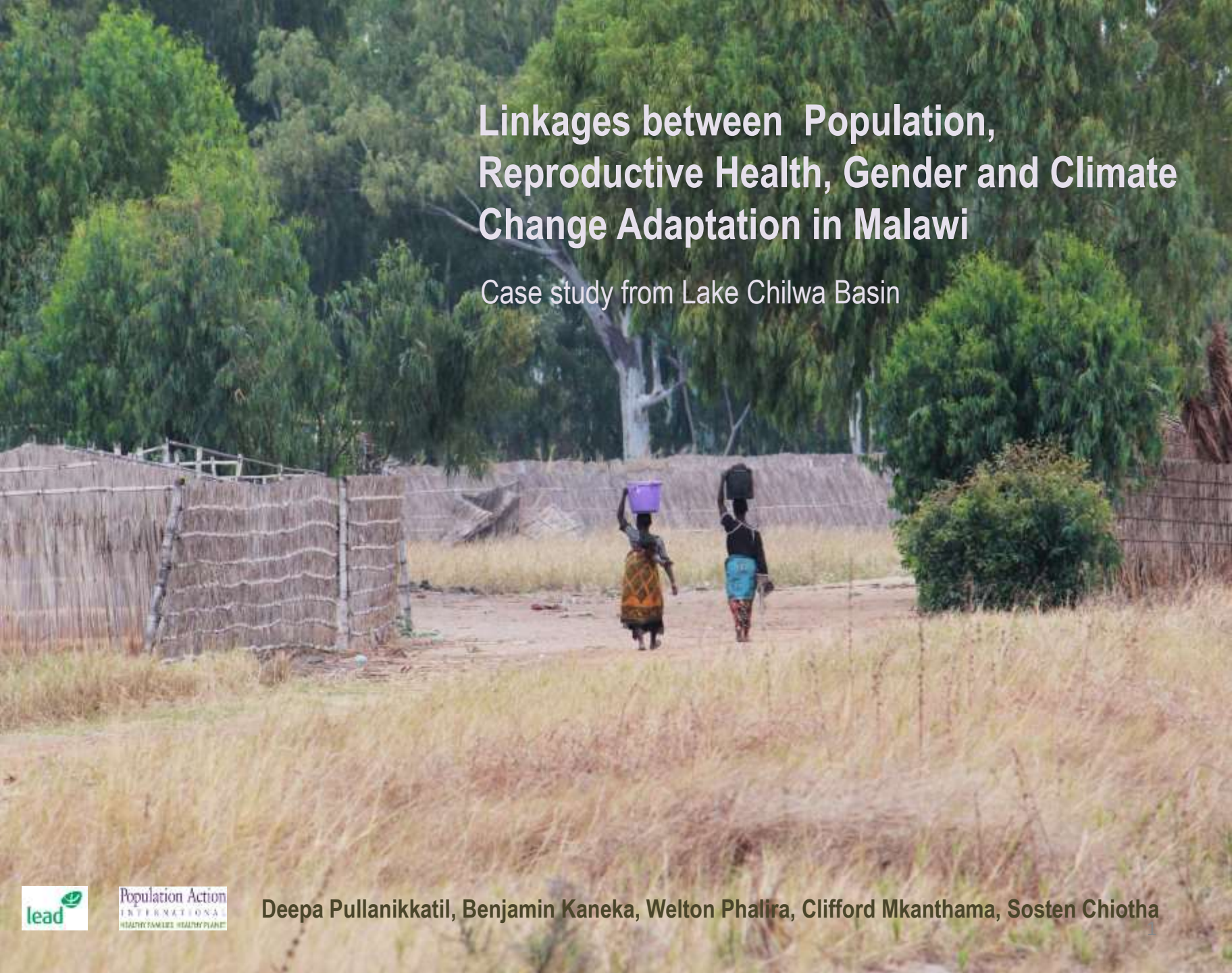


Linkages between Population, Reproductive Health, Gender and Climate Change Adaptation in Malawi

Case study from Lake Chilwa Basin



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Key Messages

1. Lake Chilwa is an important ecosystem that provides services which are critical to the wellbeing and livelihoods of people living in the basin. Addressing population growth and migration in Lake Chilwa Basin will help improve ecosystems functions and reduce environmental degradation.
2. Women are affected by climate change and variability at disproportionately higher rates than men, therefore empowering women through education, access to loans, reducing inequalities, improving access to family planning and reproductive health measures will help them adapt better to climate change.
3. Population growth coupled with climate change and climate variability puts pressure on natural resources, thereby impeding the adaptive capacity of people. Therefore, climate change adaptation programs and project should integrate population issues.





