularly in times of hardship, but has potential to further exacerbate poverty, not only due to high interest rates, but also as repayment draws from existing sources of income. I.e. if someone lacks the capacity to save, they are more likely to default or will be further impoverished by debt repayment.

Cash Savings
Of respondents surveyed, women headed households are 22.5% more likely then men-headed households to have no savings or less than 10,000 USh (~6 USD) from the previous month. More than 58.6% and 44.4% of women heading mining and trading reliant households, respectively, and 71.4% of women headed households reliant on other occupations (a large number of whom are subsistence farmers) are likely to have saved 0-10,000 USh. Over 45% of men headed households accumulated savings of more than 10,000 USh compared to only 22% of women headed households, with men reliant on mining (47.5%) and other livelihoods (50.0%) faring best (p=0.04) (Fig. 13).

Although amounts are small, almost 40% of all households have at least been able to save some money (above 10,000 USh), a significant improvement over the Kasese District average of 12% and a likely consequence of the cash revenue rather than subsistence agricultural basis for the local economy in KKTC (KDLG, 2004).
Both women and men expressed that keeping cash on hand can actually increase their vulnerability. Specifically, the likelihood that a friend or family member will ask to borrow any cash in response to their own shocks or stresses (e.g. malaria, school fees, etc) is high and retaining money can actually make it less likely that a household can take a step up the poverty ladder.

As opposed to cash retained as savings, a cash surplus above basic day-to-day requirements is often rapidly spent to meet additional needs (Fig.14). Expenditure patterns of cash surplus (for those that have it) show that about one third is spent on health costs in mining and fishing households (34.7% and 32.2%, respectively) slightly higher than trading and other households (25.0% and 23.8%, respectively).
As shown in Figure 14, miners spending surplus on fishing and farming tools and traders (with a small proportion of those in fishing) spending funds on mining alludes to the importance of economic diversification as a livelihoods strategy for both women and men. Many traders, in fact, have been able to save funds and purchase pans, in most cases hiring labourers to work the pans, while some also engage in mining. Expenditures by women traders, in particular, indicate the importance of this strategy and further suggest increased financial capacity of women traders to do so.

The proportion of households with no cash surplus is significant in KKTC, including 31.4% of male-headed households and 37.9% of female-headed households (p<0.01). The majority of women heading trading households reported no surplus (62.5%), while 16.7% reported surplus in excess of 50,000 USh (~30 USD). The substantial proportion spent by women traders on mining and fishing tools is consistent with those successful women owners of shops, lodges, restaurants and bars in KKTC, many of which own salt pans and some own fishing boats, and other women traders seeking to follow in their footsteps as a pathways out of poverty and into wealth accumulation.
Economically vulnerable people in Uganda often fail to pay school fees at the beginning of a term, thus requiring payment arrangements. In terms of women reliant on fishing, differences are distinct. High proportions of surplus spent on school fees and health costs (50.0% and 33.3%, respectively) by fishing reliant women posits higher vulnerability (lesser capacity to save for the beginning of the school term), a suggestion affirmed by local development officers and fishing women themselves.

**Non-Cash Savings**

Non-cash assets represent a standard of living, they can be sold to buffer hardship, can be used as a form of collateral and, in some cases, are the tools needed to realize livelihood objectives. It should be noted that sale of certain assets, especially land and homes, are generally considered to make households more vulnerable to poverty in the long term. Ownership and value of main household assets is shown in Table 16.

Men surveyed are generally more likely to own their home and ownership is highest for men involved in mining and other occupations (a proportion of which includes civil servants and town councillors who are often engaged in other economic activities). Nationally, ownership of homes is 72% (UBOS, 2002).

Relationships between value of specific assets (houses, bicycles) and livelihoods and gender were significant (p<0.01). In summary:

- Households headed by men that rely on “other” occupations have the highest value of homes and assets overall, while women headed fishing and trading households have the lowest value. Disparity between women and men headed households is highest for women reliant on fishing and trading (80-160% difference in value), however, in the case of traders, the disparity favours women.

- Gender disparity is most significant for tools and implements, such as pangas (machetes), wheelbarrows, shovels and other items needed to engage in specific livelihoods. Given the nature of their work, it is surprising that men reliant on trading and “other” occupations invest far more in these tools than men in mining and fishing. Likely this is indicative of a greater financial capacity of traders to make such investments Women headed trading and other households own far
less than their men counterparts in tools, yet their surplus expenditure patterns of women traders suggest a strong intention to accumulate such assets in order to diversify income sources.

Table 16: Ownership and Value of Assets (% and USD by households)

<table>
<thead>
<tr>
<th>ASSET</th>
<th>MINING</th>
<th>FISHING</th>
<th>TRADING</th>
<th>OTHER</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
</tr>
<tr>
<td>House</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% owning</td>
<td>71.2</td>
<td>65.5</td>
<td>64.3</td>
<td>67.7</td>
<td>53.3</td>
</tr>
<tr>
<td>Mean valuea</td>
<td>852</td>
<td>487</td>
<td>1184</td>
<td>546</td>
<td>282</td>
</tr>
<tr>
<td>Value M:F</td>
<td>1.6</td>
<td>2.2</td>
<td>0.5</td>
<td>1.5</td>
<td>1.9</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>1799</td>
<td>707</td>
<td>3250</td>
<td>474</td>
<td>478</td>
</tr>
<tr>
<td>Furniture and Appliances</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% owning</td>
<td>88.7</td>
<td>94.3</td>
<td>92.9</td>
<td>98.8</td>
<td>80.0</td>
</tr>
<tr>
<td>Mean valuea</td>
<td>864</td>
<td>149</td>
<td>242</td>
<td>268</td>
<td>459</td>
</tr>
<tr>
<td>Value M:F</td>
<td>5.7</td>
<td>0.9</td>
<td>2.3</td>
<td>2</td>
<td>1.9</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>864</td>
<td>132</td>
<td>285</td>
<td>253</td>
<td>848</td>
</tr>
<tr>
<td>Bicycle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% owning</td>
<td>33.9</td>
<td>9.4</td>
<td>35.7</td>
<td>22.2</td>
<td>46.7</td>
</tr>
<tr>
<td>Mean valuea</td>
<td>39</td>
<td>43</td>
<td>39</td>
<td>29</td>
<td>63</td>
</tr>
<tr>
<td>Value M:F</td>
<td>0.9</td>
<td>1.3</td>
<td>1.5</td>
<td>2.8</td>
<td></td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>12</td>
<td>9</td>
<td>17</td>
<td>25</td>
<td>64</td>
</tr>
<tr>
<td>Tools and Implements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% owning</td>
<td>54.2</td>
<td>59.4</td>
<td>71.4</td>
<td>66.7</td>
<td>46.7</td>
</tr>
<tr>
<td>Mean valuea</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>9</td>
<td>89</td>
</tr>
<tr>
<td>Value M:F</td>
<td>1.5</td>
<td>0.4</td>
<td>30.1</td>
<td>7.3</td>
<td></td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>9</td>
<td>2</td>
<td>4</td>
<td>11</td>
<td>227</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean Value</td>
<td>2105</td>
<td>938</td>
<td>938</td>
<td>2127</td>
<td>1125</td>
</tr>
<tr>
<td>Value M:F</td>
<td>2.2</td>
<td>1.9</td>
<td>0.9</td>
<td>1.6</td>
<td>1.8</td>
</tr>
<tr>
<td>Std dev</td>
<td>2156</td>
<td>769</td>
<td>2896</td>
<td>704</td>
<td>1109</td>
</tr>
<tr>
<td>N</td>
<td>59</td>
<td>32</td>
<td>28</td>
<td>9</td>
<td>15</td>
</tr>
</tbody>
</table>

a. All mean values in USD (1 USD = 1700 USh)

b. Results significant for House (MANOVA: F(3,183) = 3.518; p<0.01) and Bicycles only (MANOVA: F(3,183) = 4.412; p<0.01).

These results providing interesting insight about poverty levels and access to poverty reducing measures of women and men in KKTC. Trading and “other” livelihoods (inclusive of restaurant and lodge owners, civil servants and politicians) appear to be the most lucrative activities in terms of assets accumulation for men. Women in “other” livelihoods also appear to fare much better than their counterparts in mining, fishing and trading although, in general, the value of assets owned in women-headed households is about 81% less in value than households headed by men (p<0.01).
Access to Credit

Microcredit or microfinance institutions (MFIs) are found mainly in urban areas of Uganda (such as Hofokam and Pride Microfinance in Kasese Town) and provide a reasonably accessible source of funds for those who cannot achieve the requirements of larger, formal banks yet possess collateral and fulfill requirements needed to obtain small loans. Although they may be easier to access than other formal channels, prohibitive interest rates, low-return or failed ventures have been shown to result in borrowers selling assets to pay microfinance institutions or borrow from moneylenders or relatives, all in order to maintain a positive credit rating. Ironically, access to finance can sometimes serve to exacerbate poverty rather than alleviate it, particularly for those who have taken on more than they can handle. Some failed borrowers have also been stigmatized in their communities, particularly if funding was obtained through an association or cooperative and failure of one individual brings negative repercussions to the group. High interest rates and the payback period of loans is a frequently stated barrier to (a) first obtaining a loan; and (b) successfully paying back in the allotted time, which would keep credit in sufficient standing to obtain future loans. Small-scale Ugandan enterprises face interest rates from MFIs ranging between 28-48% per annum with payback usually required within six months (Byaruhanga, 2005).

Group savings schemes and “Village Savings and Loans Associations” (VSLAs), are increasing in popularity in KKTC. Save the Children Uganda, with an office in Kasese Town, has undertaken a program throughout the District to initiate community VSLAs. The simplest of these arrangements involve self-selected members of a group contributing a set amount of money on a weekly or monthly basis to a common pool. Each group member subsequently takes turns receiving the funds for either investment purposes or to meet personal needs. As group members are under pressure from peers to maintain inputs, misuse may preclude future access to the funds. This arrangement requires a good degree of trust and some financial management skills, and is highly susceptible to collapse in times of shock (e.g. drought, epidemics).

In KKTC, three savings groups, most of which are dominated by women engaged in a variety of livelihoods, were identified, although more may be present. The Bakyala
Tutembe Cooperative in KKTC, for instance, raise money through membership fees (20,000 USh or ~12 USD) and registration (2000 USh/a or ~1USD/a) and give small loans to members at 2%/mo interest. Generally, women who join expressed feeling that they are better off than those who are not participating, with benefits cited including improvements in their small businesses (e.g. buying/selling salt), paying children’s school fees, and, in some cases, building of houses.

Small private moneylenders in communities provide an additional source of credit. The Tulibamu United Group in KKTC was formed specifically for this purpose. The group provides “shares” for a fee of 5,000 USh (~3 USD) to its members. The accumulated capital is used to grant loans to community members, with the interest going towards returns to investors (i.e. group members).

Local traders and shop-keepers, both women and men, indicated that they offered credit to well-known, repeat customers in the past, however this became too popular and non-payment or extended delays in payment virtually debilitated many shop owners in terms of stock maintenance. Maintenance of sufficient stock is cited by traders and shopkeepers as a major challenge and it likely one of the reasons (in addition to diversification aims) that cash surplus is low for traders and shopkeepers.

The main source of credit indicated by survey respondents was family and friends, mainly those residing within the community, (39%) and was the most frequent response of mining households (48% and 42% of male-and female-headed households) (Fig. 15). MFIs were most likely to be accessed male-headed farming, trading and wage income earning households (30%, 40% and 31%, respectively). Women-headed fishing households surveyed were least likely to identify a source of credit. Associations with livelihoods were only significant for those borrowing from traders. Specifically, those reliant on other occupations were 5.9 and 2.4 times more likely to borrow from traders than mining and fishing household heads, respectively (p=0.05).

In Kasese District, two-thirds of the population borrow money from friends and family in and outside to Kasese District in order to address income shortfalls (KDLG, 2004).
Figure 15: Main Sources of Credit by Livelihood (% Households)
7.3.3 Fiscal Policies

Taxation, fees and levies imposed by local and central government can generate the revenue needed to provide essential infrastructure and services; however, when taxes and fees are prohibitively high, they can serve to impede economic development.

At the local government level, sources of revenue are primarily associated with registration and permit fees and local taxes (for instance on mineral production) as itemized below:

- “Proper Tax” (to central government);
- Inspection fees;
- Park entrance fee transfers;
- Boda boda fees;
- Advertisements/bill boards;
- Drug shops;
- Food vendors and eating houses;
- Liquor permits;
- Trading licenses (including mineral traders);
- Fishing vessel licenses, fishing vessel applications, canoe landing fees, fish mongers license and fish transfer fees (most of which are above those imposed by the BMU);
- Native doctors;
- Birth and death certificates; and
- CBO registration.

Prior to its cessation in 2005, an annual Graduated Tax of ~1 USD was charged on each household in Uganda for use by Local Government. Many women in KKTC reported that this was largely allocated to women’s health services and its cessation has had negative repercussions in terms of capacity to access birth control (and control their own reproductive health) and other critical needs.

Tax collection is problematic and political conflicts, lack of an urban tender board and poor staff motivation have been identified by the Town Council as causes of local revenue declines (KKTC, 2004). Some residents have explained that corruption of some officers also plays a role (i.e. any taxes collected are “eaten” by some in local

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22 Only a general breakdown of revenue sources was provided in the KKTC Three Year Rolling Development Plan, i.e. cash revenues from each source were not given.
government), while lack of transparency in terms of the amount of fees collected (and their use) seems to have substantially increased hesitation about the benefits of tax and fee payment.

Total Town Council revenues from these fees in 2003/04 were 175,898,780 USh (~103,000 USD). KKTC is not particularly transparent about specific sources of local revenue, although it is known that at least 162 million USh (~95,000 USD) is collected annually from taxes on the salt lake (accounting for 92% of local revenue generated in 2003/04) (KKTC, 2004). This discludes revenue generated for other licenses such as that required of loaders (10,000 USh or ~6 USD per loader per annum). In the same year, the District also collected 658,000 USh (~400 USD) from Lake Katwe salt mining (KDLG, 2004).

Prior to execution of this research, Kasese District and local governments were unaware that, under the current Mining Act, 17% of royalties from mining activities are returned to the District and 3% to the land owners through the Ministry of Finance, Planning and Economic Development (MFPED). The District and landowner must submit a request to MFPED to receive these funds and, although improving, the transfer rate to these beneficiaries is quite slow. Based on current production levels and a prescribed salt royalty of 500 USh/t, royalties would total just over 5,000 USD per annum. It is unlikely that this arrangement would be appreciated by the Town Council administrations.

**7.3.4 Market Access**

One of the central issues dictating the feasibility of livelihood choices in a given locale is the access to a fair market. As discussed in Section 7.8, road infrastructure is a key component to linking remote areas to markets, however the cost of transport, demand for a product and market prices available ultimately also control feasibility of production.

For most goods, KKTC largely relies on Kasindi, a few metres across the Uganda-border in DRC and 25km from KKTC, where markets are held on Tuesdays and
Fridays. At the Katwe Fish Landing Site, small lorries ferry traders to purchase fish for sale within and outside of the district, usually purchasing from local fish buyers who accumulate sufficient quantities. This is supplemented by sales to local consumers. Agricultural production is so marginal that all products are consumed by growers or sold within the town.

Similarly, the marketing of salt typically originates at the mine, where local traders, such as the Salt Miners Association, Kyakitale Women’s Group and many individuals (local traders), negotiate with producers and sell to the steady stream of solely male dealers visiting the lake. Salt is then transported by lorry throughout the region and into neighbouring countries, where it is sold in small towns, trading center or city markets. To a lesser extent, salt is hauled from the lake to KKTC, where it is sold in shops. Due, in part, to lack of storage facilities, all salt is generally sold not long after production (particularly given the risk of re-dissolution with rainfall), which means that prices drop sharply during the peak, dry season when competition is greatest.

Although the Town Council has sought to control price levels through agreements between producers, this has failed mainly due to the large number of miners and their lack of organization and cooperation. As one woman pan owner and chairwoman of a local association stated “we are not together (as miners), we need to work together.” High competition and low bargaining power result in ad hoc and typically nominal prices paid to miners thereby exacerbating the low incomes and poverty that lead to desperation and “shock selling”, particularly in times of stress (e.g. related to school fees, illness, death in the family).

7.4 Social Assets

Social capital refers to connections among individuals. It includes the social networks and mutual values of give-and-take that arise from interactions in these networks. Shared attitudes, cultural beliefs, values and trust within social networks, both formal (e.g. organizations) and informal (e.g. personal interactions and social groups), can provide a means to disseminate knowledge, provide psychosocial support, and enable joint problem solving (Rico, 1998).
7.4.1 Organizations
Organizations in KKTC serve purposes ranging from psychosocial support and personal improvement to savings and credit to broader community education. Organizations established on the basis of shared interests – whether related to personal needs, livelihoods or desire to improve the community - provide an opportunity for group members to share the responsibility, knowledge and costs needed to overcome mutual challenges.

Although international organizations such as Save the Children and CARE Uganda are active throughout the District, they have no presence in KKTC thus, only locally-based organizations, inclusive of mining organizations are discussed.

Kasese District Development Network
KADNET (Kasese District Development Network) is a civil society organisation (CSO) in Kasese District, which acts as an umbrella organization for other CBOs, CSOs, NGOs and faith-based organizations in the district. Its activities include networking and co-ordination, information collection, documentation and dissemination, capacity building, monitoring and evaluation of community-based projects. KADNET additionally has a vital role to play in bridging different organizations, a critical precursor to dissemination of knowledge and innovations suitable for local contexts.

Registration of a CBO typically involves development of a constitution (defining objectives, organizational structure and protocols for meeting), payment of ~3 USD to the Sub-county and ~12 USD to KADNET for support activities. In a recent survey of registered organizations in the District, it was found that 1080 CBOs, CSOs and NGOs are registered. Although a few of the CBOs in KKTC are aware of KADNET, they are mostly unsure of its role and effectiveness.

Community Based Organisations
In KKTC, 22 community based organizations (CBOs) and groups, respectively, were encountered through the research (Table 17). There are essentially three types of
organizations in KKTC: (i) livelihoods-based organizations (e.g. cattle keepers, miners); (ii) social assistance groups (inclusive of religious-based organizations); and (iii) savings and credit groups, many of which are predominantly comprised of women.

Of those shown, 51% are occupation-based associations, 87% are undertaking work related to community-based social assistance (e.g. literacy, environmental education, income improvement) and 32% are involved in savings and credit schemes\textsuperscript{23}. In most cases, there is considerable overlap between these functions, i.e. some social assistance groups also undertake savings and credit activities and some occupation-based associations also undertake community-based social assistance.

**Table 17: Community-based Organizations, Groups and Associations**

<table>
<thead>
<tr>
<th>Active CBOs in KKTC</th>
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<tbody>
<tr>
<td>Bakyala Tutembe Cooperative</td>
</tr>
<tr>
<td>Beach Management Unit (Katwe Landing Site)</td>
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<tr>
<td>Cattle Keepers Association</td>
</tr>
<tr>
<td>Crater Lakes Region Biodiversity Conservation Awareness and Tour Guides Association</td>
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<tr>
<td>Juwhamu</td>
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<tr>
<td>Kanyigiya Drama Actors</td>
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<tr>
<td>Katwe Bariyas and Fish Mongers Association</td>
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<tr>
<td>Katwe-Kabatoro Chamber of Commerce</td>
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<tr>
<td>Katwe Salt Traders Association*</td>
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<tr>
<td>Katwe Women and Youth Association</td>
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<tr>
<td>Kelzia Church Group</td>
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<tr>
<td>Kihabure Salt Loaders Association*</td>
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<tr>
<td>Kyakitale Women Group</td>
</tr>
<tr>
<td>Lake Katwe Youth Association</td>
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<tr>
<td>Mothers Union Association*</td>
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<tr>
<td>Mahonde Extractors*</td>
</tr>
<tr>
<td>Rwenzori Lowlands Environmental Conservation Association</td>
</tr>
<tr>
<td>Lake Katwe Salt Winners Cooperative Savings and Credit Society *</td>
</tr>
<tr>
<td>St. Maria Gorretti Catholic Women Association</td>
</tr>
<tr>
<td>Tulibamu United Group</td>
</tr>
<tr>
<td>Tukore Women’s Group</td>
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</tbody>
</table>

\textsuperscript{23} Not all organizations were profiled. Percentages are based on the 37 of 52 organizations on which sufficient information was available.
Interestingly, occupation-based associations are predominantly comprised of men, while social assistance and savings and credit groups are frequently mixed-livelihood associations largely dominated by women. Of those households surveyed, 58% of men and 62% of women were not engaged in any organization.

Associations between livelihood and gender with participation in an organization were not statistically significant. Among salt mining households surveyed, 62% of male heads of mining households are members of organizations (23% and 61% of which are occupation or savings and loan based, respectively) while only 36% of female heads of mining households are engaged in organizations (11% of which are occupation based and 67% are social assistance related). Interestingly, 81.2% of respondents involved in an organization found it was “easy” for them to save money compared to 58.3% not in an organization (p<0.01).

The number and diversity of organizations present is impressive. However, only just over half of the organizations have a formal structure, constitution and objectives and a small number of these are quite active, organized and motivated with regular meetings and clear objectives. Many of these have sought outside support for training and information, and, for women’s associations in particular, group meeting topics range from business skills to building inter-marital communication. Both women and men in these groups have expressed that their personal level of income and wellbeing has improved as a consequence of being members and they feel they are better off than those who do not participate.

An example of how shared commitment to goals can drive an organization is demonstrated by Tukore Women’s Group in KKTC. With priorities ranging from youth empowerment, women’s rights, child labour and abuse, two of the women who founded the group sought and received training in mediation, counselling and legal aid from Ahurio, a human-rights based organization in a neighbouring district. Although the group initially had 25 members, when it was realized that the activities of Tukore yielded no monetary gains, membership dropped to four, with three volunteers. Tukore members and volunteers nevertheless provide paralegal services in a range of cases including land disputes, theft, child abuse and rape. Networks with the Town Council,
police and local community are necessarily strong. Although small in number, the women’s group seeks to expand on its efforts by training others in paralegal activities (and expanding their network of support), helping to address the severe occupational health and safety at the salt lake (particularly related to damage to reproductive organs), and advocating for facilities for medical examination of rape and child abuse victims.

A high proportion of groups, however, are largely inactive and seem to exist in wait of a catalyst, particularly money, from outside. Although it is clear that organizational strengthening and various types of training may see improvements in these groups, it is internal initiative and commitment – shown at least initially by key individuals – that is likely the most critical factor impacting these organization’s activities and successful outcomes. District officials has attributed the failure of a number of CBO projects to expectations of money exceeding commitment, lack of ownership of projects and poor project conception (e.g. generic solutions).

ASM Organizations
Several CBOs involved in social assistance or savings and credit schemes, for instance, have members from the mining community. In some cases, individuals are engaged in more than one livelihood and so may also be involved in more than one livelihood association. In addition to CBOs mentioned above, there are four miners associations in KKTC: (i) Lake Katwe Salt Winners Cooperative Savings and Credit Society; (ii) Mahonde Extractors; (iii) Katwe Salt Traders Association; and (iv) Kihabure Salt Loaders Association

Registered since 1982, the Lake Katwe Salt Winners Cooperative Savings and Credit Society was formed with the objective of uniting the salt producers and creating a communal pool where miners can save and eventually use money for development. The organisation is headed by a chairman, with a vice chairman, secretary, treasurer and a committee comprised of one women representative, youth representative and three men representing each of the three parishes. In the past, the Society played an active role in partnering with the Town Council to construct the Lake Katwe Secondary
School in 1995. Although membership is stated at being ~600, only four self-identified members (all men engaged in its Executive) were identified. With strong ties to the Town Clerk (at the time), some women miners explained that the organization has more to do with formal and informal tax collection than anything else.

*Mahonde Extractors* consists of women and men dealing in trading of rock salt. The group has a revolving fund with an interest rate of ~2% per month. Loans are granted based on collateral including salt pans, goats and cattle. *Katwe Salt Traders* and *Kihabure Salt Loaders* do not have any known savings programs and objectives are unclear beyond collection of registration fees from members.

Prior to this research, only a few members of these ASM organizations were even aware of the Dept. of Geological Survey and Mines (DGSM) and its functions. As salt taxes and fees are mainly paid to local government, ASM organizations are more strongly connected to the Town Council administration than “outside” parties. Agencies, such as NEMA, have had some ongoing activity in KKTC, particularly given the proximity to QENP, but no known interaction with the associations.

### 7.4.2 Formal and Informal Leadership

Local leaders play a pivotal role in bridging individuals and organizations, sharing information and motivating the community to achieve its goals. Many leaders of CBOs – both women and men – are well known to residents as opinion leaders (some of which also hold positions in local government) while other recognized informal leaders consist of elders who have been engaged in certain livelihoods for decades (e.g. senior miners, senior cattle keepers).

Clan elders and leaders continue to play an active advisory role in land and, in some cases, domestic disputes and as ceremonial leaders at weddings and funerals. Several men and women have voiced that this loss of practices has diminished appreciation (especially amongst the youth) for traditional values and is one of the reasons that the roles of clan elders in areas related to disputes or problems has generally decreased. Despite these expressed concerns, there seems little
collaboration between these traditional leaders and the general populous regarding invigoration of traditional cultural practices. Those elders who are also informal leaders of certain livelihood groups seem to have a stronger audience with Town Council Executives and command additional influence in the community in these roles.

In cases where domestic violence or disputes occur, clan elders are often called upon to council couples, particularly when separation is likely. Some women have stated that, even in cases of repeated physical abuse, they are generally encouraged to stay in a marriage. Those women that disregard this advice are sometimes marginalized by their parents and family members. Pressure to remain increases if a bride price has been paid to the women’s parents as divorce would require return of the paid price (usually cows and other livestock combined with cash) and can quickly impoverish the family. Laws against domestic violence within marriage and especially marital rape are rarely enforced, although awareness of these laws is reportedly increasing slightly.

Despite widespread concerns voiced by many Ugandans about government officers “just being concerned with the business of eating” government revenues and charging informal fees, formal leaders within local government, the majority of which are men, are generally respected in keeping with the traditional value for hierarchy throughout Uganda. As administrative units of KKTC are quite small, Parish and Village Chiefs, as well as their Executives, have continued contact with their constituents and are generally well regarded by both women and men. Furthermore, many technical staff and officers in local government have earned the respect of the populace through ongoing interaction, even in the face of inadequate or nearly absent resources.

Behind closed doors, concerns over partisanship, lack of transparency, corruption and inaction nevertheless suggest a measure of discontent. One informal leader has said that “because of politics, people do not organize well around principles, but around individuals”. Those individuals who constitute formal and informal leadership in KKTC are in a position to exert considerable influence while some suggest this power is abused by many (but not all) leaders to serve their own personal and political ambitions.
7.4.3 Social Safety Nets

Formal and informal social safety nets are developed intentionally or inadvertently as a means to prevent poor persons from falling deeper into poverty.

Formal Social Safety Nets

Other than the Government Pension Scheme, which covers all government employees, the main formal social safety net in Uganda is the National Social Security Fund (NSSF). It provides benefits in old age, physical or mental illness, and to relatives in the event of death. A mandatory savings scheme, the NSSF covers all employees in the private sector, including NGOs and parastatal (partially state-owned) bodies that are not covered by the Government’s Pension Scheme and the scheme covers all employers who have 5 or more employees between 16 and 55 years of age (except those under the Government Pensions Act). Registered employers are required to pay contributions to the Fund for his/her employees every month during which he/she pays salaries. Employers deduct 5% from the employee’s total gross monthly wage and add 10% of the total gross monthly wage making a total contribution of 15% for each employee.

Levels of mistrust in NSSF are high. Recent scandals involving NSSF purchase of overpriced land and irregular land purchases from senior government officials, combined multiple years of salary advances afforded to senior NSSF management and disappearing contributions of long-time contributors to the system exacerbate misgivings towards formalized participation.

Informal Social Safety Nets

Throughout Uganda, the formal sector represents only a fraction of the population (less than 5%) and only 20% of this is represented by women. Furthermore, with only 630,000 taxpayers in a population of more than 30 million, the tax base for redistribution is marginal (Devereaux and Sabates-Wheeler, 2003). Consequently, the majority of the population does not have access the formal social protection mechanisms, such as NSSF and institutionalized programmes, in order to protect individuals and families in the event of illness, disability, death, exploitation (e.g. unfair
labour rates), maternity leave, old age, and protection from sexual harassment and discrimination.

Within KKTC, a number of CBOs (at least 6) are “savings and loan clubs” (with varying levels of effectiveness and terms of participation), which appears to be a useful livelihood strategy for those involved. The purpose of these clubs is twofold: they provide a means for group members to, first, invest in existing or new income-generating activities and, second, address household needs ranging from school fees to illness. In the case of repayment, the latter situation enables access to a source of informal insurance but puts borrowers in a position of vulnerability and may compromise the long-term viability of the savings club.

Much like microcredit is promoted throughout the country for the rural poor, microhealth insurance schemes are on the rise. Most notably, FASERT (Foundation for the Advancement of Small Enterprises and Rural Technology) is facilitating group occupation-based savings schemes for the informal sector (Devereaux and Sabates-Wheeler, 2003). Comprised of at least 30 members, individuals can draw on pooled resources for illnesses other than those that are very expensive to treat (e.g. HIV/AIDs, cancer). Using a “swipe card” with the members’ photograph, benefits can be claimed at participating hospitals and health clinics to alleviate treatment costs. A similar but much less formal model, burial societies, have been formed in other Ugandan communities in order to provide a form of insurance in the event of death. The FASERT programme and burial societies are not active in KKTC, but present useful models.

Community-based groups and organizations further provide psychosocial support to its members. At least two of the women’s groups described how their regular meetings include discussions of personal and household challenges (e.g. communications within the marriage, women’s rights) and provide an opportunity for both group problem solving and support. However, informal social safety nets to address issues such as child abuse or sexual and gender based violence (physical assault, rape, psychological abuse etc) are generally lacking. A case of a 12 year old girl who was forced to marry her much older rapist after becoming pregnant illustrates the limited
support, even within families, to victims of violence. The remarkable exception is the Tukore Women’s Group in KKTC, whose advocacy, paralegal and psychosocial support mandate fills a crucial gap (Section 7.4.1). Many of the CBOs already engaged in advocacy efforts (e.g. for HIV/AIDS or environmental protection) may be in a position to engage in sensitization concerning these issues, as well as those faced by vulnerable groups, such as the elderly, disabled or orphaned population.

The situation facing orphans is a national crisis. The orphanhood rate in KKTC (17.6%), which is notably higher than the national average (13.1%) (UBOS, 2002). The untimely illness and death of a primary care giver causes a vicious cycle. Children are less likely to attend school and often do not receive the guidance and resources they require to develop into healthy, productive adults. Thus, orphanhood is tragic at an individual level and creates a major threat to economies and their development at both a macro and micro level. In KKTC, no formal programmes to support orphans have been identified. It was indicated that “some individuals help (orphans) sometimes” but generally the feeling persists that households are immersed in their own poverty and provision of informal fostering or other support would increase their vulnerability further.

Of those surveyed, 70.3% of women and 77.1% of men generally found fellow community members to be “supportive” or “very supportive” of each other. The association between sources of support and gender was significant (p<0.01). In times of crises, whether it is related to finances, health or other hardship, women are much more likely to turn to their family (17.7%) for assistance than men (3.8%), who by far seek help from friends (88.7%). Although women also predominantly rely on friends (69.9%), women are 7 times more likely to have no source of assistance than men. Very few men and women (6.6% and 6.5%) rely on government sources of aid. These findings cut across livelihoods.

7.4.4 Trust Issues
Trust is a critical element in terms of: effective functioning between and within formal and informal groups; psychosocial wellbeing; and the personal security needed to engage in cooperative ventures. The level of trust within and between groups and
individuals was not comprehensively evaluated in KKTC, but the following was noted and are described in greater detail throughout the study:

- **Within** kinship or political groups – trust seems greatest and is explained as a natural outcome of shared values and attitudes. For example, 4.6% and 14.3% of men and women, respectively, indicated that they have a no or little trust for those who share their ethnic background compared to 22.7% and 16.8%, respectively, for those in other ethnic backgrounds (p=0.03). Women share similar levels of trust towards other ethnic backgrounds as their own while men are much less trusting of those from other ethnic groups.

- Trust in local government is generally low. Many residents respect and interact with local leaders (especially at the village and parish level), although divisions along political (and in some cases tribal) lines seems evident even at the village level.

- Despite this, trust and respect for particular individuals, e.g. certain technical officers and councillors in the local administration, is high and seems related to the participation of these individuals in a number of activities in the community and decisions to work beyond their own self interest.

- A number of conflicts, mainly related to different natural resource users, have undermined trust between different livelihood groups in the community, such as between cattlekeepers and salt miners (Section 7.2.6).

- Trust may also be high within livelihood groups, given shared challenges and hardships. For example, chronic salt exposure reportedly impacts genitalia of both women and men miners and intense empathy for fellow miners was commonly expressed. However, incidences of theft at fish landing sites and the salt lake serve to undermine this tragic source of cohesion. As well, “bad neighbourly” behaviour of poor salt pan maintenance is another oft cited cause of discontent and reason for poor cooperation.

FHRI (2009) found that many women in Kasese District had lost trust in local associations in response to lack of confidentiality when help for personal issues has been sought. This was not identified as an issue in KKTC, but may be one (of many) reasons why women’s participation in these groups is generally low (62.1% of women surveyed).
7.5 Human Assets: Health

Human assets can be defined as the labour (skilled, semi-skilled and unskilled); good health and physical wellbeing, knowledge, skills and abilities that, in combination, enable one to achieve their livelihood objectives (DFID, 2003).

7.5.1 Health Facilities and Services

The availability and quality of health services in a community can strongly influence productivity and income, wellbeing and quality of life, family size and the capacity to respond to and provide for family needs. With a doctor to patient ratio of 1:31,300 in Kasese District, it is not surprising that KKTC lacks a doctor and adequate facilities to meet needs for even basic treatment of common diseases and afflictions.

“Most people try (to obtain treatment) on their own. And then they die. They try and they die.” – A KKTC Local Leader

In KKTC, a single government-owned health centre, the Lake Katwe Dispensary (a subcounty health center), serves a population of over 6,000 and is substantially under stocked with the necessary drugs, and medical personnel. In some cases, the clinic can “go up to half the year without nothing”. The health center is equipped with one health inspector, one clinical officer, one midwife, one enrolled nurse, three nursing aids and one health officer in charge of the elderly. The services provided at the health unit include antenatal and maternity services supplemented by thirteen Traditional Birth Attendants, immunization, laboratory services, reproductive health services, outpatient services, STD treatment and prevention, among others. The health unit however lacks the capacity to offer in-patient services or HIV counselling and testing. The health unit also lacks adequate accommodation facilities for staff and patients, water, disposal pits for refuse and waste and transport facilities (KKTC, 2004).

Many in KKTC rely on small private drug shops for common medicines to treat simple illnesses. Around the salt lake, however, where illness and injury are frequent, no dispensaries or first aid posts are available. When a serious accident, major illness or outbreak occurs (such as bi-annual cholera outbreaks), patients are referred to Kilembe, Kaganda or Bwera Hospitals which are 10-45 km from KKTC.
7.5.2 Status of Health

At the district level, the main causes of mortality and morbidity are related to poor living conditions, poor sanitation, and prevalence of disease agents, poor eating and feeding habits (KDLG, 2003). A combination of diarrhoea and malnutrition are main causes of morbidity and mortality of infants while malaria and acute respiratory infections (e.g. from in-house cooking fires) generally rank high as the major causes of death in Kasese District, with children under-five most affected. The infant mortality rate in the District is 103 per 1000 live births which, although lower than the national average of 122 per 1000 live births, is still quite high compared to other Districts, such as Mpigi and Jinja, where the rate stands at 80 per 1000. (KDLG, 2004; UBOS, 2004).

In the cases recorded in the KKTC health unit, common illnesses in Katwe were identified as malaria, respiratory tract infections, diarrhoea, skin infections, eye and ear infections, dysentery, STDs, urinary tract infections (UTIs) and others (KKTC, 2004). HIV/AIDS has been highlighted as a concern, but no data is available concerning prevalence. Drug and alcohol abuse are reportedly rampant and, although some BMU local leaders in a neighbouring Subcounty’s fish landing site have made efforts to sensitize their constituents on marijuana abuse, no other efforts have been reported.

Primary health concerns throughout the country mirror those expressed in KKTC: malaria, waterborne and respiratory diseases and HIV/AIDS (NEMA, 2002) while, specific to KKTC, concerns regarding occupational risks of salt mining are profoundly and sympathetically expressed by women and men throughout the community.

Occupational Health and Safety Issues in Mining

ASM is one of the most occupationally hazardous activities in the world (ILO, 1999). In addition to injuries and fatalities from accidents, miners experience high rates of cancer, respiratory illnesses and other diseases (Stephens and Ahern, 2001). Occupational safety and health risks in ASM are generally linked with the division of labour (roles and functions) and individual factors, such as level of education, awareness of risks, knowledge and experience, financial capacity to mitigate risks and degree of desperation and propensity to take risks (Hinton, 2005).
In the KKTC salt lake, miners report respiratory problems, eye irritation, skin diseases and sores. Hyper-pigmentation (lightening) of hair and skin has also been reported by 90% of miners (Okimait et al, 2002). With prolonged daily exposure to the highly alkaline brine waters (pH above 9.5) (Ddungu et al, 1990), combined with wounds caused by handling, hauling and walking barefoot across coarse rock salt, painful sores can be found on most miners bodies.

Both women and men miners described how painful wounds and sores were slow to heal due to painful and prolonged immersion in the salt water, in many cases amounting to several hours daily. Most contend that even large wounds typically go untreated as first aid treatment is not available. Some miners apply contact cement (a type of permanent adhesive or glue) to wounds before immersing themselves in the lake in an effort to protect wounds from painful exposure to the salt water (Photo 19). Fresh water to wash salt residue from skin is scarce, limited to 3 small springs around the 7 km lake and water hauled and sold in jerry cans.

Not surprisingly, with temperatures at the salt lake exceeding 40°C at times, excessive dehydration and heat stress is a common complaint. Drinking water must be carried or purchased from vendors at mine sites. Some miners have consequently erected basic shelters as a source of temporary refuge from the sun and heat (Photo 20).

In the absence of health impact assessments, it cannot be ascertained whether the frequent coughs reported by both women and men miners are symptomatic of tuberculosis and/or a form of
pneumoconiosis. Resulting from inhalation of fine mineral particles, or dust, from drilling, blasting, loading, hauling, crushing and grinding, pneumoconiosis can result in the accumulation of scar tissue in the lungs (ILO, 2001). As this occurs, lung capacity decreases and the victims slowly suffocate – resulting conditions may include emphysema and lung fibrosis. Unlike silicosis, which is caused by the inhalation of silica dust, specifically, pneumoconiosis results from inhalation of a broad range of minerals. Tuberculosis (TB), identified by health workers as an issue with unknown prevalence in KKTC, includes symptoms such as cough lasting more than three weeks, chest pain, weakness, excessive tiredness, loss of appetite, chills and fever (HC, 2006).

Respiratory ailments, whether indicative of TB, pneumoconiosis or another affliction, are nevertheless cause for additional concern. Although the “most significant illness” reported by surveyed women and men miners in the past 12 months was malaria (41.1% and 48.8%, respectively) (Table 19), high proportions of men (20%) and women (17%) miners surveyed report chronic coughing and chest pains. This is 5 and 2 times higher, respectively, than the average for men and women surveyed from all livelihood groups. It is important to recognize that TB is generally linked with any immune compromising condition, often with HIV/AIDS, which was also expressed as being a problem in the mining workforce. Promiscuity was cited as being a main cause of HIV/AIDS in miners’ families although prevalence is not known.

One of the most serious afflictions (both psychosocially and physically) that has repeatedly arose during almost all interviews and focus groups is the damage to genitals and reproductive organs caused by prolonged immersion in salt water. Claims of barrenness, miscarriages and severe stomach pains among women and deformed genitalia among men are widespread. According to some miners, when sores are present (e.g. from gonorrhoea or syphilis), the “brine eats your wound” and, due to corrosive effects of the saltwater, “the water will eat your penis and you will almost lose it.” This often reported impact was tearfully described during a focus group with a women’s association. While many women depicted the mutual sympathy enjoyed by some coupled when both spouses work in the salt lake, the women explained that the severely strained sexual and social relations that occurs when one or both partners is
engaged in salt mining often leads to alcoholism, domestic violence and, in some cases, divorce.

The social stigma experienced by young, single salt miners is equally dire. Reportedly, girls and women engaged in salt mining have had difficulty finding husbands because of perceptions of their barrenness. One woman who is a local opinion leader believes this is one of the main reasons that many young girls are drawn into the sex trade at the nearby fish landing site during the rainy season. Awareness of this impact of mining is widespread throughout the community and heartfelt pleas for assistance have been put forth by both miners and non-miners alike.

As no clinical studies have been undertaken, the cause and extent of the damage to reproductive organs is largely anecdotal. Although this may be attributed to severe dehydration from salt or the highly alkaline waters, many local miners believe that hydrogen sulphide gas, produced in the water as salt precipitates, is responsible. Although hydrogen sulphide gas levels have not been measured at the mine, the waters are high in sulphate and, given the reducing conditions at the base of pans, may be generated through the precipitation process. The classic olfactory indicator of hydrogen sulphide, i.e. a rotten egg smell has been observed in the dry season at the salt lake.

Some male miners use crude means of protection including old rubber tubes, socks and, in some instances, condoms to protect their private parts. In some cases, men use up to four condoms, which are stretched across both the penis and scrotum and secured with rubber bands, which they describe as painful as they say it can cut off circulation but seems to be, nevertheless, perceived by many to be better than the alternative.

Women have sought protection by packing their vaginas with cassava flour prior to entering the lake. Women and men both attempt to fashion protection by cutting leg-holes in plastic bags (buveera) and wearing them as undergarments. These measures undoubtedly do not provide adequate protection, but clear illustrate the degree of desperation faced by women and men miners.
HIV/AIDS

Prevalence of HIV/AIDS in Kasese District is 11.2%, well above the national average of 6.5% (New Vision, 2006; NEMA, 2002). Throughout the research, HIV/AIDS was repeatedly declared an important issue by local officials and women and men from all livelihoods in KKTC. Although assessments of prevalence of HIV/AIDS in the community have not been conducted, a number of high risk practices and conditions have been reported and affirm the concerns expressed by study participants.

Widespread sexual activity, particularly given the near-daily disposable income inherent in ASM, trading and fishermen (e.g. miners, traders, fishermen), may be especially acute for the youth. A study of youth and sexual behaviour in nearby Muhokya Subcounty found that a high proportion of youth are very sexually active, even with much older people, and awareness concerning sexual and reproductive health – including that related to how HIV/AIDS is transmitted - is quite low (Lwanga-Ntale, 2003). Limited access to condoms (and high transport costs and distance to shops distributing them) has also been identified by youth as one of the reasons that unprotected sex is common (Lwanga-Ntale, 2003).

Women and men, girls and boys, can engage in or be subjected to behaviours that increase the risk of contracting HIV/AIDS. However, women and girls are especially vulnerable due to biological factors (viral transmission across the vaginal wall), socio-cultural and economic factors (e.g. related to personal autonomy, access to information, education disparities, etc). Rape within and outside of marriage continues to be pervasive in Uganda, with prevalence of 41% for rural women (CEDAW, 2009).

A human rights assessment in Kasese District documented frequent occurrences of women being subjected to marital rape, often under physical force and typically when their husbands are under the influence of alcohol (FHRI, 2009). The AIDS Support Organization (TASO) has reported that 90% of the HIV/AIDS infected women registered with the organization (almost 40,000 women) contracted the disease from unprotected heterosexual sex with their partners (HRW, 2003). The primary cause of the infection was attributed to infidelity by male partners. The seasonal influx of
migrant workforces in fishing and mining, and outmigration of resident men to engage in cotton harvesting has been suggested as a compounding influence.

A thriving commercial sex trade emerged in KKTC as an important livelihood strategy for women in the early 1980's, during a period of extreme scarcity under Obote's horrific post-Amin regime (Syakuha-Muhindo, 1996). In addition to the fish landing sites, active trading activities also attracts commercial sex workers, who oftentimes also work as food and drink vendors, as has been the case in many other communities. Truckers and traders travelling across Uganda and into DRC, Rwanda and Tanzania in association with the salt trade, as well as cotton traders bring countless lorries through KKTC. In nearby Mpondwe Town Council, through which the KKTC-DRC route passes, many truck drivers have been implicated in rape of young girls (FHRI, 2009). Furthermore, lack of rainy season alternatives at the salt lake draw many girls and young women from mining to the sex trade at the more active fish landing site. Lwanga-Ntale (2003) found that young girls' fears of older men, or the desire for higher payment given the risk of so called "live sex", kept them from demanding that a condom be used.

Given these factors and other vulnerabilities faced by women and girls (e.g. lower access to information and health services; susceptibility to rape), it is not surprising that the fastest growing group of HIV/AIDS cases are girls aged 15-24 years and women and girls constitute the majority (58%) of those infected with the disease in Africa (HRW, 2003).

**Malaria**
Malaria is the principle health concern expressed by women and men in KKTC. Of 17 common diseases observed in the KTKC health clinic, 38% of 1721 patient visits were attributed to malaria. In the research survey, more than half of households had reported at least one family member having malaria at least once in the past year. In Kasese District, 42.3% of all fatalities are attributed to malaria (New Vision, 2006).

Malaria was the most frequently reported sickness for persons over 18 years in the prior year across livelihoods (44.7%), with 47.3% of miners and 46.4% of those in
fishing (p<0.01) (Table 19). Results for men involved in fishing were significant, with 65% losing more than two weeks of work in the year prior to the survey as a consequence of malaria (p=0.04). This resulted in 43.8% of women heading households losing more than two weeks of work compared 36.0% of men (p=0.03).

**Malnutrition**

Malnutrition in infants and children in Uganda is (i) both a cause and consequence of illness (particularly diarrhoeal illnesses), (ii) a result of lack of awareness concerning proper feeding practices, and (iii) a product of food insecurity (i.e. lack of access to nutritious food). Malnutrition increases the risk of death and impairs development of children, with long-term effects including reduced worker productivity and earning potential (NEMA, 2002).

Malnutrition is among the most common health concerns reported by KKTC Health Inspectors who are concerned that far too many households survive on one meal per day, which tends to be largely unbalanced, mainly relying on carbohydrates (i.e. posho/maize meal, cassava flour), occasionally fish, and rarely vegetables or fruit. Surrounded by QENP and lacking arable land for growing, local people solely depend on bought food, in particular from the DRC.

Results are significant in terms of gender of household head where 14.8% of children between 1 to 4 years of age in households headed by women have nothing for breakfast compared to 1.7% for those headed by men (p=0.01). Conversely, 18.5% and 8.6% of young children eat solid food (e.g. eggs, bread) for breakfast in households headed by women and men, respectively.

Many women and men in KKTC conveyed the need to develop greater self-reliance as children age. Within the sample surveyed, 5-13 year age group, 9% of boys and 7% of girls in surveyed households start work in mainly mining and fishing increasing to 41% of boys and 42% of girls (of which 67% engage in mining) for 15-18 years olds.
Expectations of increased economic reliance with age may play a role in high rates of secondary school drop-outs (Section 7.6). Relationships between gender, livelihoods and breakfast of older children were not significant; however, the proportion of those relying solely on liquids (typically black tea) or nothing is evident in Fig. 16.

Figure 16: Breakfast for 0 to 4 year old and 5 to 13 year old children (% households)

Diseases Related to Poor Sanitation and Hygiene
Caused by exposure to a host of viruses, bacteria and parasites, diarrhoea results in 4% of all deaths worldwide – “every minute seven children around the globe die from diarrhoea” (WHO, 2000). Passed predominantly by water contaminated with human or
animal faeces, the risk of contracting a diarrhoea-inducing illness increases with: poor hygiene (e.g. inadequate hand washing); lack of clean water; living in close quarters with animals; and inadequate human waste disposal practices. Diarrhoea accounts for 3.4% of fatalities in Kasese District (New Vision, 2006).

One of the most serious waterborne diseases, cholera, is identified by local health officials as a major health concern. An acute intestinal infection that causes watery diarrhoea, vomiting and rapid dehydration, cholera is transmitted primarily through ingestion of contaminated food and water (WHO, 2003). Initially spread through faeces of an infected person (usually from hand or contaminated food and water to mouth), cholera bacteria can survive for extensive periods in water. Although use of oral rehydration salts can generally lead to recovery, if left untreated, cholera can cause death within a few hours.

In KKTC, cholera outbreaks occur on a biannual basis, usually in conjunction with cotton harvesting (February) and/or salt mining peak seasons (February and September). During a major cholera outbreak in February 2005, 564 cases were reported including one fatality. Traditional beliefs and/or insufficient medications available at the local health centre have reportedly led some to use local herbs in lieu of formal cholera treatment. Like cholera, dysentery has also been identified as a concern in KKTC. Dysentery, which is characterized by “diarrhoea with visible blood in stool and abdominal pain”, is on the increase throughout Uganda (NEMA, 2002).

KKTC is faced with poor domestic waste management options. In KKTC, despite efforts to set up refuse bins around for collection, these are often misused and vandalized. Without adequate refuse management facilities, disposal in rural and urban areas is most commonly in pits, gardens or the bush. This coupled with poor drainage and sanitation systems increases the risk of diseases like cholera and dysentery. Nationally, over 43% of rural households dispose of garbage in gardens, while 38% of urban residents dispose in pits. Other methods of garbage disposal are bush and skips (UBOS-NSDS, 2004).
As shown in Table 18, pit latrine coverage is high for most of the households surveyed, although 47.3% are shared, potentially creating a higher risk of diarrhoeal diseases for users. Almost 6% of surveyed households have no latrines and household members are relegated to using “the bush”, the highest proportion of which are engaged in trading (12%).

Table 18: Surveyed Household Toilet Facilities (% Households)

<table>
<thead>
<tr>
<th>Toilet Facilities</th>
<th>MINING</th>
<th>FISHING</th>
<th>TRADING</th>
<th>OTHER</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
</tr>
<tr>
<td>Private Pit Latrine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>39.0</td>
<td>53.1</td>
<td>46.4</td>
<td>77.8</td>
<td>40.0</td>
</tr>
<tr>
<td>Value M:F</td>
<td>0.7</td>
<td>0.6</td>
<td>1.2</td>
<td>0.8</td>
<td>1.2</td>
</tr>
<tr>
<td>N.</td>
<td>23</td>
<td>17</td>
<td>13</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Shared Pit Latrine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>52.2</td>
<td>43.8</td>
<td>50.0</td>
<td>11.1</td>
<td>46.7</td>
</tr>
<tr>
<td>Value M:F</td>
<td>1.2</td>
<td>4.5</td>
<td>0.9</td>
<td>0.8</td>
<td>1.2</td>
</tr>
<tr>
<td>N.</td>
<td>31</td>
<td>14</td>
<td>14</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>Bush</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>8.5</td>
<td>3.1</td>
<td>3.6</td>
<td>11.1</td>
<td>13.3</td>
</tr>
<tr>
<td>Value M:F</td>
<td>2.7</td>
<td>0.3</td>
<td>1.3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>N.</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of Total</td>
<td>32.1</td>
<td>17.4</td>
<td>15.2</td>
<td>4.9</td>
<td>20.1</td>
</tr>
<tr>
<td>N</td>
<td>59</td>
<td>32</td>
<td>28</td>
<td>9</td>
<td>15</td>
</tr>
</tbody>
</table>

a. Results not significant for livelihood or sex of household head and type of toilet facilities.

Although latrine covered is 94% in KKTC (KDLG, 2003), the sanitation situation is particularly worrying around the salt lake and the fish landing site. Around Lake Katwe, with a population that fluctuates up to 14,000 in the dry season, only one latrine with four stances is located on the southern part of the 7 km lake. Miners reported that they primarily use the bush for toilets with no fresh water for hand washing.

Nationally, lack of knowledge and high costs are the major factors limiting toilet facility construction, with 25% of households lacking information on the construction toilet facilities (UBOS-NSDS, 2004). Furthermore, 69% of households nationally do not have hand washing facilities for post-toilet use.
Respiratory Tract Diseases

Respiratory illnesses, is mainly a consequence of air pollution and dust with potential sources include burning of wood and crop residues for energy, burning of plastics (associated with lack of waste disposal options), industrial pollution (e.g. from KCCL) and occupational exposures (e.g. from salt dust, crop dust). Indoor air pollution (due to in-house burning of wood and charcoal) especially affects women and children who are in closest proximity for extended periods of time (NEMA, 2002). Infectious respiratory illnesses, such as pneumonia and influenza, also tend to predominantly impact women and children, mainly as contact with indoor air pollution increases their susceptibility and extends time needed to recover. Furthermore, infections are rapidly transmitted amongst children attending school. Respiratory tract infections are responsible for 18.7% of fatalities in Kasese District (KDLG, 2003).

In KKTC, 19.6% of men and 19.7% of women surveyed reported having persistent or acute coughs. Just over half of these cases are attributed to children under 16 years of age. As such a high percentage of the local populace uses wood (65%) or charcoal (33%) as a source of energy, the relative impact of indoor air pollution is believed to be comparatively the same from household-to-household. Indeed, comparing the frequency of coughs in households by livelihood and parish revealed little difference. Firewood and charcoal, respectively, are used in households district-wide (84% and 13%) and nationally (15% and 82%) (UBOS, 2002).

One of the respiratory diseases health officials cite as concern in KKTC is tuberculosis (TB). Spread by coughing or sneezing, TB usually requires frequent contact with an infected, ill person. Most people exposed to TB usually do not become sick (and infectious) unless their immune systems are compromised. TB, therefore, more readily spreads in communities with high prevalence of other immune compromising conditions, such as HIV/AIDS, diabetes, drug or alcohol abuse, and malnutrition. Children and the elderly are particularly susceptible to TB. Globally, “tuberculosis is a major cause of death among HIV positive people” (WHO, 2004). Knowledge concerning TB transmission seems to be low. For example, some fishermen attribute TB to the act of “rowing of boats.”
Other Environmental Health Risks
Although environmental health includes those community health issues resulting from communicable diseases and poor sanitation and hygiene, additional hazards associated with the human-environment interface were identified by women and men in KKTC.

Attacks by wildlife are frequently cited, including 7-10 deaths recorded per year from hippos, which typically occur on evenings with no moonlight when animals venture from the water to graze on land. In recognition of the human health risks associated with wildlife encounters at night (i.e. an average nine fatalities per year), the Town Council has afforded street light installation a high priority and budgeted accordingly for this (but are yet to be installed). Although more of an occupational health risk, the recently introduced crocodiles in the Lake Edward by the UWA are also a threat to human life, particular fishermen, who also expressed concern over the potential for capsizing and drowning during storms.

Dead animals on the water sometimes cause heavy stenches and potential to contaminate water. Although UWA is commonly called to rectify the situation, KKTC residents state they are often lax (and under-facilitated) when it comes to removal of corpses. Outbreaks of anthrax in the area pose an additional cause for concern. At least 318 hippos have died since October 2004, when anthrax hit the nearby Kazinga Channel in QENP (UWA, 2006). Hippo deaths occurred between October, 2004 and March 2005. Although no related illnesses were reported in humans, anthrax seems to resurface on a periodic basis.

Many in KKTC have reported that dust from the salt mine has resulted in corrosion of housing materials and other infrastructure. The health impact of this in terms of the local community has not been ascertained but could pose a hazard, the result of which may cause similar respiratory ailments and eye irritation as observed at the mine sites.
### 7.5.3 Health, Gender and Livelihoods

An average of 20.1% of men and women engaged in different livelihoods reportedly did not suffer from any illness or injury in the twelve months prior to the household survey (p<0.01). The most significant differences between livelihoods were women and particularly men engaged in trading (Table 19). More than 20% fewer traders contracted malaria in the past year compared to those in fishing and mining to contract malaria and are 15-23% more traders reported no illness or injury.

Within the households sampled, women are more likely to report “other” afflictions such as child birth complications, skin rashes and diseases such as (30.3% versus 19.5%) and are least likely to report no illness or injury (13.6%).

Table 19: Illnesses Reported by Women and Men over 18 years engaged in Selected Livelihoods in the 12 months prior to survey

<table>
<thead>
<tr>
<th>Reported Illness or Injury</th>
<th>MINING*</th>
<th>FISHING*</th>
<th>TRADING</th>
<th>OTHER*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>Total</td>
<td>M</td>
</tr>
<tr>
<td><strong>Malaria</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>46.1</td>
<td>48.8</td>
<td>47.3</td>
<td>50.0</td>
</tr>
<tr>
<td>N</td>
<td>47</td>
<td>41</td>
<td>88</td>
<td>17</td>
</tr>
<tr>
<td><strong>Chronic or recurrent headache, cough or fever</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>19.6</td>
<td>33.3</td>
<td>25.8</td>
<td>26.5</td>
</tr>
<tr>
<td>N</td>
<td>20</td>
<td>28</td>
<td>48</td>
<td>9</td>
</tr>
<tr>
<td><strong>Wounds, injuries or chronic back/chest pain</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>6.9</td>
<td>4.8</td>
<td>5.9</td>
<td>5.9</td>
</tr>
<tr>
<td>N</td>
<td>7</td>
<td>4</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td><strong>Other (diarrhea, childbirth complications, skin rashes, heart problems, chronic allergies, etc)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>8.8</td>
<td>9.5</td>
<td>9.1</td>
<td>20.6</td>
</tr>
<tr>
<td>N</td>
<td>9</td>
<td>8</td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td><strong>No illness or injury reported</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>31.4</td>
<td>27.4</td>
<td>29.6</td>
<td>26.5</td>
</tr>
<tr>
<td>N</td>
<td>32</td>
<td>23</td>
<td>55</td>
<td>9</td>
</tr>
<tr>
<td>N&lt;sub&gt;total&lt;/sub&gt;</td>
<td>102</td>
<td>84</td>
<td>186</td>
<td>34</td>
</tr>
</tbody>
</table>

Livelihoods groups significant for No Illness (p<0.01); malaria (p<0.01).