1 Introduction

Malawi, a landlocked country located in south-east Africa has its majority of populations (85.5%) dependent on natural resources for their livelihoods as rain fed agriculture is practiced by more than 90% of its farmers (GoM, 2011; ActionAID, 2006; FAO, 2011). This has put a lot of pressure on natural resources. As the country's population tripled over the past forty years, consequently pressure for natural resources and land has increased and continues to increase (GoM, 2011). Furthermore populations tend to migrate into areas which have highly productive ecosystems such as the Lake Chilwa Basin, where there has been a steady flow of migrants seeking better livelihoods.

Climate change exacerbates the strain on natural resources; the National Adaptation Plans of Action (GoM, 2006) for Malawi documented both direct and indirect impacts of climate change across many sectors including agriculture, water, human health, energy, fisheries, wildlife, forestry and gender. Climate change disproportionately affects women as it decreases the availability of natural resources that women are responsible for collecting – including food, firewood and water for their households. Consumption due to population growth in poor societies in Malawi will emit insignificant amounts of greenhouse gases (GHG), however, deforestation and land-use change by these societies can contribute towards GHG emissions. Furthermore, 27% of women in Malawi have expressed an unmet need for national family planning (AFIDEP-PAI, 2012). If these women had access to family planning they would be able to: have fewer children, the ability to space births, and as a result be able to better adapt to climate change impacts. This illustrates the linkages between population, reproductive health, gender and climate change.

In this context, Population Action International (PAI) and Leadership for Environment and Development Southern and Eastern Africa (LEAD SEA) undertook a study to assess the knowledge, attitude and practices amongst communities in the Lake Chilwa Basin (LCB) about the linkages between reproductive health, population, gender and climate change adaptation in order to produce various training and advocacy materials to highlight these linkages. The project included Radio Listeners Clubs (RLC), which prepared radio programs that highlighted the linkages between reproductive health, population dynamics, gender and climate change adaptation. This project is unique because it addresses the challenge of climate change from a different perspective than what is currently being propagated by most climate change adaptation programmes/projects in the country. Despite the acknowledgement of gender as an important element in climate change adaptation (GoM, 2006), the focus of these projects is more towards inclusion of women in development activities and adaptation, rather than taking a holistic approach that integrates reproductive health, gender and population in climate change adaptation. It is important to advance women's health and needs as vital in the climate program planning and policies.





*Figure 1 Lake Chilwa Basin the study area with villages where household survey was conducted (Mposha, Ngwelero, Chimombo)
Map prepared by Mathews Tsirizeni*

2 Study Area

Lake Chilwa is recognized as both a Ramsar Site and a UNESCO Biodiversity Reserve (UNESCOPRESS, 2006). The Basin provides livelihoods to approx. 1.5 million inhabitants (NSO, 2009). It is densely populated, with 194 people per square kilometer, compared to the national average of 136 per square kilometer. This reflects a steep population increase of 23% (mostly due to high fertility rate and migration into the area) between 1998 and 2008, compared to 2.8% increase nationally (NSO, 2009). The sex ratio is 0.9 (for every 90 males there are 100 females), with a total fertility rate of 6.9, higher than the national average of 5.7 (NSO, 2009). Furthermore, the Lake has experienced extreme fluctuation in levels with eight episodes of drying up in the past century, thereby being vulnerable to climate variability and change (GoM, 2011).

The basin provides diverse economic benefits to its inhabitants, 90 % of whom rely on fishing, farming and petty trading on fish and farm products for their livelihoods (Zimba and Kaunda, 1999). Despite the various livelihood opportunities, fishing consistently provides greater economic returns than farming per square km (Schuijt, 1999). However, fishing is affected by periodic shocks of drying of the lake, historically in 1903, 1913–16, 1922, 1934, 1943–48, 1967, 1973, 1975, 1995–96 and most recently partial drying in 2012. Past livelihoods and ecological studies have shown that the Lake Chilwa Basin is a fragile ecosystem, vulnerable to pressure from deforestation and fires in its catchment, as well as the periodic complete desiccation of the lake.