As discussed in previous sections, HIV/AIDS prevalence has not been assessed in any prior studies but is believed to be high, particularly given the number of migratory traders (particularly visiting the salt lake and fish landing site) and the migration of some women miners to the fishing village for commercial sex work in the rainy season.
HIV/AIDS related tuberculosis may be a factor in chronic or recurrent headaches, fevers and coughs, in particular, as well as other ailments.

7.5.4 The Costs of Ill Health

Both women and men in KKTC are concerned that health costs consume a significant portion of household income and it is, by far, one of the most important reasons put forth that residents do not seek medical treatment for many illnesses and injuries. Of households surveyed, about one third is spent on health costs for those dependent on mining and fishing (34.7% and 32.2%, respectively, compared to 25.0% and 23.8% for trading and other households).

Although 73.9% of KKTC households surveyed primarily use local services (pharmacies and the Lake Katwe Dispensary), no doctors are available, thus, major cases are referred to Kilembe and Bwera Hospitals (more than 40km away) and, to a lesser extent, Bwera, Kagando and Kisinga Hospitals (more than 20 km away). The demand for payment from doctors and nurses in “free” government hospitals is exacerbated by the transport costs to these locations (3-6 USD per return trip).

Results from the Household Survey in KKTC found that average household expenditures for those that sought treatment ranged from free (17% of cases) to 2.8 million USh (~1,600 USD) and averaged 55 USD per treatment (discluding transport) (Table 10). Most cited reasons put forth for not pursuing treatment were: treatment costs, closure or inadequate services of the nearby clinic, and mildness of the illness.

Major illness can cause a significant loss in productivity, translating to lost household income. Differences between livelihoods was significant, with miners losing an average of 40 days of work compared to 24 and 20 days for those in fishing and trading, respectively, in the 12 months prior to the survey ($X_n=34.9$, $p=0.05$).

Lost days for personal health problems are even more substantial when the need to care for sick children, the elderly and other family members is considered, as discussed below. In the 12-months prior to the survey, women heading households
lost 41.2% more workdays than men due to illness of other household members in the previous year (Xn=35.0, p=0.07).

Thus, it is not surprising that women commonly stated that they are far more likely to lose work days to aid a child or other sick family member compared to men in the household. This amounts to substantially losses in incomes and may be a major factor (in conjunction incomes associated with the gender division of labour) or may further exacerbate the gender disparity in miners incomes described in Section 7.3.1.

Table 20: Expenditures on Health per Treatment (USD)

<table>
<thead>
<tr>
<th>Item</th>
<th>MINING</th>
<th>FISHING</th>
<th>TRADING</th>
<th>OTHER</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong> (in USD)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>21.6</td>
<td>282.1</td>
<td>11.7</td>
<td>75.0</td>
<td>77.2</td>
</tr>
<tr>
<td>F</td>
<td>15.0</td>
<td>37.8</td>
<td>4.0</td>
<td>23.6</td>
<td>18.5</td>
</tr>
<tr>
<td>Ratio M:F</td>
<td>1.4</td>
<td>7.5</td>
<td>2.9</td>
<td>3.2</td>
<td>4.2</td>
</tr>
<tr>
<td>Total</td>
<td>19.3</td>
<td>208.8</td>
<td>8.1</td>
<td>49.3</td>
<td>55.0</td>
</tr>
<tr>
<td><strong>Std. Dev.</strong> a (in USD)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>24.2</td>
<td>799.9</td>
<td>10.0</td>
<td>181.1</td>
<td>358.6</td>
</tr>
<tr>
<td>F</td>
<td>37.0</td>
<td>49.9</td>
<td>4.2</td>
<td>36.8</td>
<td>36.6</td>
</tr>
<tr>
<td>Total</td>
<td>29.2</td>
<td>672.1</td>
<td>8.6</td>
<td>129.0</td>
<td>284.4</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>59</td>
<td>28</td>
<td>15</td>
<td>16</td>
<td>118</td>
</tr>
<tr>
<td>F</td>
<td>32</td>
<td>9</td>
<td>10</td>
<td>15</td>
<td>66</td>
</tr>
<tr>
<td>Total</td>
<td>91</td>
<td>37</td>
<td>25</td>
<td>31</td>
<td>184</td>
</tr>
</tbody>
</table>

a. All mean values in USD (1 USD = 1700 USh)
b. Livelihoods groups and costs. ANOVA: F(3,115) = 2.50; p=0.06  Post-hoc tests: LSD; Confidence Level 95%; Fishing, farming and trading significantly different.
c. Sex of household head and All Assets results not significant.

7.6 Human Assets: Education and Skills

7.6.1 Education Facilities and Services

In KKTC, there are four primary schools which are located within walking distances of most households. There is also one secondary school, one technical institute and one wildlife institute. Two privately owned nursery schools, Aunt Angella and Missionary Childhood Nursery School, provide opportunities for early learning.
Primary school education in KKTC is heavily reliant on the government’s Universal Primary Education (UPE) programme. The quality of UPE schools described by the KKTC administration as being very poor due to reasons such as very few classrooms, lack of adequate furniture, shortage of teachers, lack of teachers’ housing, and high rate of school drop out (KKTC, 2004). Although schools are located in each of the wards, facilities are far from adequate, likely creating an additional factor hindering attendance. The teacher:pupil ratio is high and sitting facilities do not meet enrolment demands.

Table 21: Quality of Primary Education in KKTC

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>National Average</td>
<td></td>
<td>1:52</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Kasese District</td>
<td></td>
<td>1:57</td>
<td>1:105</td>
<td>-</td>
<td>1:8</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Katwe Kabatoro Town Council</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rwenjubu</td>
<td>Katwe Quoran</td>
<td>1:45</td>
<td>1:87</td>
<td>1:7</td>
<td>1:3</td>
<td>20 3 20 1 404</td>
</tr>
<tr>
<td></td>
<td>Katwe Boarding</td>
<td>1:32</td>
<td>1:50</td>
<td>1:1</td>
<td>1:5</td>
<td>15 9 19 2 351</td>
</tr>
<tr>
<td>Kyakitale</td>
<td>Jabez</td>
<td>1:33</td>
<td>1:45</td>
<td>1:1</td>
<td>1:3</td>
<td>13 2 10 3 235</td>
</tr>
<tr>
<td>Kyarukara</td>
<td>Katwe</td>
<td>1:58</td>
<td>1:118</td>
<td>1:1</td>
<td>1:3</td>
<td>25 6 26 8 524</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td></td>
<td><strong>1:42</strong></td>
<td><strong>1:75</strong></td>
<td><strong>1:2.5</strong></td>
<td><strong>1:3.5</strong></td>
<td><strong>18 8 19 1 378.5</strong></td>
</tr>
</tbody>
</table>


The only secondary school in KKTC, started in 1995 by the Town Council and the then active Lake Katwe Salt Winners Cooperative Society, is now government aided but faces challenges including low student enrolment, lack of teachers’ houses, lack of teaching facilities like laboratories, lack of energy sources – especially firewood, and failure of parents to raise school fees. Schools often also lack safe clean water and the number of latrines is generally insufficient for the number of students present. The likelihood of increased frequency of hygiene related illnesses, thereby elevating absenteeism even further.
With salaries below USh 70,000 (~41 USD) per month, relatively high transportation costs from Kasese Town and poor working conditions, motivation of teachers is difficult to maintain. The tendency for teachers to seek supplemental income elsewhere further affects the quality of services rendered. Absenteeism of teachers provides an added challenge for students seeking to obtain their right to an education.

According to the Head of the KKTC Secondary School, communities have not taken the issue of education seriously, especially beyond primary level. There is now a deliberate policy by the school administration to address this issue by sensitizing the people in churches, at the salt lake, and the landing site about the importance of education. Bursaries have also been introduced in order to aid bright students who can not afford school fees.

Other Training Opportunities

In KKTC, a government-aided technical institute has an enrolment of about 130 students who are taught carpentry and joinery, tailoring, brick laying and electrical installation. The students come from areas of Kasese, including Bwera, Fort Portal, Bundibugyo and Bushenyi. As admission to the programme requires O-level completion, many KKTC youth are not qualified for entrance. In 2005, only two of the 130 students were from KKTC and no registered students were women.

According to the Principal of the Institute, the buildings belong to the Custodian Board and are leased to the Institute by the Ministry of Education and Sports for a fee of 50,000 USh/month (~36 USD/mo). Although the institute owns about 10 acres of land situated in Kabatoro at the border with QENP, with dormitories and four classrooms constructed by the British High Commission, they have not utilized the buildings there due to fear of park animals and insurgency from ADF rebels, who terrorized the region between 1996 and 2001. Aside from the new buildings in Kabatoro, the infrastructure is quite dilapidated, and the school faces challenges accessing firewood (obtained from Bushenyi) and teaching materials, such as timber (obtained from DRC, Bwera or Bushenyi) and clay. Timber used in carpentry classes costs on the order of 200,000 USh/month (~120 USD/mo).
The school does not own any vehicle which makes transportation of timber and firewood or to obtain medical treatment difficult and expensive. The Institute has 14 teachers, 8 of them paid by the government and 6 paid by the Board of Governors. Students pay a government determined rate of 37,000 USh/term (~22USD) or 111,000 USh/yr (~65 USD), inclusive of board, to be in the programme. This revenue has been supplemented by a government subsidy of 850 USh (0.50 USD) per day per student. Central government cut all support to the technical institute by 45% in 2006 and the district support has halted completely. The Town Council budget of 1995 included a one-time grant of 500,000 USh (294 USD) but the funds were never received by the institute.

Despite the conditions of the facilities, the Vocational Technical Training Institute provides essential livelihood skills to its students, who then go on to pursue work in existing enterprises (e.g. Hima Cement, Kasese Cobalt Co. Ltd.) or new entrepreneurial ventures in their chosen fields.

The Uganda Wildlife Institute in KKTC, which was set up by the Government in 1989 with funding and support from UNDP and FAO, offers wildlife and environment courses to 30 students per year, most of whom come from outside of the District. The Institute is now both privately and publicly funded and has 11 teachers and only 2 rooms for accommodation and teaching. The Institute identifies insufficient government funding (limiting the number of teachers) and inadequate infrastructure as the biggest barriers to programme expansion and improved services. With a mandate to organize and sensitize communities concerning environmental management and sustainability, the Wildlife Institute is positioned to play a greater role in conservation challenges and those related to negative relationships with Uganda Wildlife Authority (UWA).

7.6.2 Education, Gender and Livelihoods

In 2002, the percentage of KKTC residents who had no formal education average 28% for men and 47% for women, a pronounced difference (UBOS, 2002). The situation is direr for women when looking at a parish level, with 56% of women in Kyarukara...
Parish (where almost 60% of households are mining reliant) having no formal education and a disparity between women and men of 17% (UBOS, 2002).

The 2006 household survey indicated 19.4% of men and 24.5% of women over 19 years of age having no formal education with highest disparities for those in fishing (9.8%) and other activities (11.1%). Partial or completion of primary school shows similar disparity trends for fishing (10.3%) and other activities (12.2%).

Table 22: Education Levels of Women and Men Engaged in Selected Livelihoods (Persons above 19 years of age)

<table>
<thead>
<tr>
<th>Level</th>
<th>MINING*</th>
<th>FISHING*</th>
<th>TRADING</th>
<th>OTHER</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
</tr>
<tr>
<td>No Formal Education</td>
<td>%</td>
<td></td>
<td>%</td>
<td></td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>21.6</td>
<td>24.7</td>
<td>15.8</td>
<td>25.6</td>
<td>18.5</td>
</tr>
<tr>
<td></td>
<td>23.1</td>
<td>23.1</td>
<td>19.8</td>
<td>16.7</td>
<td>11.7</td>
</tr>
<tr>
<td></td>
<td>0.9</td>
<td>0.9</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Primary Level</td>
<td>%</td>
<td></td>
<td>%</td>
<td></td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>51.4</td>
<td>54.6</td>
<td>33.3</td>
<td>43.6</td>
<td>63.0</td>
</tr>
<tr>
<td></td>
<td>52.9</td>
<td>52.9</td>
<td>37.5</td>
<td>63.9</td>
<td>40.0</td>
</tr>
<tr>
<td></td>
<td>0.9</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
</tr>
<tr>
<td>Secondary Level</td>
<td>%</td>
<td></td>
<td>%</td>
<td></td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>20.7</td>
<td>17.5</td>
<td>42.1</td>
<td>28.2</td>
<td>14.8</td>
</tr>
<tr>
<td></td>
<td>19.2</td>
<td>19.2</td>
<td>36.5</td>
<td>16.7</td>
<td>21.7</td>
</tr>
<tr>
<td></td>
<td>1.2</td>
<td>1.2</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Tertiary Level</td>
<td>%</td>
<td></td>
<td>%</td>
<td></td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>6.3</td>
<td>3.1</td>
<td>8.8</td>
<td>2.6</td>
<td>3.7</td>
</tr>
<tr>
<td></td>
<td>4.8</td>
<td>4.8</td>
<td>6.3</td>
<td>6.3</td>
<td>3.7</td>
</tr>
<tr>
<td></td>
<td>2.0</td>
<td>2.0</td>
<td>3.4</td>
<td>3.4</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>1.3</td>
<td>1.3</td>
<td>1.6</td>
<td>1.6</td>
<td>1.6</td>
</tr>
<tr>
<td>N</td>
<td>111</td>
<td>97</td>
<td>57</td>
<td>39</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>222</td>
<td>196</td>
<td>418</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Includes partial or completion of education at an indicated level.

b. Livelihoods groups. Pearson chi-square (9) = 25.33, p<0.01

c. Sex: Pearson chi-square (3) = 7.95, p=0.05

Men engaged in “other” livelihoods are the most educated overall in terms of secondary and tertiary education (25.9% and 22.2%) showing a gender deficit of 16.1% for tertiary school. Even inclusive of those men engaged in “other” activities, only an average of 6.2% of respondents have any tertiary education, with lowest levels of participation in mining and trading.
Livelihood reliance in the household may effect participation of children and youth in schools. Local leaders, teachers and parents alike indicate that even those who pursue education usually stop prior to secondary school to work in the salt or fishing. A teacher in KKTC noted that attendance drops sharply in the dry season, when youth and children move to salt mining. This is somewhat consistent with national figures, which primarily attribute cessation of schooling to financial reasons, including the need to work, and poor health in the family, yet may further indicate a relatively low value placed on education.

Some KKTC residents have stated that “giving skills” (whether it be in fishing or mining) is a way to increase self-sufficiency as kids get older. A degree of cynicism – on the part of youth and adults alike - exists concerning the employment potential provided by schooling, the expectation being that ultimately youth with end up in mining or fishing regardless. This, combined with the attraction of cash from mining and fishing, are likely important reasons for high drop out rates in secondary school.

Table 23: Household Members Aged 6- 12 Years by Reason for not Attending School in Uganda

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Too young</th>
<th>Long distance</th>
<th>High cost</th>
<th>Lack of interest</th>
<th>Disability</th>
<th>Need to work</th>
<th>Other</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>62.5</td>
<td>40.4</td>
<td>32.4</td>
<td>13.8</td>
<td>19.7</td>
<td>6.3</td>
<td>17.2</td>
<td>47.6</td>
</tr>
<tr>
<td>7</td>
<td>19.7</td>
<td>15.2</td>
<td>18.1</td>
<td>25.8</td>
<td>19.8</td>
<td>15.1</td>
<td>28.3</td>
<td>19.8</td>
</tr>
<tr>
<td>8</td>
<td>9.8</td>
<td>20.7</td>
<td>17.6</td>
<td>14.7</td>
<td>19.6</td>
<td>18.3</td>
<td>12.7</td>
<td>12.6</td>
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<tr>
<td>9</td>
<td>3.7</td>
<td>4.7</td>
<td>5.2</td>
<td>10.1</td>
<td>7.9</td>
<td>12.9</td>
<td>26.2</td>
<td>5.8</td>
</tr>
<tr>
<td>10</td>
<td>2.4</td>
<td>10.1</td>
<td>15.0</td>
<td>17.0</td>
<td>18.6</td>
<td>19.3</td>
<td>4.1</td>
<td>7.1</td>
</tr>
<tr>
<td>11</td>
<td>1.2</td>
<td>1.5</td>
<td>3.3</td>
<td>7.1</td>
<td>6.4</td>
<td>5.9</td>
<td>6.3</td>
<td>2.6</td>
</tr>
<tr>
<td>12</td>
<td>0.7</td>
<td>7.4</td>
<td>8.4</td>
<td>11.5</td>
<td>7.9</td>
<td>22.2</td>
<td>5.3</td>
<td>4.5</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>


Low enrolment of girls compared to boys in KKTC has mainly been attributed to early marriages and the poor attitude of parents towards girl education, but many in the community maintain that the temptation to gain employment at the salt lake and the landing site are equally significant drivers. Distance to schools is often cited as a reason that parents are unlikely to send their younger children thus commencement of
schooling is often delayed. However, one primary school is found in each KKTC parish and the population resides in a geographically small area.

**Literacy Rates**

The means by which individuals and families can escape poverty – access to information, participation in decision-making at a community level and development projects, access land titles, for instance – depend to an extent on literacy. With the exception of Rwenjubu Ward, all parishes in the communities of interest are below national and district literacy rates for women and men (Table 24). Gender disparity is highest in the Kyakitale, which houses the largest mining population in KKTC (74.8% of male-headed and 69.1% of female-headed households primarily rely on mining).

<table>
<thead>
<tr>
<th>Location</th>
<th>Males</th>
<th>Females</th>
<th>Average</th>
<th>Gender Disparity</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>75.9</td>
<td>61.1</td>
<td>68.5</td>
<td>14.9</td>
</tr>
<tr>
<td>Kasese District</td>
<td>78.0</td>
<td>62.6</td>
<td>70.3</td>
<td>15.4</td>
</tr>
<tr>
<td>Katwe Kabatoro Town Council</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rwenjubu Ward</td>
<td>83.2</td>
<td>74.2</td>
<td>78.7</td>
<td>9.0</td>
</tr>
<tr>
<td>Kyakitale Ward</td>
<td>72.8</td>
<td>40.1</td>
<td>56.5</td>
<td>32.7</td>
</tr>
<tr>
<td>Kyarukara Ward</td>
<td>62.9</td>
<td>57.1</td>
<td>60.0</td>
<td>5.8</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>72.97</strong></td>
<td><strong>57.13</strong></td>
<td><strong>65.07</strong></td>
<td><strong>15.83</strong></td>
</tr>
</tbody>
</table>

Source: UBOS, 2002

Adult literacy programmes were previously established in KKTC but instructors were not paid and were expected to provide services on a voluntary basis, resulting in halting of the programmes.

**Access to Information**

Information is a critical pathway by which new methods and ideas are shared, knowledge is developed and innovation catalyzed. Radio and word of mouth are the primary sources of information throughout Uganda and KKTC is no exception. With the exception of Rwenjubu, where 71.7% of households obtain information from the radio, reliance in other KKTC parishes ranges from 39.9-47.6%, just below the national average of 47.8% (UBOS, 2002). Word of mouth constitutes the bulk of the remaining
main information sources, with a few percent attributed to other sources (i.e. local leaders, televisions).

Women generally do not have the time to listen to the radio due to the greater daily work hours and reported control of radio use by their spouses (i.e. if the radio is “owned” by the husband, a woman may need permission to use it). Thus, word of mouth plays a bigger role for women. Given comparatively limited time for rest and socialization, women’s access to information is clearly lower than that of men.

7.6.3 The Costs of Education
Most primary schools in KKTC are funded under the government-funded Universal Primary Education (UPE) system, therefore, costs are mainly related to books, uniforms, bags, pens and pencils and, in some cases, transport and food. These costs are substantial for many, where, on average, 26.2% of household surplus income is spent on school fees and costs (Section 7.3.2).

School fees for secondary school are likely another factor in decreased participation with age. In KKTC, levies on salt sold (~7,300 USD/mo) are supposedly directed to the School Education Fund, with 60% supporting the secondary school and 40% divided amongst primary schools. The parents in KKTC have requested that the school fees be lowered; thus, in large part due to the education fund from salt lake revenues, the fees have been reduced by 10,000 USh (~6 USD) per term. Furthermore, a Town Council bursary scheme funded from the same revenue sponsors the two best local students (one boy and one girl) for secondary school fees.

Some households may regard the loss in labour when children attend school as a cost in terms of household income. The poorest-of-the-poor are less likely to meet financial costs of children’s education and are more likely to rely on child labour as a source of income. As discussed in this section, many children prefer to earn an income instead of going to school (although they are, in many cases, nevertheless often registered).
7.7 Human Assets: Personal Security

Personal security, or “freedom from threats or violence”, enables both mental and physical wellbeing and allows for continued engagement in a livelihood in order to meet personal and family needs and objectives. Personal security, along with the other elements comprising the foundation for sustainable livelihoods, ensures that each individual has opportunities and choices to fulfill his or her potential. In addition to unlawful acts, i.e. crimes, punishable by the law, personal security issues also include threats or conflicts that impart fear for personal safety and wellbeing. Key issues expressed by KKTC research participants include: past incursions by rebel groups; livelihood specific conflicts, sexual and gender based violence and other criminal activities.

7.7.1 History of Incursions by Rebel Groups

KKTC was severely impacted by incursions of the Alliance of Democratic Forces (ADF) between 1996 and 2001 (GS, 2006). Made up of Ugandan opposition forces, which were supported by the Government of Sudan, the ADF incited terror and suffering from Kasese District through Bundibugyo and Kabarole Districts. Through ADF incursions, hundreds were men, women and children were killed and thousands of children were abducted to serve as soldiers or porters. Driven from their homes, with the Internally Displaced Persons (IDP) population rose to 70,000 (GS, 2006). Poor planning of this movement to camps resulted in starvation and lack of basic supplies necessary to exist healthfully. Individual rebels reached Kampala, detonating a series of ADF bombs at a number of restaurants in central area of the city.

Activities escalated in 1998 in terms of planting of land mines and brutalization of civilians, both in rural and urban areas. Increased military forces finally produced an apparent end to the conflict - seven years after the rebel incursions began - in early 2003, at which time UN agencies were able to move in and provide some relief (GS, 2006). While severing of limbs and other attacks on civilians were frequent occurrences, the extent of sexual and gender based violence (SGBV) during these incursions is not known.
KKTC was a gateway for ADF into Uganda, providing a route from the mountains, where rebels could easily hide from Ugandan military forces, through the dense brush of QENP savannah and eastward towards Kampala. Having been traumatized by ADF incursions, both women and men in KKTC retain fears of resurgence that continue to affect their decision-making. For example, despite the limited availability of degazetted land, the low population in the Kabatoro region on the outskirts of KKTC have been attributed to these fears. The threat of ADF reorganization and resurgence of activities has been identified as an issue in KKTC Development Plans and expressed by both women and men.

7.7.2 Sexual and Gender Based Violence

Crimes associated with violence against women tend to go unreported in Uganda due to the risk of social stigma, laws that do not provide equal protection to women, lack of enforcement, and culture and traditions concerning the rights of women (HRW, 2003).

“Violence against women is perhaps the most shameful human rights violation. And it is perhaps the most pervasive. It knows no boundaries, or geography, culture, or wealth. As long as it continues, we cannot claim to be making real progress towards equality, development, and peace” - Kofi Annan, 2003.

Due to the sensitivity of the subject and broad-based nature of this study, the issue of domestic violence was not specifically addressed in the baseline assessment. Local officials (including police) and women engaged in development CBOs indicate that the rate of under-reporting is high. Specifically, infractions documented by police fail to represent the actual extent of violence against women in KKTC, but further affirm the factors they identify for contributing to under-reporting. These include fear of stigma from friends and family and generally widespread acceptance (especially of domestic violence), low perceived likelihood that police will respond (i.e. they are easily paid off by the perpetrator) and lack of financial security and fear for wellbeing of children (i.e. in the case of domestic violence if reporting results in separation). Giving some indication of the extent of acceptance, a study on youth reproductive health in Nyamirami Parish in a neighbouring subcounty found it was common that girls
subjected to rape to be forced into marriage with their attackers to avoid social stigma (Lwanga-Ntale, 2003).

During interviews, some women have indicated that rape by QENP rangers sometimes occurs. Firewood collection is prohibited in QENP, unless a formal request is submitted, approved and women are escorted by park guards during collection. This requires a processing fee and a Memorandum of Understanding (MOU) (usually concerning the frequency of collection and amount of wood to collect) with the UWA in Kampala. Women who do not have this permission to collect firewood but cannot afford to purchase wood venture into the park, where they sometimes are met by rangers. Typically, women have their firewood taken and must pay a fine of about USh 4,000 (~2.50 USD). Threated with fines or jail time and in remote areas unaccompanied, some women have indicated that they have been raped. The frequency of the occurrence of these rapes is not known. In KKTC, 73.1% of KKTC households rely on wood as a source of energy for cooking (UBOS, 2002).

7.7.3 Livelihood Specific Crimes and Conflicts

Livelihood related crimes and sources of conflict mainly relate to thefts and land use (described in Section 7.2.6). Women and men working at the salt lake explained how salt is often stolen at night or on Sundays from stockpiles around the lake. Vehicles can be loaded without paying taxes as authorities are not on-site. Given that vehicles can only access the site through a gate which is locked, guarded and managed by the Town Council, collusion is probable. In some cases, people pretend to be the owners of salt stockpiles and sell off other people’s salt to unknowing or indifferent buyers.

Additional conflicts frequently arise between adjacent salt pan owners/operators associated with expansion of salt pans into the neighbours pans, destruction or construction of channels between pans resulting in degradation of salt pan walls, and miners perceived as being “lazy” for not cleaning their pans, resulting in sedimentation, and heightened water levels which pour into neighbouring pans. Women and men say, due to both theft and bad practices of their neighbours, trust between miners is fairly low, making it more difficult to organize.
At fish landing sites, the Beach Management Unit (BMU) largely undertakes the monitoring, supervision and management of the fishing activities, as well as enforcement fishing regulations and imposing punitive measures. Crimes and violations of fishing regulations primarily involve: use of undersized nets; overfishing; and theft of nets. KKTC fishermen reported that when Ugandan nationals are caught they are heavily punished as compared to their counterparts from the Democratic Republic of Congo (DRC) which shares the lake with Uganda. It’s not surprising that the lack of rules and enforcement for DRC nationals is a major source of resentment and frustration for fishermen. DRC fishermen have been accused of encroaching on the Ugandan side of Lake Edward during the night, using undersize nets and cutting or stealing nets from Ugandan fishermen.

In KKTC, under the local Government Act, animal rearing is not permitted within the Town Council boundaries, unless on a zero-grazing basis (i.e. cattle are kept within a confined area and fed). Cattle keepers frequently violate this law, although it is rarely enforced. Although people have traditionally kept animals long before the Town Council was formally established, this sometimes creates conflict with residents due to the small areas available and competition for grasses with salt miners.

### 7.7.4 Other Criminal Activities

Many of the other criminal activities described in KKTC are attributed by residents to “idlers” and youth who engage in smoking marijuana or abuse other drugs and alcohol. Many older KKTC residents believe that crime is related to joblessness and seasonality of salt mining. Drug abuse and crimes including rape, defilement, theft and assault are main documented infractions (KKTC, 2004). This has escalated to the point where the local police force in nearby Kahendero Subcounty was accused of being “weak” and was chased away from the village.

### 7.8 Physical Capital: Infrastructure and Public Services

Physical capital refers to the quality and distribution of infrastructure - such as housing, roads, schools and clinics - which contribute to or inhibit individual and household wellbeing and provide essential resources needed to sustain and improve livelihoods.
For example, the feasibility of a mine is strongly dictated by the links between mined products to markets (e.g. roads, power), the quality of schools may partly determine drop-out rates and the prevalence of child labour and clean water can affect health status and, therefore, productivity. Due to the direct interconnections with other livelihood foundations, the health and education component of physical capital have been integrated into Sections 7.5, and 7.6, respectively, while mining-specific physical capital has been described in Section 7.1.1.

7.8.1 Water
In Uganda, the fishery, as well as wetlands and natural waters, are “common property resources”, held in trust by the Government of Uganda (GOU) (ILM, 2003). In KKTC, water is obtained from Lake Edward, five protected springs, rainwater and water piped from River Nyamugasani, located 1km from the Town center. Sources used by residents vary depending on the intended use of the water. Piped water and protected spring water is usually used for drinking and cooking while water from the lake is often used for washing and other domestic needs.

Spring water quality is perceived to be of better quality than piped water, despite the fact that springs are poorly maintained and more prone to contamination than piped water. Many KKTC residents allege that piped water is not well treated and some suspect that its variable quality may be a source of diarrhreal illnesses.

Followed a declaration by the Ministry of Water, Lands and Environment that designated KKTC as a water authority in 2001, the piped water supply system was privatized with management given to a private water firm. Specific activities include maintenance of the system, billing and collection of fees with the Town Council providing monitoring and oversight. Distribution of piped water from River Nyamugasani is inconsistent and functions intermittently due to corrosion of pipes from the salt and pipe breakages caused by elephants.

Water for pumping to the KKTC treatment plant is accessed from River Nyamugasani through an artificial channel, which is frequently blocked by silt as a result of upstream agricultural activities on the river banks. The pump attendant, who is employed by the
Town Council, is poorly facilitated to respond and this, coupled with frequent mechanical problems, means that pumping is irregular. Although the water is treated using chlorine, aluminum sulphate and sand filtration, its quality can not be ascertained due to lack of analytical equipment to monitor water up to the end users. A few physical tests (e.g. Total Dissolved Solids) are conducted prior to dispatch but chemical and foecal coliform tests can only be carried in Kasese Town, 45 km away.

In KKTC, 16 public water stand posts (boreholes) serve the population of 6,150 people. There are only 34 domestic users of piped water and, in recognition of low water coverage, the KKTC management provides connection materials to prospective water users for a fee of $25 (KKTC, 2005). Although this is prohibitive for the majority of residents, water fees are set by the Ministry of Water, Lands and Environment and collected by the private water firm.

In KKTC, 89% of residents primarily obtain water from shared piped water outlets (standpipes), when they are functioning, with the remainder largely relying on protected springs. Of note, in Kyakitale Parish, where 74.8% and 69.1% of men/boys and women/girls, respectively, are engaged in mining, only 50 and 55% of households rely on standpipes while 85% and 89%, respectively, report periodically having to purchase water. Unprotected springs, rainwater and purchased water comprise the bulk of other sources. Nationally, 20% of households rely on piped water while 49% rely on protected springs and wells (UBOS, 2002).

Privatization of piped water has resulted in costs deemed expensive to residents ($0.50 per 20 L jerrycan). In cases when piped water is not available, women and children have to walk to fetch water from one of 8 unprotected springs (all of which are Kyakitale Parish) or 13 protected springs throughout KKTC. During times of piped water malfunctions, a 20 L jerrycan of water is sold at $0.25-0.35 and generally requires boiling to ensure safety (incurring an additional cost in terms of women’s time or money for firewood).
Livelihood and Water Linkages
At the salt mine, fresh water sources are inadequately distributed with only one stand pipe serving the 7 km circumference lake. This single water source is often vandalized by animals or, in some cases, people that intend to discredit the current political leaders. There also springs located in one end of the lake but the distance is prohibitive to most miners.

In the dry season, when salt production is at its peak and the number of miners highest, fresh water available for washing the salt from skin and cleaning wounds is least available, particularly as those few springs around the lake slow to a trickle. The acute health problems cited by both women and men miners – painful, slow healing wounds, reproductive health problems, damage to eyes and biannual cholera outbreaks from poor hygiene, among others – are largely attributed to the lack of fresh water around the salt lake (Section 7.5.2). In some instances, miners dig pits for rainwater collection or haul water in jerrycans daily to use for bathing and washing after salt mining.

The rainy season also means decreased productivity and incomes in the salt lake. Although the fresh water aids in much-needed periodic cleaning of salt pans, the freshwater influx dilutes brine and reduces evaporation rates. This situation is exacerbated by land shortages resulting in cattle grazing on the hill slopes leading into the lake. Consumption of vegetation by cattle decreases the water retention capacity of soils and evapo-transpiration from plants, increasing erosion and fresh water runoff into the lake.

Cattle-keepers in both communities of interest have described how water shortages have led to deaths of cattle in the dry season and their seasonal vulnerability. Movement of cattle into QENP is restricted and yields heavy fines, yet families often take to risk to meet livestock needs. Pastoralists’ discontent towards UWA and QENP is vocal. In addition to affecting livestock numbers, lack of water further impairs growth, milk production and, therefore, incomes.
Despite the arid climates of KKTC and seemingly conducive water bodies (rivers, lakes) needed for irrigation, use of this technology and corresponding crop diversity and productivity is quite low. Irrigation potential in the Rift Valley is estimated at 24,800 ha (17% of the District), and the main sources of water could include Rivers Sebwe, Mubuku, Nyamughasani, Lake George and Kazinga Channel (KDLG, 2004). Damming of rivers for combined use – irrigation, domestic use, and perhaps rerouting a portion of dammed water for cattle dip stations, would aid a number of livelihoods in the community yet dams are technically infeasible within the bounds of KKTC due to unsuitable topography and distances to potential dams considerable. Those (primarily) women reliant on subsistence farming are especially vulnerable.

As Lake George and Lake Edward are massive water bodies, the fishery is not perceptibly affected by dry seasons or droughts. However, despite research indicating the contrary, drainage from Kilembe Mine tailings contaminating Lake George (which drains into Lake Edward) is locally perceived to be one of the causes of declining fish stocks and, therefore, a threat to fishing livelihoods. Furthermore, in the fish landing sites, lack of clean water and insufficient pit latrines combined with poor sanitation and hygiene practices, have led to high incidences of related illnesses, and consequent declines in productivity (Section 7.5).

The impact of seasonal or technical variations in water access on women's time in commercial activities cannot be overlooked. On average, women in KKTC spend 30 minutes, respectively, collecting two jerry cans (about 40 litres) of water, while several trips are often required daily to meet household needs. Although water shortfalls also represents an opportunity for those most vulnerable to collect and sell water, loss of time spent in productive roles (e.g. salt mining, trading) or an increased daily work burden can have repercussions ranging from ill health and exhaustion to lost earnings.

7.8.2 Roads and Transportation
Decent roads are a necessity for market access and, therefore, economic growth. Presence of roads in a mining area enables easy transportation of mining equipment and products as well as products from other economic activities and provides access to health facilities and social links other communities. A single tarmac road runs
through Kasese to Mbarara, with the graded gravel access road passing through KKTC which continues to connect to the Bwera-DRC border tarmac road. The road is in good condition and is passable in all-weather conditions. Given the easily accessible fish and unique source of salt, lorries passing to and from Bwera Town, the DRC, and en route to other Ugandan centres, bring traders to the community.

KKTC is further served with three seasonal feeder roads (Hambube, Kazoba and the salt lake feeder road) as well as a number of in-town “streets” that are in generally poor condition. Apparently, funds are available for their repair but this has not yet been commissioned due to pending survey and design. Road maintenance and repair, which is the responsibility of the Town Engineer of the Town Council, was allocated funds from the national Poverty Alleviation Fund. The Belgian development agency (BTC) supplemented this by allocating funds for surveying and planning for these streets, supervised by the Lands Officer in the Town Council, also in 2003.

There is a perception, especially among many salt miners, that the Town Council has neglected repair and maintenance of the salt lake feeder and the 7 km road around the lake, despite collecting fees from salt production. The Town Council officials nevertheless maintain that they have continued to plough money back to improve infrastructure at the salt lake.

Table 25: Road Networks within KKTC

<table>
<thead>
<tr>
<th>Name of road</th>
<th>Length (km)</th>
<th>Nature</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hambube</td>
<td>2.3</td>
<td>Feeder</td>
<td>Seasonal</td>
</tr>
<tr>
<td>Kazoba</td>
<td>0.8</td>
<td>Feeder</td>
<td>Seasonal</td>
</tr>
<tr>
<td>Nyabongo</td>
<td>6</td>
<td>Truck</td>
<td>Seasonal</td>
</tr>
<tr>
<td>*Salt lake</td>
<td>8</td>
<td>Feeder</td>
<td>Seasonal</td>
</tr>
</tbody>
</table>

*R Roads used for transport of mineral products or materials used by miners.

*The salt lake road links Lake Katwe to the main Katwe Town and is used by miners and salt buyers. There is an additional 7km road that goes around the lake.

One of the challenges identified in terms of road upgrades pertains to the lack of qualified staff who possess technical knowledge of public works for planning or costing of roads, bridges and houses. Furthermore, national statistics indicate that about three quarters of districts have minimal or no road maintenance equipment and about 70%
of sub-counties have access to this equipment. Of the sub-counties which can not access the equipment, more than a half (55%) indicate lack of money for fuel as the major reason for not maintaining roads with other reasons being that the equipment is busy in other areas (18.9%) and relations with the district are poor resulting in lack of disbursements (8.1%) (UBOS-NSDS, 2004).

The means of transportation available is equally significant as the quality of the road network. Even with decent road coverage in KKTC, poor road conditions (resulting in only seasonal use) and the distance from the main Kasese-Mbarara highway have resulted in limited services (taxi buses or boda-boda motorcycles), in terms of public transportation. This is further exacerbated by the problems associated with road transport at night (with interference from elephants and other wild animals). Consequently, the cost of transport is high. For example, public transport from KKTC to Kasese Town costs on the order of 7,000 USh (return trip). Lack and cost of public transport has resulted in absences of government officials and teachers from duties (many of whom stay in Kasese Town), inability of those injured or infirmed to travel to hospitals, and reduced access to markets and information, to name a few.

At the village and sub-county level, transport by foot or bicycle are the most common means. Both are used to transport the infirmed to local health centres, transport goods, participate in adding value to products (e.g. taking grain to a mill) and they provide a mobility that yields sharing of information, knowledge and social bonding. Due to the relative speed and ease of a bicycle, those using these means are better equipped to hold local influence, participate in local decision making. Although women frequently hire and use bicycles, generally men predominantly use bicycles.

Very few households in the communities of interest own motorcars, the exception being Rwenjubu Parish in KKTC, where 3.4% of households own vehicles.
Table 26: Bicycle and Vehicle Ownership in KKTC (% households)

<table>
<thead>
<tr>
<th>Location</th>
<th>Bicycle Ownership</th>
<th>Motorcar Ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>33.3%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Kasese District</td>
<td>20.5%</td>
<td>1.5%</td>
</tr>
<tr>
<td>KKTC</td>
<td>17-21.8%</td>
<td>0.5-3.4%</td>
</tr>
</tbody>
</table>

Source: UBOS, 2006

Overall national statistics report that about 46% of households are nearest to community roads, while only 10 percent of the households are nearest to trunk roads. In rural areas, the proportion primarily reliant on community roads is 55% (compared to 32% in urban areas) (UBOS-NSDS, 2004). The overall mean country distance to the nearest road is about 1 km with rural urban distribution of 1.13 and 0.5 km respectively. The mean distance to a community road is 1 km, while that to a feeder road is less than 1 km. This implies that there is a decent network of feeder roads in the country (UBOS-NSDS, 2004).

7.8.3 Communication and Information

The presence of adequate means of communication and sources of information are vital in designing and implementing community intervention strategies as these are the channels through which information is relayed. In KKTC, there are cellular telephone services that those who can afford mobile phones rely on. The services are operated by two of the Country’s three mobile telephone operators: MTN, UTL and Celtel. Reception, however, is not available or poor in some areas of the Town Council. There also a number of public telephones that offer per minute pay telephone services at a rate of 300 -500 USh (0.18 – 0.30 USD) per minute. In the past, the Town Council had postal services offering letter and parcel mailing services but services are now largely inactive.

Radio communication is the main source of information to households headed by men in KKTC (88.2%) with a gender disparity of 24.1% (p<0.01). Word of mouth is still a particularly important source for 29.7% of women headed households, much greater then those of men at 8.2%. Print media, television and other sources play marginal roles (1.1%, 1.7% and 1.7%, respectively, p<0.01). Differences between livelihood
groups were not significant \((p=0.07)\). Within the sample population, 94.3% of fishing households rely on radio more than other groups while households reliant on “other” activities report depending on television (6.5%), print media (6.5%) and word of mouth (25.8). This provides some indication of how informed these households are in terms of local and national politics and other news, and even policies or programmes that can impact and benefit residents. Furthermore, this affirms that multi-pronged approaches are needed in terms of sensitization campaigns, particularly the poorest of the poor.

Notably, other than those engaged in “other” sources of livelihood (wage employment, property revenues), none of the women-headed households surveyed own mobile phones, thereby constricting further communication outside of the community.

### 7.8.4 Waste Management and Sanitation

In KKTC, garbage disposal options are limited and, despite efforts to set up refuse bins, these are often misused and vandalized. Without adequate refuse management facilities, disposal in rural and urban areas is most commonly in pits, gardens or the bush. This coupled with poor drainage and sanitation systems increases the risk of diseases like cholera and dysentery. Nationally, over 43% of rural households dispose of garbage in gardens, while 38% of urban residents dispose in pits. Other methods of garbage disposal are bush and skips (UBOS-NSDS, 2004).

As shown in Table 18, pit latrine coverage is high for most households surveyed, although about 47.3% are shared. Nationally, 69% of households do not have hand washing facilities for post-toilet use (UBOS-NSDS, 2004) and they are almost all together absent in KKTC.

The sanitation situation is particularly worrying around the salt lake and at the fish landing site. Around Lake Katwe, with a population that fluctuates up to 14,000 in the dry season, only one latrine with four stances is located on the southern part of the 7 km lake. This is a long walk for a shared latrine and the majority of miners generally use the bush for toilets.
A number of periphery activities at the salt lake has also been a source of litter especially *buveera* (plastic bags) and polythene materials used to serve drinks. As they can easily capture clean rainwater, plastic bags have been identified by Ministry of Health Officials as a vector for malaria carrying *anopheles* mosquitoes.

### 7.8.5 Other Infrastructure and Public Works

There are a number of other public facilities in KKTC including Kasese District Local Government housing estates, Uganda Development Company housing estates, a non-functional salt plant (installed in 1975 but failed due to corrosion of the poorly designed heat exchanger tubes), churches, mosques, a multipurpose community hall, a fuel filling station and a police post. The Town Council has one administrative block with eight office rooms. There is however limited office equipment and furniture. There are two computers, and non-functional type writers and a photocopier. The Town Council attributed frequent breakdown of machines and equipment to pollution from the lake (KKTC, 2004). The Town Council lacks a central market facility and most of the commodities are sold in small shops, sometimes also serving as residential houses.

### 7.8.6 Housing Conditions

The quality of housing facilities can reflect socio-economic status and can create conditions that may increase or decrease susceptibility to certain illnesses. Although a few minor variations in housing construction exist, observations affirm that the majority of houses in KKTC, as provided from the household survey, consist of an iron sheet roof (92%), mud and pole walls (57%) and a rammed earth floor (64.9%). Associations between construction and gender and livelihoods are not statistically significant. Alternatives for roofing include include thatch and asbestos while walls are alternatively comprised of cement blocks, brick or stone and floors may be concrete and, very rarely, stone. Nationally, 63% and 35% of households have iron sheets and thatched roofs, respectively. Walls are typically brick (51%) or mud-and-pole (46%), while floors are rammed earth (73%) or cement (24%) (UBOS, 2003).

Many houses in KKTC that are near main streets serve as both residential and commercial (especially hotel and general merchandise) facilities. Furthermore, most iron sheet roofs are in visibly poor condition and corroded. Because of the risk of
corrosion of iron sheets kept in stock, most of the construction materials used in KKTC are obtained from neighbouring areas as they are needed.

In Uganda, 78% of dwellings are owner-occupied and 18% are rented (UBOS, 2003). The relationships between home ownership, which does not imply land ownership, and gender of household head were not statistically significant, with 60.7% and 61.3% of men and women owning. During the peak salt mining season, there is an influx of migrant labour who rent houses but return to their original homes when the activities reduce. This may be the case with traders also given the significant proportion (60.9%) who rent, in comparison to miners (30.6%), fishing reliant households (34.3%) and other occupations (46.7%) (p=0.06).
8 ENGENDERING PATHWAYS OUT OF POVERTY

This research is grounded in the following principles:

- The natural, financial, social, human and physical assets available to women and men are the primary means through which they cope with vulnerabilities and develop viable livelihood strategies and pathways out of poverty.

- The capacity of an individual to access, control and own these assets is influenced in large part by the social, economic and environmental factors that determine personal health and wellbeing.

- Health and wellbeing is the result of the complex interplay of interconnected factors related to socio-economic status, working and living conditions, social participation, health services, culture and biology, among others.

On this platform, this Chapter seeks to identify engendered pathways out of poverty by exploring the overarching question guiding the study: “How do main social determinants of health and wellbeing of women and men salt miners influence the assets or poverty reducing measures to which they have access and control?”

This Chapter reframes the data put forward in Chapter 7 around the core issues underlying the central research question and within the Theoretical Model for Research (Section 3.4). By placing findings in the context of current knowledge and scholarship, this Chapter gives meaning to differential and same opportunities and constraints that can be generalized to other settings or populations.

8.1 The Main Questions

In order to deconstruct the central research question, the following are explored:

1. What are the main factors affecting vulnerability of women and men in KKTC and how do national and local policies and processes ameliorate or exacerbate these vulnerabilities?

2. How do households and individual women and men reliant on ASM compare to households dependent on other livelihoods in terms of health and wellbeing?
3. What are the main assets or poverty reducing measures which women and men in KKTC have access and control of and what role does ASM play?

4. How can policy and intervention support transformation of gender relations in order to advance gender equity and poverty reduction in KKTC?

Informed by the data derived from the five asset (capital) categories, buttressed by critical qualitative findings obtained during the final research phase and in accordance with the Theoretical Model for Research (Section 3.4), these questions are examined within an analysis of the vulnerability context, transforming structures and processes and critical livelihood strategies that ultimately determine livelihood outcomes.

8.2 Gender, ASM and Vulnerability

Vulnerability is essentially a measure of risk of increased poverty as a result of shocks, trends and seasonal changes (DFID, 2001). It is directly linked to status in terms of each of the asset categories, capacity and willingness to make livelihood choices and further depends on transforming structures and processes in place. The latter is comprised of all facets of society including government, the private sector and civil society with processes that can transform (for better or worse) the way in which individuals, communities and countries are positively and/or negatively impacted through conditions ranging from socio-cultural values and traditions to laws and regulations to formal and informal rules of access and control of assets (DFID, 2001).

Resilience is the inverse of vulnerability in that it reflects capacity to mitigate risk of increased vulnerability in response to shocks, seasonality and trends and depends on the same factors that comprise assets and ways in which the transformative structures and processes support (or hinder) this capacity (DFID, 2001).

As a simple example, some of the poorest women encountered in KKTC make meagre incomes collecting and selling firewood scavenged from QENP. Multiple factors can increase or decrease the vulnerability of these women to exploitation, sexual harassment and even rape by some of the men employed as park rangers. Factors include but are not limited to: awareness of policies and capacity to fulfill procedures to
obtain a legal permit, which partly depends on education level and literacy (human capital), and links with formal and informal networks, such as organizations; friends and family that could provide assistance in the process (social capital). Additional factors include the effectiveness of institutions that put policies in place and then failed to reach out to the women they were supposed to assist and the institutional capacity and political will needed to prosecute such acts by park rangers (transforming structures and processes). Even if these necessary assets were available, the capacity of a woman to exercise autonomy, or free choice, to go through bureaucratic permitting procedures is a consequence of socio-cultural norms (transformative structures and processes). Finally, the park ranger himself possesses (or lacks) his own assets and may be guided by his own vulnerabilities and different structures and processes that determines his livelihood strategies and its outcomes.

This is only one scenario yet it reflects how different individuals can experience different vulnerabilities in different ways. A more general depiction is put forth in the Katwe-Kabatoro Town Council Three Year Development Plan (KKTC, 2004):

“90% of the population is below the poverty line. They still live in houses for hire, they eat one meal per day and are not able to pay school fees for the children. The main sources of livelihood include salt winning, fishing and livestock, however these resources are seasonal. The employment status is very low and only very few people are employed as civil servants… Most of the shops are retail and scarcely stocked.”

- KKPD, 2004

A brief visit to KKTC will attest to the systemic poverty conveyed in local government reports. It brings to light, however, the question of relative vulnerability and what insights can be drawn in terms of different needs (and opportunities) of women and men, and individuals reliant on different livelihoods.

Assessing interconnections between key factors that may increase or decrease vulnerability is therefore a precursor to viable measures to promote the asset accumulation and supportive structures and processes that enable livelihood
strategies that lead to positive outcomes. The starting point is the major components that frame the vulnerability context in KKTC: shocks, trends and seasonality.

*Shocks* are unexpected events, such as war, earthquakes, injuries, serious illness or rapid rises in fuel prices (DFID, 2001). Many people have coping strategies in place to deal with these things as they unpredictably arise. For example, burial societies, have been formed in other Ugandan communities in order to provide a form of insurance in the event of an untimely death. At many diamond sites in Liberia, hired labourers (“diggers”) often retain a portion of their meagre wage (~$25 USD/mo) to lend to fellow diggers in case of crises or hardship, the justification being that they would reciprocate if situations were reversed (Hinton, 2010).

*Trends* or stresses are chronic risks that can generally be expected and ideally managed through planning (DFID, 2001). Examples include declines in mineral production as reserves are depleted, climate change (e.g. rainfall patterns), economic, political or cultural exclusion (e.g. from growing dominance of a specific political party) or shifts in racial prejudice. *Seasonality* refers to patterns that repeat cyclically and are usually somewhat foreseeable (DFID, 2001). Examples in KKTC include salt production (and prices), access to water for cattle and wildlife incursions.

### 8.2.1 Relative Vulnerability and Wellbeing

An individual's or group's vulnerability is determined by a combination of factors that put someone at risk from shocks, trends or seasonality or their capacity to prevent and manage such events (Blaikie et al, 1994). Assets help individuals cope with shocks, trends and seasonality (e.g. by selling land or using skills and social networks to seasonally transition into a different livelihood) and also provide important indications.

Many vulnerabilities are statistically similar across livelihoods and genders, while significant differences between women and men were observed for the following indicators:

- *Economic* indicators: cash savings below $6 USD and value of non-cash assets (e.g. housing or land value relative to overall mean)
- **Health** indicators: number of annual workdays lost due to illness, one or more cases of malaria and nutrition (children under 4 yrs taking breakfast).

- **Education** indicators: % without any formal education and (for comparisons between women and men only) illiteracy rate.

- **Social** indicators: access to information by radio (ownership of radios), % not engaged in community based organizations (CBOs), and % having no source of financial support in times of hardship.

- **Physical** indicators: % renting rather than owning their home, distance to fetch clean water and access to private (rather than shared) pit latrines.

The above indicators, as they were found to yield statistically significant differences between groups, were used in order to assess relative vulnerability of different genders and livelihood groups (Fig. 17 and 18).

With the exception of distance to fetch clean water (in metres), all indicators were in the form of percentages of households or individuals in each of the livelihood-gender groups; thus it was only this variable that was normalized on a 100 point scale (relative to the maximum distance set at 100%). This research did not entail prioritizing vulnerability factors by the researcher or research participants, thus equal weight was given to each indicator and the average of indicators within each group (i.e. economic, health, education, social and physical) was used to determine an average percentage value for each indicator group\(^{24}\).

Given that all indicators were on a percentage scale, they were not normalized or rescaled to any benchmark, but rather the relative vulnerability was simply plotted relative to the maximum value (of 80% which was the maximum). This maintained the “explanatory power” of the results without any skewing of data while enabling even relatively minor differences (+/- 10%) and similarities to be visually represented. All findings used in the analysis are summarized in Appendix Two.

\(^{24}\)As described in Section 8.4: Emerging Themes of Research and Action, the author contends that value would be added to subsequent research by incorporating methods to prioritize such indicators (e.g. by developing scales of relative importance) by research participants.
Figure 17: Relative Vulnerability by Livelihood and Gender
(composite of statistically significant vulnerability factors; % of gender-livelihood group; max. value 80%)
Gender gaps in these dimensions suggest that, overall, women in KKTC are more vulnerable than men in every dimension, while it the gap appears to be much narrower for social vulnerability (Fig. 17). However, vulnerability was derived from a limited number of equally weighted, statistically significant results. For example, social vulnerability is a composite of: percentage of women and men who are not involved in a community based organization or group; percentage of male and female headed households who do not have access to a radio, and percentage of male/female household heads who have no source of financial support (e.g. friends, family) in times of hardship. Although these findings are insightful, the relative significance of different factors is important. For instance, although 1.6 times more women then men are engaged in CBOs, women are 7.6 times more likely than men to have no source of external support in times of hardship, a factor that likely provides more useful insight into vulnerability. Furthermore, when qualitative findings are considered, the “social vulnerability gap” actually seems to emerge as one of the most profound factors affecting gender inequalities in KKTC (discussed in Sections 8.2.3 and 8.2.4). Among other insights, this finding affirms the usefulness of combined quantitative-qualitative methods in characterizing the gender dimension of ASM.

When the four livelihood groups are examined independently, distinct differences emerge. Certainly, women are generally more vulnerable than men, particularly with respect to economic indicators. However, gender gaps are notably narrower for miners, while women engaged in fishing (many of whom surveyed are boat owners and fish traders) appear to be better positioned than their male counterparts in terms of social and physical assets. Gaps between women and men are narrowest for traders, where economic vulnerability is lowest of the livelihood groups yet likelihood of having no formal education is the highest. This contradiction between education and financial outcomes and the narrow gap between women and men - as explored in Section 8.2.6 - seems to provide some of the most significant insight into pathways out of poverty for both women and men in KKTC.

The gender gap is most profound for women in “other” occupations. Although a small proportion of this group consists of local government officials, the majority are women who struggle under difficult climactic and soil conditions to eke out a living through
subsistence farming. Conversely, men in cattle keeping (although they also comprise a small population subset) are one of the most financially and politically well positioned groups in KKTC, as attested by qualitative findings (discussed in Section 8.2.2).

Figure 18: Relative Vulnerability – Comparisons between Women and Men (composite of statistically significant vulnerability factors; % of gender-livelihood group; max. value 80%)
Comparisons between women in different livelihood groups and men in different livelihoods lend useful insight in terms of (i) differential vulnerabilities and poverty reducing assets of individuals reliant on different livelihoods groups (ii) the depth to which specific gender inequities cross-cut livelihoods (Fig. 18).

As shown in Figure 18, men’s vulnerability does not appear to be as profoundly affected by their livelihood as for women. Although men in trading seem to be more vulnerable than other men in terms of physical and educational vulnerability, differences between livelihood groups are far less distinct than for women in KKTC. Of note, women in ASM are generally less vulnerable in terms of physical assets, such as likelihood of home ownership, and economically fare better than those in fishing and “other” jobs (mostly farmers). Women in trading generally fare best in terms of economic and health indicators, an interesting contradiction to their greater likelihood of having no formal education.

Qualitative findings fail to fully depict the extent of vulnerabilities nor do they explain the differences and similarities observed. Vulnerability along gender and livelihoods lines must be more thoroughly examined through a broader lens. Capacity to cope with vulnerability using the main assets or poverty reducing measures to which women and men in KKTC have access and control – and the circumstances that worsen or improve vulnerability status - expands the discussion. Issues of access, control and autonomy emerge as prominent factors.

8.2.2 Land: Disparities in Autonomy and its Implications on Wellbeing

Formal rules of access, control, ownership and management of natural resources are embedded in the Uganda Constitution and various legislation including the Land Act, Wildlife Act, Mining Act, Water Statute, Forestry Act, Fish Act and National Environment Act, among others. Overlap is often considerable (particularly in the case of mining) and procedures daunting.

Both women and men in KKTC contend that the formal rules of access and control largely favour the few well-off individuals, who possess informal bonds and social
connections to those in power as well as the resources (e.g. financial, social status, education) that enable them to use both formal and informal channels. For instance, one local opinion leader stated outright that laws are implemented selectively, depending on “the influence, either politics or money” of the individuals involved resulting in most of the land in the hands of the powerful few, both men and women.

One of the most significant natural assets in terms of capacity to cope with hardships and trade-up capital is land. Also called “communal land”, family lineage and inheritance figures prominently in determining control and ownership of customary land and benefits derived from its use. As customary tenure is determined on the basis of cultural traditions, those customs which dictate transfer of ownership through male lineage (i.e. father to son) have resulted in exclusion, and so marginalization, of women in terms of land ownership. In KKTC, land tenure is primarily customary (31.8% of households headed by men compared to 11.1% for women) or leasehold (13.6% of households headed by men compared to 22.2% for women).

Lack of title provides somewhat tenuous ground by which land rights are protected and can result in exploitation and conflict, particularly of those most vulnerable. In cases where a woman loses a husband with whom they have worked so tirelessly to attain wealth, the property left almost invariably passes on to her in-law’s family or oldest son. Recently, women in KKTC have begun to inherit land, but this is more of an exception than the norm and is more typical when a woman is widowed or in families with only daughters. In the event that a parent dies in the absence of a will, transfer is ownership is typically dictated by clan leaders and elders. This is in harsh contradiction to “Family Land” provisions under the Land Act (1998), which refers to land occupied by individuals and their spouses or land used to sustain the basic necessities of the family. Legally, written permission is now required from the spouse to sell, lease, mortgage, transfer or will Family Land and, in the event of death without a will, land is generally transferred to the living spouse.