Table 1 Demographic and Physical Information about the Lake Chilwa Districts

<i>Indicator</i>	<i>Machinga</i>	<i>Zomba</i>	<i>Phalombe</i>	<i>Total</i>
Total land area (km ²)	3,771	2,580	1,394	7,745
Catchment area (km ²)	1,608	2,580	1,394	5,582
Arable land area for districts (km ²)	913	508	278	1,699
Population (2008)	490 579	579 639	313,129	1,383 347
Population in catchment (2008)	193 778	579 639	313 129	1,026,546
Population density - catchment (2008)	121	225	224	183

Source: National Statistical Office 2008 Population and Housing Census



Kachulu harbour



Flash floods in Phalombe, photo courtesy Prof. Sosthen Chiotha

UNDP Country Profile for Malawi (McSweeney et al, 2010) states that mean annual temperature in Malawi has increased by 0.9°C in the past four decades and although there isn't any significant change in annual rainfall over the years, projections indicate changes in rainfall patterns in the future. Number of extreme weather events have been reported to have increased over the years (ActionAID, 2006). Coupled with this is poverty in Malawi which drives environmental degradation through deforestation and overexploitation of natural resources (GoM, 2011) which in turn increases vulnerability and poverty. The pressure for land in Malawi has been increasing over the years as population has more than trebled in the past 50 years and poverty is forcing communities to use marginal land in their pursuit to meet their daily subsistence needs. Therefore, poverty is seen as both the driver of environmental change and the effect. Climate change will exacerbate poverty as sectors such as water resources, health, forestry, agriculture, fisheries, forestry, wildlife and gender will be negatively impacted (GoM, 2011). The National Adaptation Programme of Action (NAPA) elucidates how these sectors will be affected. According to NAPA (GoM, 2006),

- "Water is an essential resource for human, animal, agricultural and industrial use, and for the maintenance of ecosystems. Increasing droughts would affect water availability and drying of water bodies, Floods would affect water quality through contamination.
- Malawi's economy and people's livelihoods depend on rain-fed agriculture. Thus persistent droughts and erratic rainfall would result in poor crop yields or total crop failure, leading to serious food shortages, hunger and malnutrition, shortage of industrial raw materials and reduced foreign exchange earnings. Floods would have similar effects.
- The human health sector is also expecting to see increased incidents of chronic ailments such as malaria, cholera, dysentery and malnutrition.

- About 98% of Malawi's electricity is generated by hydropower from the Shire River. The electricity sub-sector is very sensitive to climate and has been recently affected by both floods and droughts. The 1991/92 droughts resulted in low flow rates in the Shire River which considerably reduced electricity generation capacity.
- The Fisheries sector is affected by both droughts and floods. Droughts have been responsible for the declining or even drying up of water bodies resulting in low fish production and loss of biodiversity. In 1995, extended drought period was responsible for drying of Lake Chilwa resulting in total loss of fish stocks. In 2000/1, a number of fish ponds were destroyed by floods in Malawi.
- The major climatic hazard that affects the wildlife sector is drought since it affects availability of food and water. For example, the 1979/80 drought resulted in the deaths of Nyala in Lengwe National Park in Chikwawa and the migration of most animals from the game reserve.
- The major climatic hazards that threaten the forestry sector are extended droughts, which lead to reduced forest productivity, land degradation and loss of soil fertility, as well as forest fires. For example, during the drought of 1995, some 5,550 ha which represents 36% of Chongoni forest were destroyed by forest fires caused by human activities such as hunting resulting in smoke haze, pollution, loss of seedlings and biodiversity.
- Women bear most of the burden in activities that are most impacted by adverse climate, including walking longer distances in search of water, firewood and are regularly exposed to and inhale harmful emissions from fire places. Women also play a key role of ensuring that food is available to the family, especially their children. Women also carry the responsibility of caring for the sick members of the immediate and extended families."





3 Study Question

The study question was :

What are the perceptions about linkages between population, reproductive health, gender and climate change amongst communities in Lake Chilwa Basin?

Quick facts:

Total Fertility Rate for Malawi is 5.7 (average number of children per woman)
Adolescent Fertility Rate is 116.5 (births per 1000 women of ages 15-19years)
Maternal Mortality Ratio is 510 (per 100,000 live births)

Unmet need for contraception is 27.6 (% of married women between ages of 15-49 who want to have fewer children but do not have access to or are prevented from accessing family planning methods)

Wanted Fertility Rate (estimate of what the total fertility rate would be if all unwanted births were avoided) is 4.9

Temperature increase in Malawi over past four decades : 0.9°C

From 1979 to 2008, natural disasters affected nearly 21.7 million people and killed about 2,596 people.

Source: NSO, 2010; World Bank, 2012; Sweeney et al, 2010; Lunduka et al, 2010.

4 Methodology

The methodology included a combination of literature review, household surveys, focus group discussion, and workshop with stakeholders. Malawi's impacts on climate change, and the linkages between population, reproductive health and gender on climate change were studied in the literature review. A semi-structured questionnaire was used for household surveys and 100 households were surveyed in rural areas of Lake Chilwa Basin (in Mposa, Ngwelero and Chimombo areas). Focus group discussions were held with 20 participants in groups consisting of women, men, youth and elders. A national workshop was held with 35 participants from various organizations including government, development agencies and NGOs to come up with key messages.

The questionnaires administered and focus groups had questions related to what community perceptions were about how reproductive health issues limit their capacity to effectively adapt to climate change, how roles of men and women in Malawian culture affect their ability to adapt to climate change, how population growth affected access to natural resources in their villages and the linkages between population, reproductive health, gender and climate change that was perceived by communities.



Participants at workshop in Zomba



5 Respondents

Household surveys were conducted in 100 households in Lake Chilwa Basin. The first site, Mposa, is along the Lake Chilwa shore and was affected by the recession of Lake in 2012 when some individuals migrated to other parts of the lakeshore where there was still water for fishing activities. The other two sites, Ngwelero and Chimombo, are inland and have been affected by dry spells in the past, which affected crops productivity. The sites were selected based on vulnerability to climate variability.

The three areas surveyed had a predominantly young population, with the ability to work and have young children. The median age of interviewees was 32 years, 75% were less than 40 years old, and 89% were married. 51% of respondents were married between ages of 15-19 years, 34% were married between 20-24 years, 12% were married when they were 25 years or older while 3% were married when they were below 15 years of age. This reflects that child marriages were practiced in the Basin.

The Malawi Demographic and Health Survey 2010 puts the Total Fertility Rate (TFR) for Malawi at 5.7 and in rural areas TFR rises to 6.1, while it is 4.0 in urban areas. Lake Chilwa basin (NSO, 2010). TFR can be interpreted as “the number of children a woman would have by the end of her childbearing years if she were to pass through those years bearing children at the current observed age-specific rates” (NSO, 2010).

The education level in the Lake Chilwa Basin was found to be low. Eighty-eight percent of individuals surveyed had completed primary schooling while only 12% had completed secondary school. As a result of this low education level, many inhabitants work in subsistence agriculture or unskilled labor sectors, with high dependence on natural resources for livelihood activities. Low education levels may also contribute to high poverty levels in the area. Furthermore, when women are less educated, particularly in places where access to reproductive health and family planning services are poor, they tend to have more children. This may partially explain the high fertility rates in the Basin, however other reasons could be cultural.

Majority of persons who took part in the survey depended on natural resource reliant livelihoods. Farming was practiced by 69% and fishing by 11% which constitutes a total of 80% of those interviewed. This is in agreement with the Government of Malawi National Census which indicates that 85.5% of Malawians depend on natural resources for their livelihoods (NSO, 2008). Businessmen who owned their own small business constituted 17%, while casual laborers represented 2% of those interviewed and 1% were employed.

Income levels of those interviewed were low with 62% people having income below MK5000 (\$30 at the time of survey) per month. This is due in part to the fact that subsistence farming and fishing generate very little income. The Zomba District Socio Economic Profile (2009) supports these finding, stating that, "people receiving a regular monetary income only make up six percent out of the total population, together with the group of self-employed they represent only about 11% of the population. The rest, nine people out of ten, have no regular income and rely on seasonal (agriculture) and casual income." Machinga and Phalombe, the other two districts in the Lake Chilwa Basin, have similar statistics.