Given that more than 35% of women heading households “don’t know” the nature of their land tenure (compared to only 4% of men), women seem far more vulnerable to abuse and exploitation, which coupled with disparity in education, incomes and
political power, provides little option for recourse in the event legal ownership is in question. Although conducive land laws may exist, local authorities admit that, in some cases, they don’t even know the laws while local residents have expressed concerns that land laws may be known but are implemented selectively and out of self-interest.

Even when women and/or men own land, women typically have less control of the land and its benefits. Although they may have some freedom of access to work the land (e.g. for subsistence farming, poultry keeping) and may engage in discussions of use of land and its benefits, final decision making is frequently retained by men. As one male miner stated “the land, it is for them the women (to work). But you can control it, you can come around.” and “man must have the upper hand to everything but women can have access, because you can’t be there 100%”. Similarly, in Mukibiri gold mines in Kenya, it was found that “everything is the man’s including her, yet she is the manager for she is married top manage his property but she has no direct control” (Mwanzi, 1997: 182).

Some men explained this as a rational arrangement due to the socio-cultural expectations of men to provide for the women in their lives, suggesting that women have greater safety net (e.g. to find another man) if circumstances result in them leaving the marriage. “Man should own that crop because women will find another way around”. Customary laws and practices that historically regarded women as minors without legal status or rights likely still persists in present day Uganda as reflected by one man’s remark: “women should be taught to be stable in where they go to marry.”

Since those who have access to and, in particular, control of land are likely to derive the most benefit from it, issues concerning land rights and ownership are crucial to women’s lives and it may be one of most important factors in determining socio-economic status, gender relations and their outcomes (Mushunje, 2001). Given women’s constrained autonomy in control of land and its benefits, are women whose livelihoods directly rely on land more vulnerable than those who do not? Indeed, the profound vulnerability of women farmers suggested in Figures 17 and 18 is further supported by the following:
Women farmers do not undertake any other economic activities seasonally or as a supplement to subsistence farming (with the exception of some fuel wood collectors). By comparison, 41.7% of men and 52.4% of women salt miners transition into other livelihoods in the rainy season (p<0.01).

71.4% of women farmers have accumulated cash savings of less than 6 USD. This is substantially higher than women in mining, trading and fishing (58.6%, 44.4% and 20.0%, respectively) and well above the average of men (54.3%) (p=0.04). All monthly expenditures of women farmers go to health costs, food and household needs and school fees, while no surplus is available for farming implements (let alone those tools needed to diversify to other livelihoods)

Women farmers are 5.9 and 2.4 times more likely to borrow from traders than mining and fishing households, respectively, rather than friends and family (p=0.05). Given traders prohibitive interest rates (sometimes as high as 20-25% per month), this suggests a limited informal social safety net.

Only 9.1% of older children (12-17 years) in women headed farming households have education beyond primary school. Although the situation is dire for all livelihoods (the average being 20.6%), it is nevertheless consistent with a lower capacity to pay school fees and need for children to begin working to supplement household shortfalls (p<0.01).

Women farmers live on the most distal edges of town, farthest from services and security. In fact, they reside 1.6 and 2.5 times farther away from clean water sources than other households headed by women and men, respectively, and are most likely to supplement incomes by scavenging and selling fuel wood from QENP (p=0.03). These factors have significant implications in terms of the time burden in women’s work and health risks from sexual violence and exploitation (associated with fuelwood collection) and likelihood to use unclean lake water.

Given land constraints in KKTC, which are largely attributed to a lack of de-gazetted land, poor soil conditions and risks of wildlife incursions with food crop planting, it is not surprising that only 15.9% of men and 17.5% of women in KKTC primarily rely on “other” livelihoods, mainly as cattlekeepers and farmers, respectively.
KKTC may be somewhat unique in that mineral rights may be a more important capital “asset base” than land. Whether the same parallels concerning cross-cutting gender inequalities in land access, control and ownership – and implications in terms of vulnerability - can be drawn to mineral rights is now examined.

8.2.3 Minerals: Socio-cultural Constraints on the Division of Labour

Ownership of minerals is vested in the State and, as described in Section 5.2, requirements for artisanal miners to obtain a location license giving them the right to mine are difficult for most to fulfill. Inadequate knowledge of legislation, financial costs, confusion associated with the multiple regulatory agencies, mistrust of government officials, literacy and language issues and lack of incentives figure prominently while lack of autonomy and greater educational, language and financial barriers can present even greater challenges for those most vulnerable.

In KKTC, formal rules of access outlined in the Mining Act (2003) strongly contradict traditional practices concerning mineral rights, particularly given that transfer of mineral rights (salt pans) has historically been based on lineage and inheritance. A shift in this tradition is, however, underway. Although pan inheritance continues, in the early 1980’s, when more than 80% of salt pans were owned by “indigenous” residents of Lake Katwe, an upsurge in purchasing or constructing pans took place (Syakuha-Muhindo, 1996). By 1988, 52% of pans were owned by “non-indigenous” residents of Lake Katwe. Many buy or construct salt pans with the intent of passing them on to their children, a significant form of asset transfer given land constraints in KKTC. Although salt pans may be inherited by either daughters or sons, preference (or capacity to purchase pans) is obvious given that only ~3% are pans are owned by women.

It is far from uncommon for mineral rights to be overwhelmingly held by men, even when women constitute a large proportion of the ASM workforce. For example, in Zimbabwe, only ~1200 of 20,000 legal mining claims have been registered by women although 45% of the ASM workforce is female (Mugedeza, 1996; Dreschler, 2001). This disparity is just as evident when ASM is largely informal and lines between land and mineral ownership are blurred, i.e. where artisanal miners recognize traditional
rather than legal state ownership of minerals. In Kenya, Amutabi and Lutta-Mukhebi (2001) concluded that female artisanal miners have access to land, but do not control land, and therefore, mining activities. Similar to Uganda, in Zimbabwe, Burkina Faso and Cameroon, women have equal rights to own land, but it is almost solely controlled by men (Sass, 2002). Whether licenses are held or not, for many mineral commodities, those who control the pit (in this case, the salt pans) typically control the mine (Hinton, 2003).

Dominance of salt pan ownership by men in KKTC may be an important factor limiting women’s engagement in more lucrative roles in salt production. Although women are free to purchase salt pans, and indeed the limited number of well-off female traders in KKTC own salt pans, they represent a distinct minority. Gender-based divisions of labour are clear. Most salt harvesters and pan cleaners are women and even those few women who own pans typically work as labourers when their pans are not in production. Although a small number of men engage in salt harvesting on a casual basis, relatively higher paying activities such as constructing and repairing salt pans, transporting salt from pans and loading salt onto trucks are almost solely dominated by men.

Financial implications of the gender division of labour are significant. Women are typically contracted to clean and harvest pans for $2.50-7.50 USD per month, requiring them to undertake multiple “pan contracts” concurrently in order to subsist. In comparison, those registered in groups for packing, loading and hauling salt (the genderaho), can earn just under $1 USD for a single bag of salt packed, hauled and loaded onto trucks, while those involved in rock salt extraction from the lake bottom can readily earn in excess of $100 per month.

Many miners also expressed difficulty in getting fair prices for salt. This may reflect a lack of bargaining power and disparate rates of literacy, education and skills together with disorganization and competition between producers. These circumstances can make vulnerable persons, especially women, youth and the elderly, at much higher risk of exploitation, unfair pricing and “shock” or “desperation” selling.
Although both women and men play crucial roles, often in cooperation and interdependent on each other, those roles typically “designated as female are almost invariably less valued than those designated as male” (Reeves and Haben, 2007:8). “Value” may pertain to multiple disregarded contributions related to mineral production, family wellbeing and social status, among others; however, differential earnings alone paint an insightful picture. For instance, a survey of mining productivity in Manica, Mozambique, found that women produce roughly half as much gold as men (10-15 g per miner per month), mainly due to lack of tools and knowledge about processing methods (Dreschler, 2001). It is likely that time constraints associated with domestic roles and access to “high-grade” ore won by men working underground may also figure prominently. In a formal mine camp in Tarkwa, Ghana, women who transport gold ore and water and pound rocks yield salaries 60% lower than men involved in digging (Akabzaa and Darimani, 2001). Given acute differences in incomes between exclusively male pit-workers in Suriname who are paid based on gold recovery (~US$ 360/mo) and women working as travelling merchants (~US$ 90/mo), women commonly supplement their earnings by providing additional services (domestic and sexual) (Heemskerk, 2000). In Siguiri, Guinea, women and men work side-by-side, washing gold from the lateritic soil. For every five calabashes (a large carrying container) of ore that the women wash, male intermediaries receive the profits from four and the woman retains only one (USAID, 2000). In central Ugandan stone quarries, a woman can buy a large boulder for $3 USD that takes a male rock breaker 3-4 hours to win, then after three days of manual crushing, will sell the stone aggregate for $7 USD (Hinton, 2009). Particularly when ASM is undertaken in the context of a family unit (which is frequently the case for many salt pans at KKTC) women’s work is quite often unpaid and conducted to enhance the earnings of their husbands (Amutabi and Lutta-Mukhebi, 2001; Labonne, 1998).

Understanding why gender divisions of labour persist is an important factor in countering gender inequalities in access to lucrative jobs. Three main issues have emerged: (i) perceptions of risk in different roles; (ii) perceptions of weaker physical strength of women; and (iii) women’s dual role of commercial and domestic responsibilities.
The horrifically disturbing corrosive effects on reproductive organs, which have been widely reported by both women and men salt miners, have been used as a justification for exclusion of women from certain higher paying roles (Section 7.5.2). Although health risks experienced by the 130 men who hold permits to pry rock salt from the lake bottom may be more pronounced (they are immersed up to their chests for several hours daily), both women and men experience prolonged immersion in salt water. Some biological vulnerabilities may be sex specific (e.g. to reproductive organs), however, a far greater number of women are immersed in salt water for prolonged periods compared to men and the health impacts to both women and men are a common subject of discussion.

The “risk” argument for restricting women’s roles in ASM is not exclusive to KKTC. In the Cocoase Camp at Tarkwa in Ghana, risks associated with underground mining are given as justification for women’s role carrying gold ore and water and pounding rocks rather than digging (Akabzaa and Darimani, 2001). Similar arguments explain why ~90% of mineral processing activities are conducted by women in Burkina Faso, where 45,000 - 85,000 women constitute ~45% of the ASM workforce (Gueye, 2001). In the tanzanite mines of Merelani, Tanzania where one accident alone led to the death of 200 miners, women are informally prohibited from high-paying underground work – despite their expressed desire of many to do so - relegating them to scrape through tailings in search of low quality gems (Wagner, 2010).

The oft cited statement that women are “too weak” also excludes women from profitable jobs in hauling, loading and rock salt winning. Despite the fact that women are engaged in carrying heavy loads across Uganda in both agriculture and mining, persistent opinions that “heavy objects are sometimes better lifted by men” are voiced even by some women miners engaged in strenuous labour.

Despite justifications related to risk and physical strength in KKTC, Labonne (1996) observed women digging in pits and hauling heavy loads in artisanal gold mining sites throughout West Africa. Mutemeri (2009) posits that women’s full engagement in mining roles is likely determined by the abject poverty around some Rwandan mine sites compared to other “wealthier” areas where men dominate ASM, i.e. the socio-
cultural perceptions of risk and weakness are foregone when necessity requires it. In tin mining areas of Southwestern Uganda, women work side-by-side with men breaking rock in 30-100 metres deep underground mines (Hinton, 2005), while even in KKTC, despite their implied weakness, women miners were observed to generally begin mine work earlier in the morning and leave the site much later than the majority of men attesting to their physical stamina.

The “double bind” of commercial and domestic responsibilities placed upon women further contributes to the gender division of labour. Many women at the salt lake work with babies strapped to their backs or infants and young children idling at the edges of the salt pan, limiting their ability to take on jobs requiring greater mobility around the 7km perimeter of the salt lake. Those women most vulnerable – lacking the social or financial safety net to obtain assistance with childcare – seem to be least likely to enter into the realm of higher paying jobs at the salt lake. In these cases, the most likely livelihood strategy is to transfer working hour care of young children to an older sibling, most commonly girls, thereby denying them opportunities to attend school and increasing their own vulnerability.

Gender disparities in miners’ domestic work burdens are substantial. In addition to 7-8 hour work days at the mine site, women miners spend, on average, spend 8 hours daily in reproductive roles, such as childcare, food preparation, washing clothes, tending to the elderly and sick and water and fuel wood collection. Men also work 7-8 hours daily but spend only about 3 hours on domestic chores with an additional 4-7 hours attributed to social activities, include “talking politics”, drinking and visiting after work with friends.

Some male miners attribute the severe time deficit of women to poor skills in time management, as one man stated “women need to learn how to program their day”. Indeed, given men’s domestic role of managing household affairs (receiving updates from their wives and making related decisions), many men expressed that women simply didn’t have the ability to plan. Lack of recognition of women's skills in organizing multiple tasks and obligations, both commercial and domestic, seemed to perpetuate the tendency to devalue women’s work. Men sometimes attribute the 4-7 hours of daily
“rest time” afforded to men (compared to 0-1 hours for women) to the “vigorous” nature of men’s work at the mine compared to women who “sometimes … can just sit down (while they are working)”. In another Ugandan mining area, one male miner explained the time disparity as follows: “men work faster and women take long because they go slowly when doing their work”.

Community roles undertaken daily but in association with specific events can also perpetuate gender inequities in socio-economic status. Men’s roles at weddings, introductions and burials (such as making speeches or taking related event chairing or visible support roles) are often prominently in the forefront of an event while many of women’s roles are somewhat invisible to the community at large, such as cooking for these events and preparing women for the introduction ceremony (kwanjula) behind closed doors. The inequality in time spent by women and men in the social sphere and the status afforded to their different roles are important factors in perpetuating gender inequities in power, access and control and its outcomes.

Links between social status and economic status are generally strong. For example, the employment or wealth generating opportunities of a person who regularly engages and interacts with those “in the know” about funding sources, training programs, new mining or livestock rearing methods or ways to get things done to climb up the socioeconomic ladder are in a far more advantageous position than those who do not. Thus, even time spent in roles not explicitly for the “collective good” (such as socializing with fellow community members around a drinking circle) can contribute to individual social status.

The outcomes of gender disparities associated with social exclusion of women from lucrative roles and exacerbated by domestic work burdens are further supported by quantitative findings that illustrate the gender gap between women and men miners:

- The mean value of male miners’ household assets (house, furniture, tools, radio, bicycle etc) is 120% higher than that of their female counterparts (p<0.01). In terms of cash assets, only 25.0% of women miners have cash savings in excess of 6 USD compared to 47.4% of men (p<0.01).
Male miners are almost four times as likely to be engaged in savings groups or mining associations than women (37.3% versus 9.4%, p=0.02). Conversely, 21.9% of women miners are in social assistance associations compared to 5.1% of male miners. Disproportionate work burdens (16 hours per day for women compared to 9-11 hours per day for men in commercial and domestic roles) can significantly effect social participation and likely plays a role in access to information (e.g. related to mining technologies or training events) and services.

Lack of time available for social engagement may also be a factor in women miners’ high levels of mistrust towards people in other ethnic groups (26.7% versus 11.1%, p=0.05) and increased likelihood of having no source of support in times of hardship (10.1% versus 2.0%, p=0.04).

Women miners lose 16 more workdays annually than men due to personal illness or that of a household member (49 versus 33 days; p=0.02). Illnesses and injuries (malaria, chronic coughs or headaches, wounds, injuries, chronic back or chest pain etc) reported by women and men miners over the past 12 months were not significantly different but the duration of lost-work illness/injury and additional days caring for others are likely a factor in the financial disparities (and the inequitable burden of work) between women and men.

Despite these gender gaps, mining has been cited as an important “stepping stone up the ladder of poverty” for women (Labonne, 1996). How do women miners really fare in comparison to women and men in other livelihoods? Despite inequalities between women and men miners, are women miners better positioned to escape the chains of poverty than women in other sectors? A deeper examination of financial, human, social and physical assets yields insight.

8.2.4 Who Benefits from ASM: The Significance of Gender Relations

In the Laroo stone quarry region in Gulu District of Uganda, women have begun to dominate the mining workforce, are well organized and vocal, prompting a shift in gender relations that has enabled them to control family finances and educate their children (Anon, 2004). In the village of Keana, Nigeria, where 100% of the mining workforce is comprised of and controlled by women, revenues generated from salt
mining have enabled mothers to sponsor their children to attend school at rates well above the surrounding communities (Onuh, 2002). In both cases, the high proportion of women miners and their high levels of organization seem to figure prominently.

More than 70% of salt miners in KKTC are women, theoretically giving them bargaining power as a “critical mass” of the workforce. How can women salt miners overcome their vulnerabilities and more effectively “trade-up” natural capital (minerals) to increase financial, social, human and physical capital? The final phase of research strongly suggests that core barriers are rooted in gender relations that create inequities in status of women and men in the household and, ultimately, generate the negative outcomes in health and wellbeing that perpetuate their low status.

Gender relations are principally about power and how society or culture defines what women and men are entitled to, responsible for and who/how they should be (UGP, 2007). The previous discussion suggests that women in trading have taken steps to redress gender inequities and effectively shift gender relations within their personal situations at home and within the community, partly enabled (or sustained) through their greater health status and partly through their heightened socio-economic status relative to other women in the community. How financial benefits of ASM are negotiated between women and men miners in the household provides insight into the role of gender relations.

Influence over decisions concerning use of the main benefit from mining, money, is strongly interconnected with ownership and control of assets. Other than kitchen utensils, few assets are recognized as being solely owned by women while both women and men stated that men, for the most part, solely own the land, home, animals, crops, bicycles, radios and many other resources. Even when ownership of key assets such as land and the home is recognized as being shared and decisions about their sale or use are discussed, final decisions are almost always made only by men and must be accepted. “If I have decided, there is nothing to be done (by her).” Both women and men acknowledge that women can own land, homes and other resources, however, as one male miner stated, “in someone’s mind, a woman can also own a car, but the access and control is under man”.

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In some cases, men entrust responsibility for financial management to their wives, however, most often, women turn over earnings from mining and are given “allowances” to meet family spending requirements. “Men take charge of the financial resources in the home so they control and own money, land, buildings and everything.” As one woman miner stated “The problem that they (fellow miners) are keeping quiet is that you struggle, you work hard… and the man takes the money.” The depth of gender-differentiated control and ownership is further exemplified by one women miner’s statement: “I have to ask my husband to give out flowers, even to my sister, even if I am the one who grows them”. At its most extreme, one human rights organization active in Kasese District reported that domestic violence and threats of desertion are sometimes used by husbands to forcefully take money from their wives “to buy alcohol and pay for sexual favours” (FHRI, 2009:35).

Lack of power concerning use of incomes has been reported in other ASM areas. In Mali, it is suggested that centuries of mining tradition have determined that women and men work side-by-side gold digging (Keita, 2001), however Labonne (1998) observed that Malinke tradition in the Kangaba area nevertheless dictates that women turn over all gold to their husbands (Labonne, 1998). Men’s “veto power on family income” was also found to be systemic in one Kenyan gold mining area: “The community has been constructed in such a way that it does not see anything wrong with this set up. The men are still looked at as the sole breadwinners (even if women are generating an income) and the women accept that they are inferior to men” (Kimokoti, 1997:174).

When asked whether women faced barriers in joining savings groups, many indicated that their husbands did not approve and needed convincing by other group members. However, some women reported that their husbands have encouraged them to join these groups saying “he wants to get it (the money) for himself”. The lack of women’s autonomy reflected by these scenarios is, in some cases, also institutionalized. For instance, many Ugandan banks still require a signature from a woman’s husband before an account will be opened.
The gender division of labour in KKTC seems to play a role in perpetuating power imbalances in the household. As discussed in Section 8.2.3, the gender division of labour and resulting disparities in the burden of work seems to be a factor in men dominating more lucrative, higher paying roles at the salt lake. Influences also extend to the social or community realm. Many men identified their most time demanding social roles relate to daily, after work interactions. Although many women and men both stated that this often leads to alcohol abuse, arguments in the home and domestic violence, many men maintain that this social interaction provides a forum to discuss and make decisions related to their relationships, land or livestock sales or purchases, mining activities and many other issues critical to household wellbeing. The status quo in inequitable decision making and comparative lack of women’s autonomy may be perpetuated in this social sphere by those who believe that it is their cultural right (and to their perceived benefit) to maintain it.

In an evaluation of women’s benefits from microfinance programs in India, Goetz and Sen Gupta (1994) found that, even when women remit whole loan payments to their husbands, they often have a higher nutritional status than other women and may benefit from welfare gains of other household members. In Suriname, Heemskerk (2003) confirmed that women’s status in the household can improve with increasing financial contributions to household expenses from ASM although social and health conditions for women miners continue to be poor. These findings bring forth the questions as to whether the net benefits of shared decision making in use of money lead to greater or lesser benefits when the broader dimensions of wellbeing (which includes autonomy and social status) are jointly considered.

In nearby Tanzania, a group of women gold miners expressed heartfelt discontent and frustration with power imbalances in the household. “We aren’t even free to decide how many children to have… women are always under (the control of) the husbands”. Although these women indicated that single women who head their own households face social stigma, low self esteem and rejection issues (e.g. from families), the trade-offs in terms of autonomy and decision making power at the household level prompted a number of women miners to suggest that single women, even widows, are actually better off than married women. Citing the need to “beg and plead for permission” from
husbands to use land as collateral for micro-business loans, one single women miner stated “I am the boss, I get to decide what to do” and further suggested that, even without a husband to contribute to total household incomes, her autonomy results in better decisions in use of money (Hinton 2010:11).

Narrow gender gaps for miners in certain dimensions of wellbeing do suggest that women headed mining households (who are generally single, divorced, abandoned or widowed) may not be profoundly more vulnerable or “worse off” than households headed by men at least for about half of the mining population. For example, women and men who headed households were similar with respect to: cash savings of less than 6 USD (58.6% and 51.6%, respectively, p=0.04); incidence of malaria (48.8% and 46.1%, respectively, p<0.01); lack of any formal education (54.6% and 51.4%, respectively, p<0.01); and rent rather than own their homes (32.7% and 30%, respectively, p=0.06).

Despite these findings, this research has shown that, overall, women in KKTC are generally “worse off” than men. The next section further explores the linkages between these disparities and the human health and social dimensions of wellbeing by way of the coping strategies and poverty reducing measures which women and men are employing.

8.2.5 Coping Strategies of the Vulnerable: Links to Health and Wellbeing

Both poor and non-poor women and men can experience vulnerability that can increase the risk of the non-poor becoming poor and the poor becoming poorer. For example, although considered to be a “well-off” group, many cattle keepers in KKTC feel marginalized by QENP policies that hinder their access to watering holes in the dry season (making them vulnerable to exploitation by park rangers), while their cattle are often subject to disease which, particularly given poor veterinary services and medications, can readily decimate their stocks and rapidly make them poor. They are, however, much better positioned than most to cope such shocks due to their physical assets (e.g. house value, land ownership) as well as lower reported illness and political ties with local government. Thus, individuals cope with vulnerability using the assets or
poverty reducing measures which are available to them while those most vulnerable are more likely to face multiple barriers concurrently.

As a simple example, women salt miners may mitigate urgent personal or household needs by “shock selling” salt due to lack of other (or better) coping strategies (e.g. cash savings, credit), a situation worsened by their lower socio-economic status and disparate rates of education that can reduce their bargaining power to negotiate fair selling prices, thereby maintaining their income poverty and reducing their capacity to mitigate future shocks and stresses. This is exacerbated by high levels of competition, disunity and low levels of organization at the salt lake that prevent flat rate pricing. Although vulnerability of women salt miners go well beyond these variables, this example does illustrate that social determinants of health and wellbeing are clearly a “network of interacting variables” which can exacerbate or mitigate health outcomes (Corin, 1994).

These linkages are most profoundly depicted by the coping strategy employed by many girls and young women salt miners to survive sharp salt production declines in the rainy season. Perceptions of their barrenness and damage to genitalia from salt water immersion, coupled with rough skin and wounds derived from their work, has generated a dire social stigma that has reduced female salt miners’ appeal for marriage. This, coupled with lack of economic alternatives, seasonally draws many to the sex trade at the more active fish landing site. Despite some awareness of HIV/AIDS risk, young girls’ fears of older men or the desire for higher payment given the risk of so called “live sex” can keep them from demanding that a condom be used (Lwanga-Ntale, 2003).

Risks in terms of HIV/AIDS and other STDs are obvious. However, self-acceptance of this coping strategy can lead many girls to adopt the sex trade as a year round supplement to incomes. Indeed, many young who often work as food and drink vendors at the salt pickup area have taken steps to diversify from salt production into small business, however, the extent of this diversification puts them at great risk to HIV/AIDS and other STDs. The flow of truckers and traders travelling from KKTC across Uganda and into DRC, Rwanda and Tanzania for the salt trade is ongoing,
while in nearby Mpondwe Town Council, through which the KKTC-DRC route passes, many truck drivers have been implicated in rape of young girls (FHRI, 2009).

The HIV/AIDS prevalence in KKTC has not been determined but district averages (14%) are well above national rates (6.1%) while miners and mining communities are widely recognized as being “high risk”. In Rwamagasa Village in Tanzania, HIV/AIDS was identified as one of the dominant causes of mortality (Wagner, 2003) while migratory nature of ASM combined with relatively high incomes stimulating the sex trade, is cited as the one of the main causes of HIV/AIDS prevalence in miners of at 18% and 30%, respectively, in Zambia and Botswana (Smart, 2003). At the Mukeberi Gold Mines in nearby Kenya, at least 70% of women interviewed reported at least one incidence of a sexually transmitted disease (Amutabi and Lutta-Mukhebi, 2001).

If afflicted with an STD, this downward spiral into poverty can rapidly escalate as work resumes at the salt lake. According to some miners, when sores are present (e.g. from gonorrhoea, syphilis or other STDs), the “brine eats your wound” and, as one man stated, “the water will eat your penis and you will almost lose it.” The devastating effect of this within the household level was tearfully described during a focus group with a women’s association. While many women depicted the mutual sympathy enjoyed by some coupled when both spouses work in the salt lake, the women explained that such damage to genitalia severely strains sexual and social relations in the household.

Some men have cited their marital discontent, coupled with the “harsh, calloused hands” of their wives in mining and their tendency to “get old fast” due to excessive work burdens, as a justification to spend so much time out of the home “socializing” while seeking younger, more attractive options. Indeed, in an Eastern Ugandan limestone mining community, a group of male miners openly stated (with several of their wives present) that part of their daily social roles include 1-2 hours “visiting their Malayas (paid girlfriends)” (Hinton, 2009b). While many salt mining women described the mutual sympathy and compassion enjoyed by some couples when both spouses work in the salt lake, the women explained that strained marital relations from occupational health impacts quite often leads to alcoholism, abandonment, adultery, domestic violence and, in some cases, polygamy and divorce.
It is important to recognize that many Ugandans, both women and men, still seem to view domestic violence as a normal part of marriage and marital sex as an obligation. Health risks of women in strained marriages are undoubtedly further exacerbated as rape within and outside of marriage continue to be pervasive in Uganda, with prevalence of 41% for rural women (CEDAW, 2009). Although Uganda has ratified treaties to eliminate all forms of violence against women, it has yet to enact laws and regulations that would support punishment of violent acts against women, including those related to marital rape and domestic violence (HRW, 2003). Although the Domestic Relations Bill, tabled over a decade ago, has not been passed largely due to opposition to provisions related to asset division in the event of divorce (favouring women) and constraints on polygamous marriage, the Bill specifies circumstances (illness, just given birth) that women are legally allowed to deny their husbands sex.

Giving some indication of the extent of acceptance, a study on youth reproductive health in Nyamirami Parish in a neighbouring subcounty found it was common that girls subjected to rape to be forced into marriage with their attackers to avoid social stigma (Lwanga-Ntale, 2003). Another form of gender based violence identified in a district human rights assessment included forced early marriages, primarily by fathers, when girls reach the age of 14 years, mainly undertaken to raise money from the bride price (FHRI, 2009).

The limited quality and availability of health services may augment these problems quite diplomatically across genders while capacity to pay treatment costs and freedom to use health services (as well as reported indifference of police and welfare officers in the case of sexual and gender based violence (SGBV)) seems to affect vulnerable women more acutely. As stated by a middle aged woman after developing a fistula during childbirth "I wish I had money and the energy. I would have not waited for my husband to take me to hospital" (WDP, 2007:23)

25 “An obstetric fistula is caused by several days of obstructed labour wherein lack of blood flow creates a hole between the mother’s vagina and bladder or vagina and rectum, resulting in chronic leaking or urine, feces or both… The condition can be surgically repaired but many women do not have resources for this and are often abandoned, neglected, ostracized by her husband, family and community”. (Source: www.endfistula.org).
Consider that, in some ASM communities, men miners have gone so far as to declare ownership of women and children, “although we both have access and control.” In one case in KKTC, an infant with a visibly fractured limb was brought to the local clinic, crying out in agonizing pain. When the mother was told she must travel to Bwera for proper treatment, she responded that she did not have the means to do so. A benefactor offered to cover transportation and medical costs but she declined, stating that her husband had not given permission for this and she had to wait for his return from a neighbouring subcounty.

Although many men admit that large family size is a factor in their household poverty, socio-cultural norms often associate men’s power and status with capacity to father children while a women’s value is often based on her capacity to produce them. Many women quietly stated that they would like to take birth control (such as pills or injections) to prevent additional pregnancies but often do not have the money to do this and, if they do obtain it, often hide it from their husbands. Prior to its cessation in 2005, much of the Graduated Tax (a $1/year head tax used at the subcounty level) was allocated to women’s health, enabling free and confidential access for these measures, a clear illustration of how policy shifts can directly affect health and development outcomes.

The low confidence often observed with lower socio-economic status of women has additional implications. Perceptions of abusive nurses and doctors (which has been reported in other areas of Uganda) reportedly prevent some women and other vulnerable persons due to fear of intimidation. Work undertaken by the Women’s Dignity Project (2007) in Kasese District detailed how these perceptions resulted in an 18-year old Kasese girl developing obstetric fistula during labour.  

_Her relatives warned that if she went to the hospital too early, the nurses would scream. Finally, her husband and aunt agreed and took her to a hospital on her third day of labor… Upon reaching the hospital, the woman was left to wait for a further three hours until staff decided that she needed an episiotomy. By this time, the baby had died. Although the woman expressed disappointment with the lack of urgency of hospital staff… she would have gone to the health center_
had she known that the nurses do not verbally abuse pregnant women as she had been warned about by her in-laws. (WDP, 2007:23)

Thus, the linkages between gender and personal health and wellbeing, socio-economic status, autonomy and freedom are clearly emerging. What are the implications for the broader community and its future?

Untimely death, severe illness or abandonment by a primary care giver causes a vicious cycle. The orphanhood rate in KKTC (17.6%) is higher than the national average (13.1%) perhaps as a consequence of the HIV/AIDS prevalence, other factors contributing to ill health (poor services, work risks), a legacy of ADF incursions from 1996-2001 targeting KKTC (that resulted in multiple deaths) or a combination thereof. These children are less likely to attend school, often do not receive the guidance and resources they require to develop into healthy, productive adults, lack personal autonomy (i.e. if exchanging labour for housing) and may be subject to physical and psychological abuse. A human rights study in Kasese District has suggested that denial of food to non-biological children (step-children, orphans) was a form of child abuse perpetrated by many mothers. Denial of food was identified by 76% of study respondents in association with punishment by biological mothers or stepmothers, where failure to complete a specified task (e.g. tilling a certain area of land within a set time) results in withholding one or all of a days meals (FHRI, 2009). In this research, children listed by household heads have not been identified specifically as biological, step-children or adopted orphans, however, study participants have stated that polygamy (multiple wives) is fairly common and, if a man leaves his wife, children over the age of about 7 years typically follow him to be raised by the new wife.

Most common strategies for vulnerable and orphaned youth include work as low-paid, casual labourers at the salt lake or fish landing site where, together with other youth in similar situations their observed exposure to a culture of alcohol, drugs, sexual promiscuity and in some cases crime creates a social stigma (and elevated health risks) and perpetuates both their poverty and lower rank status in the community. Some older KKTC residents believe that crime is related to youth joblessness and seasonality of salt mining. Rape, defilement, theft and assault are main documented
infractions (KKTC, 2004) and are believed to be on the rise. In nearby Kahendero Subcounty, this has escalated to the point where the local police force were accused of being “weak” in tackling crime and were chased away from the village by residents.

With limited options available to vulnerable persons, some important linkages between some women salt miner’s entry into the sex trade, worsening health conditions and effects on living conditions in the broader community have been depicted. This, together with the implications of inequities in control of land, roles at the salt lake and disparate benefits from mining (Sections 8.2.1 to 8.2.4), all point to the low socio-economic status of women as both a cause and consequence of poverty in KKTC.

8.2.6 Socio-economic Status: Women in Mining, Trading and Fishing
Socio-economic status is not determined by incomes alone. It is based on a combination of factors that also include wealth, educational levels and prestige-based factors, such as influence, power and rank in a social hierarchy (Krieger, 2002, Mueller and Parcel, 1981). As one of the most important indicators of health and wellbeing, these factors are strongly related to an individual’s capacity to mitigate vulnerability (NALD, 2001). Assessing the position of women miners relative to individuals or families engaged in trading, fishing and other livelihoods provides insight into their socioeconomic status or position within the hierarchal social structure of KKTC.

With the exception of women farmers, survey results suggest that women miners are generally more financially vulnerable than women who primarily rely on trading and fishing. As non-cash savings represent a standard of living, can be sold to buffer hardship, can be used as a form of collateral and, in some cases, are the tools needed to realize livelihood objectives, it is interesting that the mean value of women miners’ homes the lowest of any livelihood group, while women traders’ homes are valued at almost twice that of their male counterparts. In terms of cash savings and use of monthly revenues, women in trading and fishing have shown a much greater likelihood than even their male counterparts to diversify their income base by investing in mining (i.e. buying salt pans) and fishing (e.g. buying boats, nets, supplies).
Trading and small business in KKTC is generally viewed as a step-up from other activities in terms of economic potential but one which most believe is too capital intensive to undertake. This pathway is nevertheless clearly recognized by 20.0% of women miners (and only 7.9% of men), who engage in trading and provision of goods and services, either concurrent with mining or in the rainy season.

Only 14% of KKTC residents denoted trading and small business as their primary occupation, yet many traders have roots in and strong links with mining, illustrating a potential pathway out of relative poverty. Several women traders began as salt miners and accumulated some savings that enabled them to purchase and accumulate larger quantities of salt and slowly transition into trading. Many have diversified businesses, trading salt and fish while some also own salt pans, fishing boats and small shops while many of the lodges, restaurants and bars in KKTC are owned and operated by women, making them prominent members of the business community. While only 16.7% of women traders have a monthly cash surplus in excess of 30 USD (compared to 9.4% for women miners), a substantial proportion of their incomes (78%) is immediately invested into mining and fishing tools as well as stock required to maintain their businesses (p<0.01).

Trading is also recognized by one of the most vulnerable groups, men in fishing, as a means to escape poverty. Saving money from spreading and selling nets as a youth, one KKTC trader described how he saved $30 by age 18, enabling him to engage in the salt trade in 1993. Slowly he shifted away from salt and into other goods (e.g. clothes, sodas) and, after accumulating some capital, received a loan for $250 (at an interest rate of 5% per week). Since the growth of his business, he now offers credit facilities for his customers (at no interest) and has expanded his activities to include local construction, which inevitably requires local labour. This trader’s story exemplifies how savings, financial management and reinvestment can lead to economic growth, to the benefit of other members of the community.

It is curious that some individuals in mining and fishing have succeeded in diversifying or even transitioning into small business while others still struggle under meagre conditions. Most findings seem to counter obvious thinking. For instance, women in
trading are only slightly more likely than women in fishing and mining to have some primary education (with differences of only 9.4% and 9.7% respectively) but are half as likely as women in fishing to be engaged in a CBO. With a significant portion of their customer base comprised of salt miners, women traders are also admittedly vulnerable to seasonal declines in production. House construction and size is comparable between groups, while women traders are mostly likely to rent rather than own their home (50% in trading compared to 30% in mining and 14.3% in fishing, p=0.06). With women faring slightly better than men in trading in terms of health and social welfare, the gender gap for traders is comparatively narrow (Fig. 17).

Interestingly, the most distinct differences between women in different livelihood groups were found for health status. Women traders were most likely to report no illness or injury in the previous year (34.8%, p<0.01), were least likely to report a malaria incident (26.1%, p<0.01) and, not surprisingly, their expenditures on health treatment were 4-10 times below than those of other women (p=0.06). Furthermore, compared to women in fishing and mining, women traders lost between 77% and 121% fewer workdays per year due to personal illness or that of a family member, affording them greater capacity to maintain their commercial productivity.

The comparatively higher financial status of women traders may also be a consequence of a shift in gender relations at community and household levels. While the majority of women at the salt lake seem to be broadly regarded with genuine concern and pity, mainly due to the dire health consequences of salt water immersion, the social status of many women traders’ is comparatively high. Many are considered to be shrewd businesswomen and, indeed, many of the most vocal local councilwomen and women’s association leaders are drawn from this group.

The relative financial success of traders is believed to be consequence of their growing skills in business and demonstrated capacity to plan as they take small steps to transition from salt mining into small business. Practices of traders in KKTC, in general, suggest a recognition that: maintaining a customer base and growing a business requires planning and investment; diversifying into a non-mining reliant livelihood (i.e. fishing) is crucial to weather seasonal shocks in salt production; while
rapid investment of cash into stock and other livelihoods may be a consequence of the often expressed belief that keeping cash on hand can actually increase vulnerability. Specifically, the likelihood that a friend or family member will ask to borrow any cash in response to their own shocks or stresses (e.g. malaria, school fees, etc) is high and retaining money can actually make it less likely that a household can take a step up the poverty ladder. Given the observed business savvy and comparative outspokenness of the most successful business women in KKTC, it is interesting to consider whether their demonstrated capacity to plan and make decisions, which is denied most women at the household level, has enabled women traders to redress power imbalances and ultimately contribute to their relatively higher economic, social and health status.

8.2.7 Reflecting on Assets and Poverty Reducing Measures
With core natural assets of land and minerals as a starting point and buttressed by qualitative research, this section has put forth explanations for gender disparities found in natural, physical, human, social and financial capital – and the linkages between them. Certainly, most KKTC can, by all accounts, be considered poor, while the relatively higher vulnerability of women compared to men, and its consequences at individual, household and community levels, indicate that gender inequality is one of the main driving forces of poverty.

Gender inequities were found in all three of the primary dimensions of poverty: (i) the income or consumption dimension, which refers to lack of assets and income; (ii) the social services dimension, which includes lack of access to basic infrastructure and services, such as health care and education, adequate living conditions and freedom from crime and violence (domestic or otherwise); and (iii) a participatory dimension, which encapsulates lack of autonomy voice and dignity (Gyan-Baffour, 2004).

Qualitative exploration of survey results strongly indicates that inequities in autonomy, voice and dignity in the household and community actually explain many inequities found in other dimensions. As shown by the comparatively better “performance” of women traders and businesswomen, this research suggests that women’s participation
in mining can enable them to accumulate wealth and increase their socio-economic status, mainly through diversification of activities that help them weather shocks, stresses and seasonality. However, vulnerability, particularly with respect to socio-economic and health status, presents a barrier to the majority, many of whom adopt coping strategies that can enable economic survival but may have dire health consequences. One of the most profound examples is the large number of girls and young women who shift from mining to the sex trade at the more active fish landing site in the rainy season.

Much of the intervention and policy work seeking to advance ASM overwhelmingly focuses on building physical capital (tools, equipment) to increase financial capital and/or improving control and responsible management of natural assets (licensing of ASM, environmental management). Social and health issues receive some attention (typically limited to organization formation and technical aspects of occupational health), while interconnections within and between different target groups and individuals, as well as the significance of socio-economic context, are marginally considered, if at all.

Recalling that pathways out of poverty are determined by an individuals’ ability to progressively access, control and trade-up assets in order to accumulate more assets and improve overall wellbeing, a significant gap in ASM approaches becomes evident. Specifically, ASM policy and intervention that fails to consider who benefits from these efforts can actually serve to widen gender gaps, contribute to the feminization of poverty and impede development at large. Unless ASM approaches are engendered then the development objectives that underpin ASM support efforts are endangered.

Based on findings of the body of work presented thus far, this research contends that, if the intent is to break the poverty cycle in ASM communities, ASM policy and intervention must substantially increase emphasis on improving the socio-economic status of women, in large part by improving responsiveness to human and social capital needs.
8.3 Escaping the ASM Poverty Cycle through Gender Equity

How can policy and intervention support transformation of gender relations in order to advance gender equity and poverty reduction? While the body of work on ASM technical methods to improve miners incomes and reduce environmental impacts is already substantial, research findings strongly indicate that even the most well conceived technical interventions are unlikely to achieve development objectives unless core gender inequalities are also tackled. While strategies have been identified for improved technology (yielding increased incomes, improved environmental and occupational safety performance), charting pathways out of poverty requires increased focus on social and human capital development and efforts to shift mindsets in terms of gender and its development significance. The role of gender-responsive ASM policy and legislation as a foundation for affording rights to women and vulnerable persons is further explored.

Informed by health and wellbeing outcomes and its linkages to autonomy, voice and dignity described throughout Section 8.2, recommendations put forth by women and men in KKTC in the final phase of research fall within three main categories of interventions: education and skills; burden of work; and rights.

8.3.1 Focus on Education and Skills

Recognizing the role of both women and men in the ASM sector, Jennings (1999:87) stated "women's lack of schooling, their higher rate of illiteracy than men and their general lack of knowledge of mining constitute formidable barriers." Links between education and skills and their outcomes are well established. Across sub-Saharan African, educated women, on average, marry later, have few children and use contraception more frequently (Adlakha, 1991; Ainsworth and Nyamete, 1992). Despite an average GMP per capita of $6,410 in Costa Rica, Sen (1999) attributed the relatively high life expectancy (75 years) to access to education and, in particular, policies that encourage the education of women.

The woefully inadequate foundation of formal education in KKTC begins during childhood. Despite the available facilities, according to one local opinion leader, the
community is “generally reluctant to access education”. In KKTC, official enrolment in primary school totals 524 and drops sharply to 126 for secondary school. Even considering this startling statistic, one teacher in KKTC has commented that “official enrolment means very little”. Once registered, attendance decreases almost immediately following commencement of classes and continues declining as the school year progresses. In many cases, youth abandon school willingly, seemingly with little concern from parents. Corporal punishment and verbal abuse by both male and female teachers, attractive cash incomes in salt mining and fishing, mistreatment and poor quality of education coupled with a generally low regard for the value of education, both boys and girls readily leave school for what seems to be greener pastures. Children and youth, both male and female, are often pulled from school to work for 2-3 days per week, with expectations of increasing self reliance for food, clothes and other needs as they get older, with some children expressing frustration that parents use money for this to buy alcohol (FHRI, 2009).

Although both boys and girls are subject to these circumstances, lack of importance afforded to girl-child education seems even more pronounced. Even with Universal Primary Education (UPE) that supports (almost) free education, girls are the first to be withdrawn from schools when household needs must be met. Furthermore, advances by male teachers towards girls and fears of daughters becoming pregnant are also used as justifications to prematurely pull girls from school while girls as young as 14 years may be married off for the bride price. Even more disturbing, cases of young pregnant girls being forced to marry their rapist to avoid social embarrassment denote a clear violation of human rights.

Women and men in KKTC suggested the gender division of labour – roles assigned to girls or boys as children – as one of the main causes of these inequities. Girls are quickly appointed to cook, clean, care for babies and other domestic roles undertaken by their mothers while boys are relegated to look after livestock, care for the compound and often accompany their fathers, particularly as they get older, during the social activities that build both their social capital and expose them to information, develop their social networks and consolidate their dominant decision-making that affects, but can occur in near isolation, from their wives. Men admitted that as adults,
they don’t even know exactly what their wives do, as suggested by the comment: “I only see water in the jerrycan for bathing, I don’t even know the source.” Community members suggested that because boys don’t get involved in “women’s work” or “girl’s work”, it continues to be invisible and ultimately afforded little value into adulthood. When illness of a family member, death of a parent or other household crises arises, girls are quickly appointed to fill the gap as they are well equipped to respond.

Women and men in KKTC recommended that the responsibility to redress this challenge lies within themselves and their community leaders by allocating the same roles and equally dividing the burden of chores to sons and daughters from childhood as well as committing to equally providing and encouraging formal education to their children. Although the first of many recommendations from the community, this insight alone is an important testament to participatory and action-based research approaches, particularly with respect to its effectiveness in supporting shared learning and shifts in mindset while developing context-appropriate responses to jointly identified issues.

Gender roles are learned at childhood continue through to adulthood, the consequences of which have been described throughout this research. As evidenced by activities of World Bank, DFID, UNIDO and others over the past decade, ASM interventions increasingly recognize the significance of adult women’s participation in training and skills development. However, as Mechanic (2000:15) states “privileged positions provide the social arrangements, skills, information, and tools to capitalize on the most advanced knowledge and practices that facilitate health”. Any academic, consultant, NGO, government officer or other practitioner working at the village level in rural Uganda shall attest to the difficulties in identifying and mobilizing those most in need of training and support programs, typically relying heavily on local focal points. Often times, these focal points are not representative of those most vulnerable and use their own social networks to “spread the word”, in some cases for personal gain.

Redressing gender inequities calls for special measures in mobilization and outreach. According to Mines Inspectors in the Dept. of Geological Survey and Mines (DGSM), the need for women to obtain “permission” from their husbands to allow them to
participate in government support training programs is common in many ASM communities. DGSM Training Programs, in some cases, have employed special efforts to obtain consent from spouses by recruiting respected male miner-leaders to go to the homes of women miners in order to convince their spouses. For grassroots training, DGSM has further welcomed women to bring their infants and small children and provided simple childcare as training was conducted. DGSM officers reported that they still facing challenges in achieving 50% participation of women in their programs citing one gold miner’s remark: “You don’t need to train my wife. Train me and I will tell her what to do”. With this mindset held by some of their community mobilizers, they adapted their field strategy to go on-site in advance of training to identify real women miners (rather than family members or friends of mobilizers), resulting in narrowing of gender gaps in participation.

Equal participation may provide equality of opportunities, however, it does not necessarily equate to equality in terms of outcomes. Different approaches for women and men may be required based on their different roles, responsibilities, needs, priorities and interests. A telling example was recounted by one government officer where a unanimously agreed upon 45 minute extension of a training session (ironically related to conflict resolution skills) resulted in one participating woman delaying in providing supper to her participating husband, who subsequently beat and berated her. Although her domestic work burden should have been considered by trainers (as well as the risk that women were less likely to have vocalized such concerns in a mixed forum), adapting intervention to different needs and priorities requires far more consideration than scheduled times of training sessions.

Examination of the relative success of women traders and business women in KKTC suggests that, despite their comparable education levels, the business skills (and commensurate socioeconomic status) that developed as they transitioned from salt mining into trading may have played a role. Given that men’s typical “last word” role in financial planning and related decision making is a reflection of household power imbalances, it seems that women traders’ growing skills and financial status may have served to shift gender relations within their households. DGSM trainers have stated that, across Uganda, the most vulnerable subsistence miners notably have difficulty
differentiating between “sales” and “profits” (discounting their own labour and other inputs as operating costs), indicating a limited awareness of even the most business concepts while most women’s associations in KKTC recognized their skills deficit, calling for assistance in improved financial management and planning capacity as organizations. Although training of women and other vulnerable miners in basic business and bookkeeping skills support the foundation for asset accumulation, as Hayes and Van Wauwe (2009) found in ASM areas around Lumumbashi in Democratic Republic of Congo, this must be integrated with efforts to build basic skills in numeracy and literacy if those most vulnerable are to benefit.

A core opportunity also lies in the growing number of technical training programs targeting artisanal and small scale miners. Gender roles at KKTC provide a useful example. Given concerns expressed from numerous miners about salt quality and quantity declines and the fact that Grade I human-consumption quality salt is largely imported into Uganda, the balance in terms of “lucrative work” could readily be shifted to women by considering their dominant roles in salt harvesting from salt pans and pan cleaning. Some interesting opportunities emerge when comparing Grade I salt prices of 0.20 USD/kg (human consumption table salt which is no longer produced at KKTC) with dry season salt prices of Grade II salt (~0.01 USD/kg), largely produced by women, and Grade III salt (0.03 USD/kg), only produced by men.

Cognizant of gender division of labour at the salt lake, training to women could address, in very basic terms (discussed further in Section 8.4: Emerging Themes of Research):

- How three adjacent salt pans could be linked for purposes of sequential extraction of saleable gypsum and then sodium chloride (table salt). Exploring markets for carbonate bi-products (which could be used for treatment of acidic soils ~80km north of KKTC)
- Establishment of organizational arrangements between pan owners with corresponding training of women (who largely get paid on a per kilogram basis) on the market value of their products.
On-shore washing to produce higher quality salt from low grade salt or even rock salt (which is now mainly sold as salt licks for cattle and other livestock).

Use of black plastic sheets to line pond bottoms or addition of small quantities of nitrogen or phosphorus fertilizer (to speed up algal growth through absorption of radiation) in order to raise salt pond temperatures needed to increase evaporation rates and reduce contamination of salt with mud.

Certainly, introduction of appropriate, intermediate technologies and methods to women miners can lead to improvements in financial status. However, outreach to vulnerable women, in itself, can lead to improved socioeconomic status overall. DGSM Officers have cited an example where one vulnerable, elderly yet experienced women gold miner in Northeastern Uganda was recruited during a site visit to receive one week training and subsequently represent her area in national consultative conferences. Equipped with new skills and confidence, she has since become a leader in her own right, is frequently consulted by men and women miners alike for guidance and has succeeded in organizing miners to a level where they consolidate their products to attract buyers and higher prices to their remote area. Her direct link to national mining authorities seems to have increased her prominence further. Whether her heightened status in the community has shifted gender relations within her household was not determined, this example nevertheless provides useful insight to those who are designing and implementing ASM policy and intervention.

8.3.2 Focus on Rights

“It is hard to marry a wife. She comes from her land to take your land.” Many men contend that the socio-cultural norms that have limited inheritance, ownership and control of assets by women is rational as it helps stabilize (even unhappy) marriages. As one woman miner commented “he is the owner of the home, nothing can be done.” A woman is unlikely to leave a relationship or may fear abandonment due to “rocking the boat”, even when conditions are extremely dire, if she does not have the resources to provide security to fulfill even basic needs for herself and her children. In the event of discord, family members (women and men as well as clan elders) often strongly encourage women to stay. Sometimes return of the bride price is demanded in the event of a failed marriage, which likely creates substantial pressure on women who do
not want to increase the economic vulnerability of her parents. This situation may be worsened by fears for the wellbeing of children, particularly given the common cultural practice of children above infancy remaining with (or being sent to) their fathers in the event of separation or divorce.

Men expressed fears that if a woman has equal power within a household, then she will marry only with the intent of wealth generation. “There is no equal ownership... you cannot convince me that if today I marry that lady and she found my assets (with me) and the day we divorce we (would) share these things.” Furthermore, many men indicate that “it is unfair... that she comes and takes and brings nothing”, a perception which likely perpetuates the disproportionate work burden and compromised autonomy experienced by many women.

Ugandan men across socio-economic classes have expressed concerns that “most of the ladies today, they are just on the issue of getting riches”, a situation exacerbated by the culturally-defined expectation of men to meet all financial costs of the family, even when their spouses are earning an income. Although women quite often bear more than the brunt of costs of health care, food and school fees, many women and men admit that even when a woman earns an income, she often uses it only for personal needs (clothes, hairdressing) while men are often publicly or privately reprimand their husbands when their incomes are not enough to meet family needs.

Both women and men miners indicated that women can excessively wield what little power they have (e.g. over the kitchen, food other than meat, amenities for visitors, marital sex) often resulting in arguments and unhappiness of both parties. As one woman miner stated “you are not going to control and give orders (about milk). We will give (milk to men) as you need it, but the ownership is ours” and another man expressed discontent that “a man can’t complain about being denied sex but a woman does it publicly”. An extreme example cited involved a woman hiding her earnings as a malaria-ridden baby became progressively sicker in order to justify harsh scolding of her husband (upon his return from “socializing”) for his failure to provide.
The resulting marital discontent is sometimes used as a justification for men to also abuse their power in many ways, including exercising their freedom to socialize (in some cases with other women) and abuse alcohol, often leading to additional arguments and domestic violence, thereby compounding the unhappiness of women and men even further. Exploring the broader implications of scenarios encountered in KKTC (e.g. women requiring permission from husbands to visit health centers, their need to “beg” to get money from husbands, implications for the family when a husband died and their wives had been isolated from financial planning and household decision making), women and men miners decided that power imbalances can ultimately increase the poverty and vulnerability of all family members.

Mixed-gender focus group discussions that initially prompted men to vocalize fears that women’s gain may be their loss came full circle. Both women and men concluded that if women are empowered and share equally in family benefits from childhood, then they will “bring something to the table” in marriage, to the benefit of women, men and the entire family unit.

Building on earlier research findings and participants’ conclusions in the final phase of the work, recommendations put forth by miners spoke directly to the issue of rights. Specifically, they cited the need to: include both spouses on land titles; change inheritance practices by willing of land and assets to both sons and daughters; advocate (on a community level) for marriage by mutual consent; to halt expectations for the bride price; and to gender mainstreaming in primary school curriculum.

Examination of the gender division of labour at the mine site and its impacts on health and wellbeing further prompted miners to recommend they should: advocate for women’s participation (as leaders and members) and increasing their voice in decision making in ASM associations; organize mining activities and develop by-laws and rules related to child labour, to ensure pregnant women or those with infants don’t lose benefits (by adapting roles to safer work and setting up child care shelters nearby to support this) and prevention of harassment of women.
Conceptualizing rights as “claims (of one person or group on another person, group or institution) that have been legitimised by social structures and norms” (Moser et al, 2001:23), brings to the forefront questions of how rights can be realized. KKTC residents from all livelihood groups complained of poor accountability and transparency of political leaders and civil servants in multiple aspects of their mandates.

As Saito (2000) found in an assessment of views on governance compiled from a cross-section of Ugandan communities, there is a substantial disconnect between comparatively well educated and financially secure leaders (the “elite”) and the majority who are less educated, less wealthy and less confident to bring forward their concerns. In KKTC, although village and, to some extent, parish councils seems to be accessible to the majority (and in particular men who have more time and status for such engagement), there seems only marginal interaction with Town Council (mainly via technical staff) and even less at higher levels. Both women and men in KKTC expressed a sense of powerlessness and doubted that their concerns would be addressed.

Limited availability of formal social services as well as the gender bias and inadequate training of service providers including police and social welfare officers create significant barriers. The oft-reported need to financially “facilitate” or provide informal fees for government services, including those related to issues that disparately impact vulnerable persons (land grabbing, abandonment of children, domestic violence, rape etc), coupled with comparatively higher capacity of many men to compromise police responding to these cases, provides little recourse (FHRI, 2009). That only 6.5% of men and 6.6% of women turn to government in times of crises is not surprising (p<0.01).

In KKTC, formal and informal leaders attributed the main causes of poor administration and management to corruption of the administration and lack of transparency resulting in low trust. Corruption, even the perception of corruption, threatens to undermine any progress towards poverty reduction and development. From UWA to the local councils to the police, corruption has been alleged at all levels and has created a high level of
mistrust and scepticism. “When you sit with some of these terrible people, they are so terrible they are even afraid of themselves.” Citizens commonly believe that, as funds trickle down through the various levels of government, very little ultimately remains for projects on the ground. For example, one ward (parish) leader said that only 10% of projects developed through parish development planning processes received funding while they weren’t even sure if submissions were received or approved at higher levels. Although funding shortfalls are an issue at all levels of government, many nevertheless suggested that much of the funds requested by the parishes are received by the Sub-county or Town Council but are misappropriated or are “eaten” by leaders.

Formal leadership in government is therefore perceived to be a lucrative source of income and political manoeuvring is pronounced. Political divisiveness has reportedly been ongoing in KKTC for more than two decades. When a focus group of formal and informal leaders was asked what politics has brought about in KKTC, 13 of 25 responses were negative, and three explicitly referred to fragmentation and divisiveness. Two distinct “factions” are evident: Rurandira (“lineage”) and Kumanyana (“togetherness”), with the former being associated with the Forum for Democratic Change (FDC) and the latter with the National Resistance Movement (NRM), the party that has retained power in the country since 1986. Some villages have two Chairmen from each of the groups, each of whom alleges to hold the same position. The post-election aftermath often sees “losers” undermining the efforts of incumbents in order to improve chances for subsequent election – a practice which only serves to stall action. Furthermore, these factions tend to follow livelihood distinctions, with Ruhandira associated with farmers and, to a much lesser extent, salt miners and those in fishing, while Kumanyana is associated with cattlekeepers.

Town Council Development Plans reflect these affinities, resulting in the exclusion or inadequate consideration of priorities of other clans or groups. This may be further exacerbated for minority groups, such as the Banyabindi Tribe, members of which state that they have “no voice” and are marginalized by local government. Although women are certainly not immune from these dealings (a number of women traders and businesswomen hold positions on the Town Council), the majority of women bear a substantial proportion of impacts of poor governance particularly given that their lower
status and greater levels of exclusion from political processes makes it unlikely that Parish and Town Council Development Plans reflect their priorities.

This situation seems to have generated a curious outcome. The majority of women’s organizations profiled, interestingly, are integrated across livelihood, religious, ethnic and political lines, suggesting that their shared needs and interests may supersede their differences. Some KKTC women’s groups who are largely comprised of miners, such as Kanyeginya Drama Actors Association, undertakes sensitization of men to enable participation of their wives, while Tukore Women’s Group who works with victims of sexual, physical and psychosocial abuse, demonstrating that women have taken up efforts to respond to gaps in realization of women’s rights.

Conversely, most organizations dominated by men follow livelihood (and therefore to an extent political) lines. The collapse of the male-dominated Lake Katwe Salt Winners Cooperative Society was attributed by some miners to politicians engaged in salt dealing (and ironically linked to Society leadership) who were opposed to the fairer market prices advocated for by the Society.

Despite halting of infrastructure improvement projects (notwithstanding alleged approval and transfer of payment from central government) and general lack of accountability for use of Town Council revenues, one program, the KKTC Education Fund (generated by taxes on salt sales) remarkably seems to fulfilling its intended purpose, i.e. to provide bursaries and across-the-board reductions in secondary school fees. Given that: (i) 95% of Town Council revenues are derived from salt taxes; (ii) the mining workforce is predominantly comprised of women; and (iii) women’s organizations have exhibited a higher degree of unity, women salt miners in KKTC, may hold a largely untapped yet substantial bargaining power.

This supposition is relevant for ASM policy and interventions. Much like KKTC, in five other ASM communities it was found that women miners were more likely to be engaged in multi-livelihood, development focused women’s groups rather than livelihood-specific associations (Hinton, 2005). As strengthening of ASM organizations is increasingly being recognized as crucial to formalization and improved performance
of the subsector, incorporating women miner-leaders from non-livelihood associations may hold promise for advancement of women’s rights.

How and what “rights” are introduced to miners and local organizations presents a significant entry point. DGSM Officers have described how, with support from an in-office social development officer, they had trained groups of women and men miners in the concept of “mineral rights” more broadly under the umbrella of human rights in an effort to incorporate gender concerns. In some cases, they said they invited local leaders and law enforcement officers as their awareness of laws was also lacking. Although this practice has not been institutionalized in DGSM, it is a remarkable example of how mining authorities can mainstream gender within their mandates and provides a useful lesson for those engaged in ASM policy and intervention.

8.3.3 Focus on the Visibility and the Burden of Women’s Work
Women’s work in commercial, domestic and social roles amounts to an average of 5-8 hours of additional work per day than men in ASM, resulting in substantial inequities with respect to time, autonomy and the social participation critical to socio-economic status. Both women and men miners almost overwhelmingly conclude that women’s work burden is far greater than that of men and can result in a host of consequences for women including: exhaustion, ill health, lack of interest in sex or producing more children, frequent misunderstandings, domestic violence and divorce. Some men have also stated that the premature aging that results from overworking, coupled with marital discontent, prompt many men to seek outside, younger options, thereby increasing risks of bringing HIV/AIDS and other STDs into the household. Indeed, many men have attributed the 4-7 hours of daily “relaxation time” required by men to the “vigorous” nature of their work, while more thorough examination suggests that socio-cultural norms that encourage sharing (and solving) domestic problems with other men in the social arena may also be a factor.

These circumstances are harsh blows to the health, dignity and self-esteem of women, and may perpetuate feelings of powerlessness to challenge the status quo, a situation exacerbated by the invisibility of women’s non-commercial work and perceptions of
women’s capacity to do difficult work. Clearly, an additional consequence is that women have less time to participate socially and take advantage of related opportunities. The employment or wealth generating opportunities of a person who regularly engages and interacts with those “in the know” about funding sources, training programs, new farming or mining methods or “ways to get things done” to climb up the socioeconomic ladder are in a far more advantageous position than those who do not.

The inequality in time spent by women and men in the social sphere and the status afforded to their different roles are significant factors in perpetuating gender inequities in power, access and control. In general, those in positions of political, religious, social or cultural power (men and to a much lesser extent women) were generally observed to have higher economic, educational and even health status in KKTC and, despite a few exceptional examples, their use of this power for personal gain, political positioning and maintaining the status quo was frequently alluded to by community members.

Social groups are partly determined by formal and informal social roles and can serve to maintain individuals in high ranks in terms of social status or exclude others, relegating them to lower rank status. For example, men’s culturally-defined and prominent roles at weddings, introductions and burials (such as making speeches or taking related chairing or organizational roles) compared to women’s behind close doors roles at events further demonstrate the significance of visibility and gender roles in perpetuating lower or higher rank status. Thus, the excessive burden of women’s work has broad health, social and economic implications.

*How can the burden of work on women be reduced?* Many ASM interventions focus on alleviating the burden of manual labour in the commercial sphere (at the mine site), often through intermediate and somewhat mechanized technologies. While this can generate increased incomes and, assuming women are targeted beneficiaries, support their improved socio-economic status, there must be some awareness of potential implications of higher levels of mechanization, such as women and most vulnerable persons losing their livelihoods or exacerbating power imbalances. Furthermore, ASM
intervention must be cognizant of the reality of women’s lives at the mine as the lines between commercial and domestic roles and responsibilities are often blurred.

Again, this is where intervention must increase emphasis on building social and human capital, for instance by strengthening and improving the gender-responsiveness of organizations to ensure both women and men are involved in design and implementation, are fully aware of the risks and opportunities and take measures to ensure benefits are more equally shared. One of the most commonly called for interventions at KKTC expressed by women miners was not related to improved processing methods but rather construction of a storage warehouse (to retain dry season surplus to sell during rainy season price hikes) and organizational support to manage it. Furthermore, mechanisms to standardize pricing and control “shock selling” through organizational arrangements would reduce uncertainty and vulnerability of women and other susceptible persons.

These insights reflect the importance of understanding the priorities of women miners as well as the current division of labour and factors impeding women from fulfilling their ambitions at the mine, such as child care responsibilities affecting participation in more lucrative roles, in intervention design and implementation. For example, women and men miners further suggested that construction of child care shelters at the salt lake and organization of care giving could reduce some of the domestic pressures on women and enable them to take on different roles.

While increased incomes of women at the mine site may help to shift gender relations in the household, disparities in the burden of work at home are still substantial. Women often expressed that a source of marital discontent is the lack of assistance from men in domestic responsibilities. Ironically, many men expressed that in response to attempts to aid in the kitchen and the home, they were “chased from the kitchen” causing them to “just give up.” Upon deeper examination, it seems that because women have less power in the household and their arena of control and “ownership” lies mainly in the kitchen, they are fearful to give up their power base. Recognizing again the links between gender inequality and family poverty, women and men miners observed their role as examples for their children and further recommended that
spouses should share domestic work burdens and make decisions together concerning the household and family, including the family budget.

Clearly, conclusions drawn by research participants speak again to the value of participatory methods yet it also highlights the need to include both women and men in efforts to increase their gender awareness. “*It is not enough to have programmes and projects aimed at women, but that development activities must as a whole contribute to equity, which means that men must be involved as well*” (Rico, 1998).

### 8.3.4 Reflecting on Pathways out of Poverty

The burden of work on women and its resulting physical and psychosocial impacts generally increases substantially with poor health of family members.

> “*Infectious diseases impede efforts to bring developing countries out of poverty. They keep children away from school and prevent adults from working or caring for their children. Serious illness is one of the major reasons why poor people remain poor. Poverty breeds infections; infections breed poverty* (Neira, 2001).”

Conversely, as illustrated by women traders, good health status is generally linked with enhanced performance in school, higher education levels and relative incomes, decent working conditions, and good social support networks. The concept of health and wellbeing and its linkages with poverty is truly a complex network of interconnecting variables that are not necessarily deterministic in their relationships.

This research has affirmed the importance of gender inequality as a determinant of individual, household and community health and wellbeing. While quantitative data identified some statistically significant gender gaps with respect to assets that are undeniably crucial to wellbeing, qualitative examination of these findings repeatedly pointed to lack of autonomy and voice as core causes and consequences of women’s poverty.
This prompts more refined thinking on the ASM poverty cycle (Section 1.1). When gender impacts are considered, the downward spiral into poverty is likely more severe and rapid for women whose disparate capacity and freedom to access and take advantage of opportunities to escape the cycle. Hobbs (2005) suggests that breaking the cycle requires a fully integrated approach, encompassing good governance, appropriate policy and its practice, environmental protection, intersectoral coordination, livelihood opportunities and equitable distribution of revenues, among many other issues.

The impetus for intersectoral coordination is clear. The needs of miners and ASM communities clearly span multiple aspects of health, environment, education, and its necessary infrastructure, among others. Those agencies and institutions mandated to address these needs generally have greater awareness of the gender dimensions within them yet know little of the minerals sector. As gender cuts across all facets of life that jointly determine wellbeing and development, all actors (state and non-state, men and women) and all sectors have a responsibility to take appropriate action to address gender inequalities within their areas of mandate.

Implications of research findings are therefore particularly relevant to those seeking to advance the ASM subsector. **ASM policy and intervention is not gender neutral and can serve to widen or narrow gender gaps depending on approaches taken.** If ASM is to fully realize its poverty reduction potential, ASM policy and interventions must also fulfill their responsibility to improve the socio-economic status of women, in part by establishing the intersectoral collaboration needed and, in large part, by strengthening their voice and personal freedom by mainstreaming gender throughout their efforts. While, recognition of gender-differentiated needs and interests and redistribution of power and resources will be needed to facilitate the transformative change needed, both women and men engaged in implementing ASM policy and intervention, as well as their beneficiaries, have critical roles to play in advancing this evolution.
8.4 Emerging Themes of Research and Action
A number of opportunities exist for academia, government, donors, NGOs, consultants and ASM practitioners to advance gender equity in ASM communities. This section identifies areas where further scholarship would build upon and inform the evidence base needed to advance health and wellbeing in ASM communities. It further provides specific recommendations for ASM projects and programs as well as mineral policy and legislation can support gender-responsive outcomes.

8.4.1 Implications for Future Research
Opportunities for future research that have emerged from this work relate to: (i) specific research needs in KKTC; and (ii) the nexus of ASM, gender and sustainable livelihoods, wherein some research into related methodological approaches would also be useful.

Specific Research Needs of KKTC
A number of outstanding questions arising from this work has prompted more in-depth research on the following topics:

(a) Health Impacts of Salt Mining.
One of the most serious afflictions (both psychosocially and physically) that repeatedly arose during almost all interviews and focus groups is the damage to genitals and reproductive organs caused by prolonged immersion in salt water. Claims of barrenness, miscarriages and severe stomach pains among women and deformed genitalia among men are widespread. The social stigma of this to girls and young women is pronounced and seems to be a factor in their entry into the sex trade. These reported effects are compounded by sores caused by STDs (e.g. from gonorrhoea or syphilis), regular outbreaks of cholera (usually coinciding with the dry season influx of miners) and other community health issues.

Clinical research is direly needed to determine whether health affects can be attributed to salt, potential linkages to STDs and other health issues. Is the reported reproductive health damage in KKTC actually a result of salt water immersion? Or are there other
causes? Are there linkages with prevalence of HIV/AIDS and other STDs? This research would go far in demystifying the reproductive health impacts oft reported but never proven and would mark an important step towards identifying viable preventative and treatment measures and, ideally, redressing the social stigma that plagues young women and girls, in particular.

In any event, the painful effect of prolonged salt water immersion on wounds requires research on suitable personal protective equipment for women and men miners. Rubber and polyurethane hip waders as well as salt resistant gels have been distributed to miners and attempted. In the case of the former option, wearing of protective gear in the high temperatures at the salt lake, particularly in the dry season (~40°C) made already hot conditions sweltering. In the latter case, the gel (which promised up to 12 hours of protection) was ineffective in the brine that is 8-10 times more saline than sea water. Technical research on different appropriate options, considerate of working conditions and the gender division of labour at the salt lake, are urgently needed.

(b) Linkages between Socio-economic Status of Women in the Community and Household Gender Relations

The comparatively higher wellbeing of women traders and small businesswomen (most of whom are linked with the salt trade) yields interesting questions, particularly given that their education levels are comparable with women engaged in other activities. Occupation does seem to play an important role in overcoming gender inequalities and women who have “leveraged” their origins in salt to become business women seem to have developed social and business skills, increasing their socio-economic status, potentially leading to improved autonomy in the household.

Furthermore, for many statistically significant indicators, women who were identified as “household heads” (typically single, divorced, widowed or abandoned) were not significantly worse off than men who head households, yet their greater autonomy may yield additional, as yet unidentified, benefits and consequences.
These findings call for further social research to assess such questions as: What are the factors that have generated the relative success of some women compared to others? Are skills in business planning and financial management a key “tipping point”? Are women who are household “heads” really worse off than married women? And, ultimately, has the suggested higher level of socio-economic status of women traders in the community transformed gender relations in the household? Profiling the pathways out of poverty – the lives of comparatively “successful” women traders – would provide useful guidance into how these women specifically overcame barriers.

(c) Appropriate, Intermediate Salt Mining Technologies

While women frequently dominate artisanal salt mining across Africa, the in-lake methods necessitating deep immersion in KKTC seem unique compared to those techniques used in other areas (Ghana, Mali, Tanzania, Kenya and Kibiro in Uganda). Improving the quality and quantity of salt produced in KKTC, as well as diversifying the products from salt mining, particularly via engendered approaches, would make a substantial contribution to the increased incomes and improved wellbeing of women as well as men miners and the community at large.

An extensive literature review revealed that very little research has been conducted into appropriate, intermediate salt mining methods. Based on the technology currently in place at KKTC, some potential topics to explore include (after Priester et al, 1993):

- How 3 (or more) adjacent salt pans could be linked for purposes of sequential extraction of gypsum (17° Be on the Baume Scale) and then sodium chloride (29 to 30° Be), both of which can be recovered as precipitated crystals and sold, are significant concepts that have yet to be explored. Potential for recovery of other secondary products (e.g. mixed potassium and carbonate products, for instance for use as fertilizer of acidic, potassium deficient soils), as well as appropriate iodization methods, should also be investigated.

- Potential for on-shore processing, either primary processing using pumped or hauled salt lake water or secondary processing by washing to produce higher quality salt from low grade salt or even rock salt (which is now mainly sold as salt licks for cattle and other livestock).
Assessment of occupational safety and health alternatives, including suitable personal protective equipment given extreme temperatures (in excess of 40°C) around the salt lake, the gender division of labour and highly saline working conditions, among other factors.

Organizational arrangements between adjacent pan owners to explore how appropriate, intermediate technologies could be introduced given high levels of competition and marginal trust levels between producers.

Optimization of pan construction, water channeling and pan cleaning methods and their timing. Contamination with impurities, such as mud and silt introduced via current methods, seems to be an important factor in poor salt quality.

Use of black plastic sheets or other materials to line pond bottoms or addition of small quantities of nitrogen or phosphorus fertilizer (to speed up algal growth through absorption of radiation) in order to raise salt pond temperatures needed to increase evaporation rates.

Any technology must necessarily be appropriate and intermediate. Appropriate methods are suitable to the situation, for instance, in terms of skill levels, literacy, costs to purchase and maintain, organization of work, gender division of labour, and effectiveness. Intermediate technologies are a “step up” from current methods but are not a leap to advanced methods that might undermine the labour demands and, especially given the extent that current methods are ingrained in the community, would be unlikely to be adopted.

The Nexus between ASM, Gender and Sustainable Livelihoods
By placing findings in the context of current knowledge and scholarship, this Chapter has given meaning that can be generalized to other settings or populations. Many of the research questions that have emerged, therefore, have broader applications to the ASM subsector in general.

(a) Gender and the Organization and Value of Work at the Mine Site.
Findings of this research indicate that certain roles in the mine generate lower incomes than others while socio-cultural factors, including increased demands on women’s time
and men’s dominant control and ownership in specific areas of the site, constrain women’s engagement in more lucrative jobs at the salt lake.

The strenuousness of different roles in artisanal mines is often used as a justification for lower pay or lesser value afforded to certain jobs. Even in male-dominated ASM sites, those who hold the license or, for unlicensed ASM, when the organization of work is structured via independent individual or family units dispersed across a site (“community mining”), those individuals engaged in digging or “extraction” often control the mine. Processors - who are often elderly, women, youth and children - are often viewed (or sometimes paid) as labourers and commonly earn lower incomes. The situation differs for ASM activities organized in teams (e.g. groups of 6-15 miners), where proceeds are generally shared equally, despite the roles and functions. Similarly in small companies (at least in Uganda), salaries are typically the same for jobs in the pit and the mill (Section 5.1).

This phenomenon has been found across Uganda, in a number of countries and for multiple commodities (from gold and tin to stone and clay) (Amutabi and Luttamu-Mukhebi, 2001; Chakravorty, 2001; Dreschler, 2001; Hinton, 2005; Jennings, 1999; Lujan, 2004; Veiga, 1997 and others).

Given that women’s participation in ASM is highest at the “community mining” level and drops off sharply for team mining and even more so for mechanized, small scale mining, it would be useful to examine why and how certain roles are less valued than others in different contexts and in different work arrangements. What are the implications in terms of sustainable livelihoods development? Furthermore, how does this relate to vulnerability, access and control at the mine site and which factors are significant in constraining or promoting women’s participation in more lucrative roles? How do more mutually beneficial work arrangements evolve? And, what can be done to redress inequalities in value of work?

(b) Gender and ASM Policy and Interventions: A Blessing or a Curse

This research posits that ASM policy and intervention is not gender neutral and the absence of engendered approaches can actually serve to exacerbate poverty. For
instance, Mwaipopo et al (2004) found in gold communities around Mwanza, Tanzania, that introduction of new technologies that increased male miners’ incomes actually contributed to declines in health and wellbeing of certain groups of women in the community. It is suggested that, if the labour and knowledge of women at Lake Katwe were used in technology assistance programme to improve salt quality, the benefits they derived would only be marginal if they have no say in the use, management and ownership of the technology. Unforeseen consequences may further include increased disparity in socio-economic status and heightened power imbalances within the household, each of which have consequences for health and wellbeing.

Over the past decade, a number of governments have reformed mineral policy and legislation to include ASM (e.g. Uganda, Tanzania, Peru, Guyana, etc) while extensive technical interventions have been conducted by World Bank, DFID, UNIDO, Swiss Development Agency and others in countless countries. While monitoring and evaluation is a common component of these activities, it is believed that broader gender and development outcomes receive varying degrees of consideration.

Building upon the sustainable livelihoods model employed herein, gender-sensitive research into the broader impacts and benefits of ASM policy reform and intervention is needed. Development and use of an engendered evaluation tool applied via a multi-site and multi-country comparative study would further make a substantial contribution to scholarship and the international ASM community at large.

(c) Incorporating Rights-based Approaches in ASM Research

This research employed a combination of qualitative and quantitative methods with the intent of providing the statistical evidence needed to inform deep discussion thereby providing a more comprehensive, meaningful and explanatory picture. In the belief that the process of participatory research is as important as the outcome, the research approach further sought to promote knowledge sharing, mutual education and generation of local knowledge to improve conditions (MacCauley et al, 1998).

What emerged in the application of these methods was (i) a recurring theme concerning women’s lack of autonomy, voice and dignity as a cause and consequence
of poverty; (ii) the efficacy of participatory, action based research in bringing about remarkable insights and relevant conclusions by both the researcher and male and female participants; and (iii) the need to more explicitly incorporate the concept of “rights” within future approaches. Findings strongly suggest weak governance at the mine site, in the community and at national levels play a strong role in determining outcomes in terms of realization of rights and the poverty that results.

Furthermore, an extensive literature review reveals a major gap in terms of understanding the circumstances that result in women taking on more prominent or non-traditional roles at the mine site in some cases. What factors have enabled women to increase their engagement in terms of governance at the mine site? Are systems of accountability and transparency the same or different from sites where women have not succeeded in taking on these roles? Are the outcomes for vulnerable persons (men and women) occupying lower status roles at the mine the same or different than sites where women have not taken on these roles? Answering these questions would yield much insight into how women can overcome binds imposed by their greater work burden to more equitably engage in management and control of mines and, in theory, share of its benefits also.

Multi-site case studies targeting areas where women have overcome the status quo would substantially build upon the discourse related to ASM as a vehicle for poverty reduction and bring much needed positive examples of women’s contribution to and benefits from the subsector. Narrowly focusing the research methodology herein to focus on the concept of mineral rights and governance and its gender dimension within ASM areas would increase understanding of the significance and interpretation of rights in a context which is largely, by definition, illegal, while use of participatory methods and gender tools presents an opportunity to thoroughly examine how rights, entitlements and obligations of women and men are realized in ASM areas, while building shared awareness of research participants.
8.4.2 Implications for ASM Projects, Programmes and Interventions

Charting pathways out of poverty requires ASM policy makers, donors, academics, NGOs and others working in the subsector to go beyond traditional interpretation of their mandates and objectives to explicitly recognize the gender dimension of their work. In most cases, effective gender mainstreaming requires a new set of skills and approaches. Drawing on findings of this research, this is suggested to include:

1. Analysis of the Gender Dimensions of ASM.

Even the most “technical” of interventions can have far reaching effects, particularly if women lose their livelihoods and/or financial benefits and shifts in management structures overwhelmingly favour men. Based on the principle that “social analysis is gender analysis”, baseline socio-economic and technical assessments that typically precede intervention can inform gender-responsive design by incorporating basic tools to understand the gender dimension of ASM and, in particular, the different roles, responsibilities, needs and priorities of men and women who are engaged in or affected by mining. Implementers should be open to the likelihood that assessments may identify gender training as a core need and design programs accordingly.

Academics and practitioners should also consider the ways in which baseline assessments present an opportunity to build mutual capacity and even address gender relations. For example, in this research, discussions that followed the use of daily activity clocks to understand gender divisions of labour and participatory exercises to explore access, control and ownership of resources and their benefits, prompted many initially skeptical men to make remarkably bold conclusions (e.g. concerning elimination of the bride price or changing inheritance practices).

2. Seizing Opportunities to Increase the Voice of Women.

Participation of local stakeholders, identification of policy or project beneficiaries and design of consultative processes (e.g. in mixed and separate forums of women and men) must consider how women and men are being engaged and whether the needs and priorities of women as well as men are truly being voiced and heard. Although local leaders and other “elites” may appear most informed, they don’t necessarily reflect the views of the populace while, conversely, those most marginalized are
typically the most difficult to engage. Caution is needed when working with local mobilizers, who have their own social networks and may seek to serve their own interests, while initial site profiles should recognize diversity within and between different subgroups and try to bring on board even the most vulnerable persons. An added benefit of conscientious inclusion and respect for different voices may be to increase the socio-economic status of those beneficiaries involved.

3. Going Beyond Participation towards Outcomes.
While equal participation may generate equal opportunities, it does not necessarily ensure equality of outcomes. If women are solely used as a resource for development programmes and policy reform, these interventions are unlikely to address neither the practical or strategic gender needs of women (Moser, 1989). For example, if the labour and knowledge of women at Lake Katwe are used in technology assistance programme to improve salt quality, the benefits they derive will only be marginal if they have no say in the use, management and ownership of the technology.

The difference between “outputs” and “outcomes” are significant in design of any project and related monitoring and evaluation frameworks. Outputs related to the completion of certain functions within a specified time in accordance with work plans (e.g. number of women and men trained annually) while outcomes reflect the results of specific activities, policies or programs (e.g. number of senior positions in ASM organizations held by women, increase in incomes of women or men). Both types of indicators are needed in order to determine whether positive or negative outcomes can be attributed to specific actions. Inclusion of gender-disaggregated, poverty-relevant objectives and targets for outputs and outcomes can ensure budgets and work programs are engendered and gender equity is advanced through intervention.

4. Mainstreaming Gender in Training Activities
While gender differentiated needs and priorities can be identified through engendered baseline assessments, numerous entry points exist to increase gender awareness via training and sensitization of artisanal miners.
For example, efforts to build capacity of artisanal miners to understand mining rights present an ideal opportunity to introduce the concept of human rights and rights-based approaches. A rights-based approach identifies: (i) rights-holders (and the rights they are entitled to) and helps develop their capacity to make their claims and (ii) duty-bearers and helps make sure they meet their obligations.

Discussions of human rights, specific constitutional and legal as well as universal rights can precede focus on land rights and mining rights. Few participants are likely to feel that human rights are bad and women are not human beings who are also entitled to them. Who, in the case of human, mining and land rights, are rights-holders and duty-bearers? What are their respective entitlements and obligations? Who really enjoys these rights? What are the inequalities in enjoyment of rights and why do they exist? Is this consistent with earlier conclusions on human rights or does it differ? What should be done about these disparities?

Similarly, training to co-identify occupational health and safety risks in different units of operation of a mine can elicit an examination of gender roles, responsibilities and related impacts and benefits. While more comprehensive programs would necessarily even include specific modules on gender, these examples nevertheless illustrate how even the most basic consultation, sensitization or training activity can readily be adapted to increase awareness.

Training activities undertaken by the Dept. of Geological Survey and Mines (DGSM) perhaps exemplify one of the paramount examples of how gender can be mainstreamed in these efforts. In addition to gender training of implementing government technical officers in advance, curriculum was designed in conjunction with a gender expert and training included modules on gender. Daily gender audits (by beneficiaries) were held at the close of each training day. Any group work required gender balanced teams, including those reporting back, and, within days, many women reportedly significantly increased their self-confidence and capacity to vocally express themselves in mixed groups.
5. Building Capacity of “Practitioners” to Understand the Importance of Gender

ASM consultants, academics, NGO workers as well as policy makers and technical officers in mining agencies have critical roles to play in advancing the ASM subsector yet often do not possess the skill set or perhaps even the personal commitment needed to mainstream gender effectively. The most obvious gap can be readily filled by collaborating with gender experts in all phases of a project. However, with recognition that everyone, regardless of their training, background or personality, possesses some measure of gender bias, gender-responsive outcomes are unlikely if “gender issues” are simply off-loaded to a gender expert.

Promoting a shift in mindset of ASM “practitioners” through their engagement in engendered activities throughout a project can lead to development outcomes that surpass expectations for a given project and those that follow. Whether a beneficiary of intervention or practitioner, his or herself, genuine recognition of the significance of gender will take a shift in mindsets that can only develop through a process of engagement, leading to ownership of outcomes.

Finally, the needs of women and men miners extend well beyond the realms of mining engineering, geology into those of health, education, political participation and others. Gender-responsive ASM intervention calls for increased interdisciplinary collaboration between individuals, agencies and organizations with overlapping and complimentary mandates and objectives. The gender dimension of ASM is believed to be a strong factor in realization of the subsector’s poverty reduction potential. If not engendered, the success of ASM intervention is endangered, requiring alliances to be forged based on shared goals and objectives between sectors and disciplines as well as between men and women.
9 CONCLUSIONS
This research examined the conditions and factors that affect health, wellbeing and development opportunities of women and men reliant on different livelihoods in the salt mining community of Katwe-Kabatooro Town Council in Kasese, Uganda. Almost half of all women and men in KKTC primarily rely on salt mining as a main livelihoods and most of remaining population engages in ASM periodically or indirectly (e.g. in salt trading, providing goods and services etc) while the local Town Council yields 92% of its operating budget from taxes on salt.

ASM clearly plays a critical role in the socio-economy and environment of KKTC and, within and between the four main livelihood groups considered (mining, fishing, trading and “other” occupations), distinct gender differences have emerged, providing insight into how ASM fares in comparison to other livelihoods and how these livelihoods are interconnected and affect health and wellbeing outcomes of women and men. ASM rarely occurs in the absence of any other livelihoods thus this broader understanding of an ASM community yielded considerable insight into the central research question:

_How do main social determinants of health and wellbeing of women and men salt miners influence the assets or poverty reducing measures to which they have access and control?_

These issues were examined via four key questions:

1. What are the main factors affecting differential vulnerability of women and men in KKTC and how do national and local policies and processes ameliorate or exacerbate these vulnerabilities?

2. How do households and individual women and men reliant on ASM compare to households dependent on other livelihoods in terms of health and wellbeing?

3. What are the main assets or poverty reducing measures which women and men in KKTC have access and control of and what role does ASM play?

4. How can policy and intervention support transformation of gender relations in order to advance gender equity and poverty reduction in KKTC?

Main findings and conclusions for each question are discussed below.
9.1 Main Factors Affecting Differential Vulnerability of Women and Men
Although most residents of KKTC are, by all accounts poor, these findings suggest that, across the population, women are more distinctly disadvantaged in each of the five assets that provide the foundation of sustainable livelihoods.

The most profound disparity was found in the economic dimension of capital. For example, in terms of cash savings, 23.7% of women than men were more likely to have savings of less than $6 (p<0.01) while women's home values were 42% below those of men (p=0.01). One of the key factors may relate to the time demands imposed on women when the need to care for sick children, the elderly and other family members arises. This results in 41.2% more lost workdays for women than men, which is further compounded by personal illness leading to 16.9% more lost workdays than men (p=0.03).

Access to money and capacity to make decisions concerning their use seem to be an even more prominent root cause. While in some cases, men turn over finances for their wives to manage or decisions are shared, this seems to be more of the exception than the norm. “The problem that they (fellow miners) are keeping quiet is that you struggle, you work hard… and the man takes the money.” At its most extreme, incidences of domestic violence and threats of desertion may be used by husbands to forcefully take money from their wives “to buy alcohol and pay for sexual favours” (FHRI, 2009:35). In some cases, women admitted that their husbands actually encouraged them to earn local savings groups, saying “he wants to get it (the money) for himself”. The lack of women’s autonomy reflected by these scenarios is, in some cases, also institutionalized. For instance, many Ugandan banks still require a signature from a woman’s husband before an account will be opened.

These findings clearly reflect a lack of personal freedom and speak directly to issues of dignity and self worth with implications extending far beyond – and further exacerbating – financial disparity. The concept of women needing permission to take themselves or their children to health centre (although in any event, they often lacking control of financial resources needed to do so) certainly exemplifies these links. Many women quietly stated that they would like to take birth control to prevent additional
pregnancies but often do not have the money to do this and, if they do obtain it, often hide it from their husbands echoing the sentiments of Tanzanian women miners “We aren’t even free to decide how many children to have… women are always under (the control of) the husbands” (Hinton 2010:11). At the extreme end of the spectrum, some men have even declared ownership of women in children, as reflected by one miner’s statement “although we both have access and control.”

The health and subsequent financial (and even more subsequent health) outcomes of this are evident. However, the factors that confine roles in commercial activities along gender lines seem to be equally significant resulting in women’s lack of access to more lucrative, higher paying roles at the mine. Concerns about physical strength and risk were put forward, while many (but not all) women at the mine seem to have the physical strength and similar levels of risk awareness and aversion to take on a range of roles, just as many (but not all) men do.

While physical factors and risk are commonly argued and certainly perpetuate the gender division of labour, two key factors emerge as more likely causes: (i) control of the mining area and its “unit of operations” by men and (ii) women’s domestic work burden. Although ~70% of the workforce responsible for production of Grade II crude and washed salt are women, and this salt yields 72% more total production value than that of crude rock salt only produced by men, only about 3% of salt pans are owned by women. Similarly, the genderaho (haulers and loaders), who earn almost $1 USD for packing and hauling a single 100 kg bag of salt, are managed and predominantly staffed by men, while the men who pry rock salt from the lake bottom can earn as much as $100 per month. These harshly contrast the $5 USD per month that salt most women receive for maintenance and cleaning a salt pan, which requires women to seek out multiple salt pan “contracts” from owners supplemented by less consistent yields in their percentage share given for harvesting.

The “double bind” of commercial and domestic responsibilities placed upon women further contributes to the gender division of labour. Many women at the salt lake work with babies strapped to their backs or infants and young children idling at the edges of the salt pan, limiting their ability to take on jobs requiring greater mobility. Even older
women without young children still face greater responsibilities on the home front, particularly if a health crisis arises, resulting in lost workdays and lower incomes.

These factors limiting women’s participation in lucrative roles are critical to the outcome. Half as many women as men earn more than $277 US per year ($p=0.05) from salt mining, making women more vulnerable, at much higher risk of exploitation and unfair pricing or “shock” selling that exacerbates their low financial and ultimately health status further.

While issues of lack of autonomy, dignity and control – and their outcomes on vulnerability, health and wellbeing - seem to be a cross-cutting challenge facing most women in KKTC, they are not necessarily deterministic. Key findings related to how these factors and their outcomes differ between different livelihoods represents another step towards identifying pathways out of poverty.

### 9.2 Comparative Wellbeing of Women and Men in Different Livelihoods

Variation between women in different occupations was far more evident than between men. With the exception of women farmers, survey results suggest that women miners are generally more financially vulnerable than women who primarily rely on trading and fishing. As non-cash savings represent a standard of living, can be sold to buffer hardship, can be used as a form of collateral and, in some cases, are the tools needed to realize livelihood objectives, it is interesting that the mean value of women miners’ homes the lowest of any livelihood group, while women traders’ homes are valued at almost twice that of even their male counterparts.

Although women in trading are most likely to have no formal education (63%, $p<0.01) their health status seems to significantly higher than women in mining, fishing and farming. Women traders were most likely to report no illness or injury in the previous year (34.8%, $p<0.01), were least likely to have contracted malaria (26.1%, $p<0.01) and, not surprisingly, their expenditures on health treatment were 4-10 times below those of other women ($p=0.06). Furthermore, compared to women in fishing and mining, women traders lost between 77% and 121% fewer workdays per year due to
personal illness or that of a family member, affording them greater capacity to maintain their commercial productivity (p=0.05).

By comparison, men in different livelihoods did not profoundly differ, the exception being for men in trading and small business. Factors such as cash surplus, home ownership and value, access to information (e.g. via radio), malaria or absence of any illness all varied by only 1.6-12% for men in mining, farming and fishing (p<0.01). Interestingly, despite male traders being far more less likely to take ill within the period of 12-months, reporting the least malaria occurrences and lowest number of lost workdays, in comparison to other men, they were most likely to have no formal education (63%, p<0.01), no source of financial assistance (20%, p=0.02) and most likely to rent their homes (69.7%, p<0.06) while those that did own homes reported the lowest value.

Almost without exception, even within the labouring class, women are comparatively worse off than their men in the same occupation. However, it is interesting that, of all livelihood groups, gaps were narrowest between women and men engaged in trading and small business.

The causes may be linked with the relative vulnerability of women compared to men in fishing and mining. Almost half of miners transition into other livelihoods in the rainy season while, more than twice as many women miners as men engage in trading and provision of goods and services. Because of women’s relative vulnerability in mining, many have adopted (and have seen other women successfully undertake) small business and petty trading as a core coping strategy often as a year round supplement to incomes. Indeed, most women traders began with a foundation in salt mining and fishing, accumulating assets progressively leading to a shift into trading as it became more lucrative.

While some men described similar routes into small business, it is possible that many men with origins in fishing and mining did not have the same need to diversify income sources as women. Indeed, women in trading and fishing have shown a much greater likelihood than even their male counterparts to diversify their income base by investing
a greater proportion than their male counterparts in mining (i.e. buying salt pans) and fishing (e.g. buying boats, nets, supplies).

While it remains a question for further research, it is interesting to suggest that many of the men who transition into business may not have developed the same business savvy as women who have been more successful in doing the same. This supposition is particularly ironic given that men commonly manage household finances. As final decisions on household issues are almost always made by men (“If I have decided, there is nothing to be done (by her”), perhaps these final decisions may not always the best ones.

Given the observed business confidence and comparative outspokenness of the most successful business women in KKTC, it is interesting to consider whether their accumulated and demonstrated capacity to plan and make decisions, which is denied most women at the household level, has enabled women traders to redress power imbalances and ultimately contribute to their relatively higher economic, social and health status.

9.3 Main Assets and Poverty Reducing Measures: The Role of ASM
It seems clear that economic diversification, albeit prompted by women’s vulnerability, is a livelihood strategy that can build women’s social capital through skills development and lead to improved socio-economic status and better health outcomes. Not surprisingly, the most significant poverty reducing measures identified include:

- Transitioning into other livelihoods by 41.7% and 52.4% of resident men and women salt miners during the rainy season (p<0.01).

- Expenditures on other assets: About one-third of surplus spent on health and education costs for mining and fishing households (34.7% and 32.2% respectively) compared to trading and other households (25.0% and 23.8%, respectively).

However, those most vulnerable have far few assets availed to them. Girls and young women who face social stigma concerning perceptions of salt mining on reproductive
health perhaps exemplify this most intensively. The linkages between seasonal mining and sex trade work create obvious risks to those involved, a situation that may be made worse by salt water immersion, particularly those with sores due to STDs. Evidently, the poverty reduction strategy creates more poverty, particularly for those most vulnerable.

More systemically, disadvantaged women generally rely heavily on their most available asset – labour. Low paying jobs coupled with a heavy domestic work burden of women compound their poverty through increased exposure to health risks (including those related to total work burdens) lessen capacity to mitigate health issues and need to resort to “shock selling”. Again, if little opportunities for recourse are available, the coping strategies of those most vulnerable clearly lead to even deeper levels of poverty. This situation could be mitigated through more equitable sharing of the domestic burden of work and improved organization amongst miners, both women and men, in order to standardize prices for labour and salt and, ideally, enable salt accumulation in storage warehouses to stabilize prices due to seasonality.

Given the significance of organization, it is curious that statistical data suggests that gender gaps appear to be narrowest with respect to social capital, with 24.8% more women than men engaged in CBOs (p=0.06). Most qualitative findings, however, point to lack of voice, autonomy and dignity – the participatory dimension of poverty – as being a key cause of other disparities (Section 9.1.1). Thus, the benefits of using a mixed method approach when exploring the social determinants of health and wellbeing becomes evident.

Addressing the gender division of labour is far more complex. While the effects of women’s work at the salt lake were profoundly expressed by both women and men, the lack of value and visibility afforded to women’s work in the mine, the household and community, and its implications in terms of individual health, personal freedom and dignity are significant.

This again, speaks to the effectiveness of the methodology employed. Drawing upon statistical evidence from household surveys, mixed gender focus groups prompted
men to vocalize fears that women’s gain may be their loss. Examining these concerns within the context of human rights, the impacts of commercial, domestic and social roles (and resulting work burdens) and the far reaching outcomes of imbalanced control and ownership of assets elicited remarkable conclusions. In one case, the most vocal opponent to women’s rights came full circle and submitted recommendations concerning the abolishment of the bride price. Miners concluded that because women have such limited control in many aspects of their lives, they often make extra efforts to exercise and maintain what little power they have leading to marital discontent, high risk behaviour, misuse of household monies, and countless other impacts on individual and household poverty. Both women and men concluded that if women are empowered and share equally in family benefits from childhood, then they will “bring something to the table” in marriage, to the benefit of women, men and the entire family unit.

The most significant pathway out of poverty therefore appears to be a change in mindset leading to transformations in gender relations in the household, community and mine site.

9.4 Supporting Positive Transformation of Gender Relations
This research contends that, if the intent is to break the poverty cycle in ASM communities, ASM policy and intervention must substantially increase emphasis on improving the socio-economic status of women, in large part by improving responsiveness to human and social capital needs.

This calls for additional emphasis on the empowerment of women by increasing their capacity to equitably participate in, control and influence the aspects of society that affect their lives. This means that how a program is designed and implemented is as important as what is done. For example, while women miners may be theoretically “free” to engage in more lucrative activities at the salt lake, on a practical level, they may not be free to leave children at home to increase their mobility, attend to their health needs, participate in a training course, decide how their earnings are spent or vocalize their concerns at a community meeting.
This is, in itself, a useful insight for academics, practitioners, policy makers and others. What does this mean in terms of their respective roles and contributions transformation of gender relations for the purpose of poverty reduction and wealth generation? The specific recommendations put forward in Section 8.4: Emerging Themes of Research and Action are grounded in the following principles.

Firstly, increase the visibility of women’s work at the mine, in the household and community through conscientiously crafted mining policy and well designed engagement strategies. Women’s work is not “ancillary” or “secondary” to men’s work but rather it is a critical factor determining outcomes from ASM. Casting it as such, particularly in the ASM discourse, will serve only to perpetuate the lessened value afforded to women’s work.

Secondly, the ways in which ASM catalyzes or hinders growth and poverty reduction is far from simple. While multiple factors jointly contribute to health and wellbeing of individuals, relationships seem to be far from deterministic. This research, nevertheless, points to inequities in autonomy, voice and dignity in the household, community and at the mine as explaining many inequities found in multiple dimensions of poverty.

Thirdly, equal participation suggests equality of opportunities, but equality of outcomes is not certain (Reeves and Baden, 2007). Different tactics, methods and approaches may be required for women and men based on their different roles, responsibilities, needs, priorities and interests.

Fourthly, the process is as important as the outcomes. What is perceived to be gender neutral can exacerbate inequalities and actually serve to increase poverty and counteract development objectives. The right-based and participatory approaches to understand the gender dimensions of ASM employed in this research brought significant insights and outcomes that seemingly supported a transformation in mindsets. By engaging both women and men in order to co-identify cause, consequences and ultimately pathways out of poverty through thoughtful design of research, intervention and policy can lead to outcomes exceeding original objectives.
There is a reason why the Uganda Gender Policy (2007), as many national gender policies do, calls on all actors, state and non-state, to play a role in advancing gender equity. As suggested by this research, it is only through such commitment that gender equality will be achieved, sustainable livelihoods will become a reality and human poverty eradicated.

9.5 Original Contributions of the Research
It is widely believed that ASM has the potential to be a catalyst for entrepreneurial activities, the development of sustainable livelihoods and the alleviation of poverty. Most efforts have nevertheless achieved piecemeal results, while systematic, equitable progress towards realizing this vision has been largely elusive. Accordingly, many ASM researchers and practitioners have long emphasized the need for integrated, interdisciplinary approaches.

This research made a unique contribution to this discourse in that it filled a major gap by explicitly focusing on the gender dimension of health and wellbeing in ASM and ASM communities and its broader implications for sustainable livelihoods. Furthermore, it is believed to be one of the most comprehensive comparisons of ASM and other livelihoods conducted thus far, demystifying much of the often cited yet largely anecdotal assumptions of ASM and its interconnections with other livelihoods. That this was conducted through a gender lens adds even greater significance.

Building on the limited scholarship concerning gender and ASM, this research yielded original findings related to:

- The significance of gender and gender relations within the ASM poverty cycle;
- Strategic gender needs related to autonomy, dignity and voice of women miners as well as practical gender needs related to health, education and skills and social participation, among others; and
- Specific mechanisms to address gender relations in ASM via academic approaches, policy and intervention.
Indeed, it was only because this research extended beyond that scope of women miners alone – to women and men engaged in fishing, farming, trading and small business – that important pathways out of poverty were identified.

Perhaps most significantly, the research identified specific and non-traditional mechanisms for those engaged in ASM policy and intervention to effectively engender their approaches via a focus on mindset, attitude and transformation for both implementers and beneficiaries of these efforts.
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Appendix One: Household Survey Questionnaire

Gender-differentiated Impacts & Benefits of Artisanal Mining

Household Survey Questionnaire - Katwe Kabatooro Town Council

Interviewer: ____________________________

Date: ____________________________

Start Time: ____________________________ End Time: ____________________________

Remarks by Interviewer:

1. DISTRICT
2. SUB-COUNTY
3. PARISH
4. VILLAGE
5. LOCATION OF HOUSEHOLD (Description)

Before You Begin: I (we) would like to invite you to participate in a survey. This questionnaire is part of a research project to look at the social and economic effects of salt mining in your community. This will help us understand different needs, issues and opportunities of women and men in your community who are involved in different livelihoods (like mining, fishing and trading) and how they are benefiting from and impacted by these different livelihoods.

Are you the head of the household and over 18 years of age? (If yes) If you would like to participate, this will involve me/us asking you a number of questions about your household and the economic activities you are involved in. It will take us about 25 minutes.

I (we) would very much appreciate your participation, but I (we) want you to know that this is completely optional and, at any time, we can stop at your request. I (we) also want to assure you that anything you say will be kept completely confidential and your participation is anonymous (explain what this means).

By giving consent you would allow us to use your answers for this research project only.

Do you have any questions? So, can we carry on with the survey questions? (If yes:)

Type of Consent (circle one): oral (tape recorded) written
A WE WOULD LIKE A LIST OF HOUSEHOLD MEMBERS

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<th>ID</th>
<th>SEX (M/F)</th>
<th>AGE (Yrs)</th>
<th>MONTH OF PAST YEAR DID LIVE HERE?</th>
<th>HOW LONG HAS [PI] LIVED IN THIS SUBCOUNTY? (Yrs)</th>
<th>WHERE DID [PI] LIVE BEFORE? (DISTRICT/GOVERNOR'S SUBCOUNTY/VILLAGE)</th>
<th>HOW LONG IN THIS LOCATION (YRS)</th>
<th>WHAT IS [PI]'S PLACE OF BIRTH? (DISTRICT,GOVERNOR'S SUBCOUNTY) IF DIFFERENT FROM 12</th>
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<td>Over the past 12 months, has (name) operated any non-agricultural enterprise that produced goods or services, owned a shop or operated a trading business? (enterprise code + description)</td>
<td>If yes, which non-agricultural enterprises</td>
<td>In the past 12 months, how many months did the enterprise operate?</td>
<td>Is the past 12 months has (name) been involved in agricultural activities/farming?</td>
<td>If yes, in which agricultural activities?</td>
<td>What are the main basic needs of this household?</td>
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**Code for 27**

1 = mining  
2 = buying or selling of minerals  
3 = artisan  
4 = tailoring  
5 = metalworking  
6 = repair work  
7 = selling agricultural products  
8 = trader / merchant  
9 = other

**Code for 31**

1 = crops  
2 = poultry  
3 = poultry (specify)  
4 = other (specify)  
5 = n/a

**Code for 32**

1 = food  
2 = education  
3 = clothing  
4 = water  
5 = medical care  
6 = other (specify)

*If mining is specified, at the end of the survey please ask for consent to do the mining questionnaire at this time or a later date.*
**WE WOULD TO KNOW MORE ABOUT ACTIVITIES BY MEMBERS YOUR HOUSEHOLD**

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<tr>
<th>ID</th>
<th>During the past 7 days, how many hours did [P[N] spend time fetching water including travel and waiting time? If none write 0</th>
<th>During the past 7 days, how many hours did [P[N] spend time cooking or preparing food? If none write 0</th>
<th>During the past 7 days, how many hours did [P[N] spend time fetching firewood including travel time? None=0</th>
<th>During the past 7 days, how many hours did [P[N] spend time taking care of children and the elderly? None=0</th>
<th>Which household members have at least one pair of shoes?</th>
<th>Which household members have at least two sets of clothes?</th>
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<td>What is the quality of this water? 55</td>
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<td>1 = very clean, 2 = fairly clean, 3 = acceptable, 4 = not clean, 5 = very dirty</td>
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<td>In the past 30 days, has anyone in your household purchased water for consumption? 51</td>
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<tr>
<td>P12</td>
<td>1 = no other source, 2 = nearest source too far, 3 = other source(s) not clean, 4 = its easier or faster, 5 = other (specify)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

What type of fuel do you use most often for cooking? 57

1 = firewood
2 = charcoal
3 = paraffin or kerosene
4 = electricity
5 = gas
6 = solar
7 = biogas
8 = saw dust
9 = other (specify)

Write number in box

53 circle one

20 litre jerrycan

per litre

other (specify)
### WE WOULD TO KNOW ABOUT HEALTH ISSUES IN YOUR HOUSEHOLD

<table>
<thead>
<tr>
<th>ID</th>
<th>During the past 12 months, did [name] suffer from any illness or injury? (Y/N)</th>
<th>What type of illness or symptoms did [name] have (include all that apply)</th>
<th>Other (please specify)</th>
<th>How many times was [name] ill with this? [code num = num of times, e.g. malaria twice is 1x2]</th>
<th>For how many days during the past year did [name] have to stop work due to illness or injury?</th>
<th>Did [name] receive any consultation or treatment for the major illness or injury during the past 30 days? [if yes, specify who, if no go to 97]</th>
<th>What was the cost of this consultation/treatment? Excluding transport (Shs)</th>
<th>If NO why?</th>
<th>For how many days during the last year did [name] have to stop doing their usual activities to care for other household members who were sick?</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>P1</td>
<td></td>
<td></td>
<td></td>
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<td>41</td>
<td>P2</td>
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</tr>
<tr>
<td>42</td>
<td>P3</td>
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<td></td>
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<tr>
<td>44</td>
<td>P5</td>
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<td></td>
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<tr>
<td>46</td>
<td>P7</td>
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<tr>
<td>47</td>
<td>P8</td>
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<td>48</td>
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<td>49</td>
<td>P10</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>P11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Code for 46**

1 = malaria  
2 = typhoid  
3 = cholera  
4 = fever  
5 = fever (recurring)  
6 = cough (acute)  
7 = cough (recurring)  
8 = coughing blood  
9 = headache (acute)  
10 = headache (recurring)  
11 = diarrhea  
12 = boils  
13 = skin irritation/rashes  
14 = fainting  
15 = fracture  
16 = wound  
17 = burn  
18 = genital sores  
19 = sore throat  
20 = pain in passing urine  
21 = child birth related  
22 = chronic chest pain  
23 = chronic back pain  
24 = other (specify)  

**Code for 45**

1 = drugs at home  
2 = neighbour/friend  
3 = community health worker  
4 = traditional healer  
5 = drug shop  
6 = health unit I, II, III (e.g. 61)  
7 = hospital (specify name)  
8 = other (please specify)  
9 = drugs not available  
10 = other (specify)  
11 = illness mild  
12 = facility too far  
13 = hard to get to facility  
14 = too dangerous to go  
15 = facilities too costly  
16 = no qualified staff  
17 = too busy/long waiting  
18 = facility is closed
## G WE WOULD LIKE TO KNOW ABOUT YOUR PARTICIPATION IN THE COMMUNITY AND HOUSEHOLD

<table>
<thead>
<tr>
<th>ID</th>
<th>In the last 12 months, has any member of your household been an active member of an association, community-based organization, cooperative or other community group? If YES, write organization name; if NO, write 0.</th>
<th>How effective is this organization? If YES, in the past 12 months how many times has this group met?</th>
<th>Can other people in the village from your ethnic group be trusted?</th>
<th>What about people from another ethnic group?</th>
<th>The last time you suffered a crisis or hardship in the family, who did you ask for support? (e.g. economic, health, others)</th>
<th>Code for 60</th>
<th>Code for 62</th>
<th>Code for 63 and 64</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1 = Close friends in my community</td>
<td>1 = Very effective</td>
<td>1 = Yes, to a great extent</td>
</tr>
<tr>
<td>P2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2 = Friends outside of my community</td>
<td>2 = Somewhat effective</td>
<td>2 = Yes, to some extent</td>
</tr>
<tr>
<td>P3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3 = Family in my community</td>
<td>3 = Neither effective or ineffective</td>
<td>3 = Neither great nor small extent</td>
</tr>
<tr>
<td>P4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4 = Local government official</td>
<td>4 = Somewhat ineffective</td>
<td>4 = To a small extent</td>
</tr>
<tr>
<td>P5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5 = Other</td>
<td>5 = Very ineffective</td>
<td>5 = No, not really</td>
</tr>
<tr>
<td>P6</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6 = No one</td>
<td>6 = Not supportive</td>
<td></td>
</tr>
<tr>
<td>P7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7 = Other</td>
<td>7 = Other (describe)</td>
<td></td>
</tr>
<tr>
<td>P8</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8 = Other</td>
<td>8 = Other (describe)</td>
<td></td>
</tr>
<tr>
<td>P9</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9 = Other</td>
<td>9 = Other (describe)</td>
<td></td>
</tr>
<tr>
<td>P10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10 = Other</td>
<td>10 = Other (describe)</td>
<td></td>
</tr>
<tr>
<td>P11</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>11 = Other</td>
<td>11 = Other (describe)</td>
<td></td>
</tr>
<tr>
<td>P12</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>12 = Other</td>
<td>12 = Other (describe)</td>
<td></td>
</tr>
</tbody>
</table>

**Code for 60**

1 = Occupation-based association
2 = Community-based Social Assistance Group
3 = Community-based Savings and Loan Scheme
4 = Other (specify)

**Code for 62**

1 = Very effective
2 = Somewhat effective
3 = Neither effective or ineffective
4 = Somewhat ineffective
5 = Very ineffective

**Code for 63 and 64**

1 = Yes, to a great extent
2 = Yes, to some extent
3 = Neither great nor small extent
4 = To a small extent
5 = No, not really
H JUST A FEW MORE QUESTIONS ABOUT YOUR HOUSEHOLD...

Do you or any member of your household have access to agricultural land? Y/N 67

Does any member of your household own NON-agricultural land? Y/N 68

What is the tenure type? 68
1 = Customary
2 = Freehold
3 = Maillot Land
4 = Leasehold
5 = Don’t know
6 = Other (specify)

Does any member of your household own AGRICULTURAL land? Y/N 70

What is the tenure type? 68
1 = Customary
2 = Freehold
3 = Maillot Land
4 = Leasehold
5 = Don’t know
6 = Other (specify)

Do you rent or own this home? 74
1 = Rent
2 = Own
3 = Other

What is the land tenure of this plot? 68
1 = Customary
2 = Freehold
3 = Maillot Land
4 = Leasehold
5 = Don’t know
6 = Other (specify)

What is the total area in acres? 68

1 = Iron sheets
2 = Tiles
3 = Asbestos
4 = Concrete
5 = Tins
6 = Thatch
7 = other (specify)

Type of Material Used for Construction of ROOF 76

1 = Concrete
2 = Cement Blocks
3 = Stones
4 = Burnt/Stabilized Bricks
5 = Unburnt bricks with cement
6 = Unburnt bricks with mud
7 = Wood
8 = Mud and Pole
9 = Other (specify)

Type of Material Used for Construction of the WALLS 77

1 = Customary
2 = Freehold
3 = Maillot Land
4 = Leasehold
5 = Don’t know
6 = Other (specify)

What is the total area in acres? 68

How many rooms are in this house? rooms 79

What type of bathroom does this HH MAINLY use? 80
1 = Covered pit latrine (private)
2 = Covered pit latrine (shared)
3 = VIP Latrine (private)
4 = VIP Latrine (shared)
5 = Uncovered pit latrine
6 = Flush toilet (private)
7 = Flush toilet (shared)
8 = Bush
9 = Other (specify)

What is this households main source of information? 81
1 = Radio
2 = Television
3 = Print media
4 = Piped water
5 = Hand mail
6 = Post mail
7 = Word of Mouth
8 = Other (specify)
Appendix Two: Statistical Analysis

Indicators used in the vulnerability assessment were selected as they yielded statistically significant differences between different livelihood-gender groups.

Table A1: Results of Statistical Analysis for Selected Factors by Livelihood & Gender
(95% confidence interval)\textsuperscript{a,b}

<table>
<thead>
<tr>
<th>Vulnerability Factors</th>
<th>MINING</th>
<th>FISHING</th>
<th>TRADING</th>
<th>OTHER</th>
<th>Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
</tr>
<tr>
<td>Economic Factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash Surplus &lt;$6</td>
<td>51.6</td>
<td>58.6</td>
<td>50.0</td>
<td>20.0</td>
<td>37.5</td>
</tr>
<tr>
<td>House Value</td>
<td>1196</td>
<td>742</td>
<td>1842</td>
<td>819</td>
<td>529</td>
</tr>
<tr>
<td>Health Factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaria in past 12 months</td>
<td>46.1</td>
<td>48.8</td>
<td>50</td>
<td>40.9</td>
<td>27.3</td>
</tr>
<tr>
<td>Some illness resulting in lost work in past 12 months</td>
<td>68.6</td>
<td>72.6</td>
<td>73.5</td>
<td>86.4</td>
<td>45.5</td>
</tr>
<tr>
<td>Lost more than 14d/yr due to illness</td>
<td>59.1</td>
<td>56.3</td>
<td>41.7</td>
<td>66.7</td>
<td>28.6</td>
</tr>
<tr>
<td>Education and Information Factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No education</td>
<td>51.4</td>
<td>54.6</td>
<td>33.3</td>
<td>43.6</td>
<td>63</td>
</tr>
<tr>
<td>No Radio Ownership</td>
<td>13</td>
<td>35.5</td>
<td>3.7</td>
<td>12.5</td>
<td>7.7</td>
</tr>
<tr>
<td>Social Factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not in organization</td>
<td>55</td>
<td>65.6</td>
<td>64.3</td>
<td>33.3</td>
<td>53.3</td>
</tr>
<tr>
<td>No source of assistance</td>
<td>8.5</td>
<td>3.1</td>
<td>3.6</td>
<td>11.1</td>
<td>20</td>
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<tr>
<td>Physical Factors</td>
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<td></td>
</tr>
<tr>
<td>Rent rather than own</td>
<td>32.7</td>
<td>30</td>
<td>40.7</td>
<td>14.3</td>
<td>69.2</td>
</tr>
<tr>
<td>Not private pit latrine</td>
<td>61.0</td>
<td>46.9</td>
<td>53.6</td>
<td>22.2</td>
<td>60.0</td>
</tr>
<tr>
<td>Dist to fetch water (m)</td>
<td>218</td>
<td>233</td>
<td>202</td>
<td>300</td>
<td>390</td>
</tr>
</tbody>
</table>

Notes: (a) With the exception of distance to fetch clean water (in metres) and house value (in USD), all indicators were in the form of percentages of households or individuals in each of the livelihood-gender groups; thus only these variables were normalized on a 100 point scale (relative to the maximum water fetching distance or minimum household value set at 100%).

(b) Different factors were not prioritized (weighted) but composite factors calculated as an average of each. Prioritization by/with participants would add value to future work.

(c) All indicators were on a percentage scale, and therefore were not normalized or rescaled to any benchmark, but rather the relative vulnerability was simply plotted relative to the maximum value (of 80% which was the maximum).