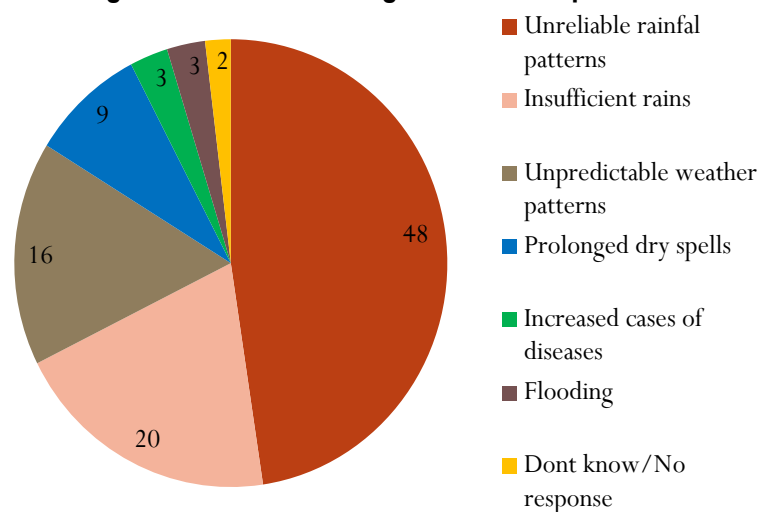




6 Perceptions on climate change and population

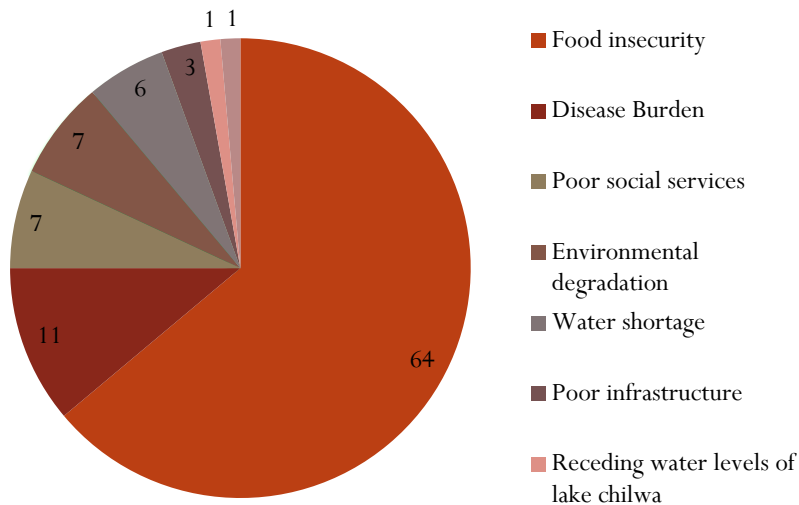
Communities living in Lake Chilwa Basin have been able to articulate the linkages between population and climate change. They stated that over the years they have been observing unreliable rainfall patterns, prolonged dry spells, flooding and increases in diseases which are affecting their crops and health. Coupled with this is the migration into Lake Chilwa and high fertility levels which puts pressure on natural resources as more people compete for the same resources.

Figure 2 Observed changes in weather patterns



Considering the region's livelihoods and income, it is unsurprising that 64% of the respondents indicated food insecurity as the major challenge they face. Disease burden was indicated by 11% as a major challenge and 7% noted poor social services (in education, employment, family planning). A notable 13% indicated environmental degradation and water shortage as the biggest challenge affecting them. Once again, the link between climate variability and food security is evident as dry spells, erratic rainfall patterns and extreme weather events affect crop productivity, contribute to increasing rates of water borne diseases, and thereby add to challenges that communities face.

Figure 3 Major challenges faced by communities

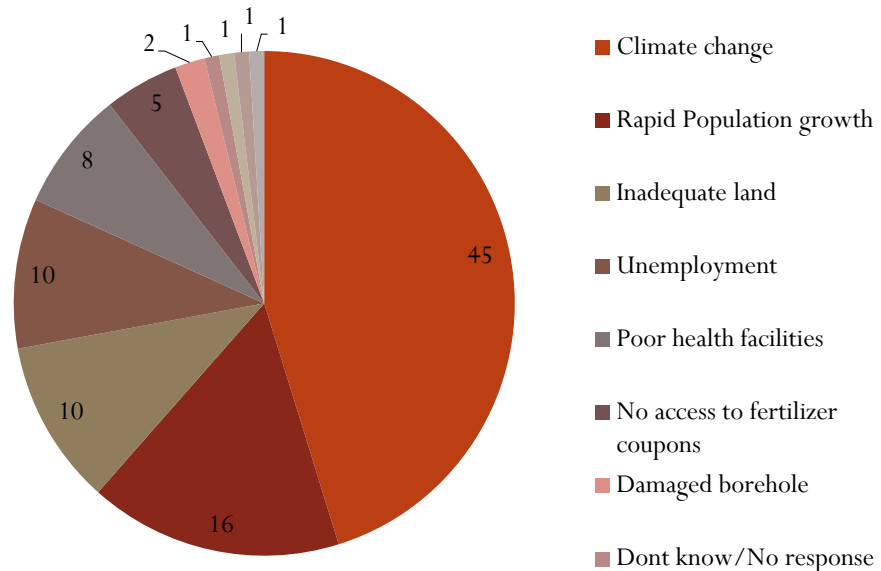




Tea shops at Kachulu

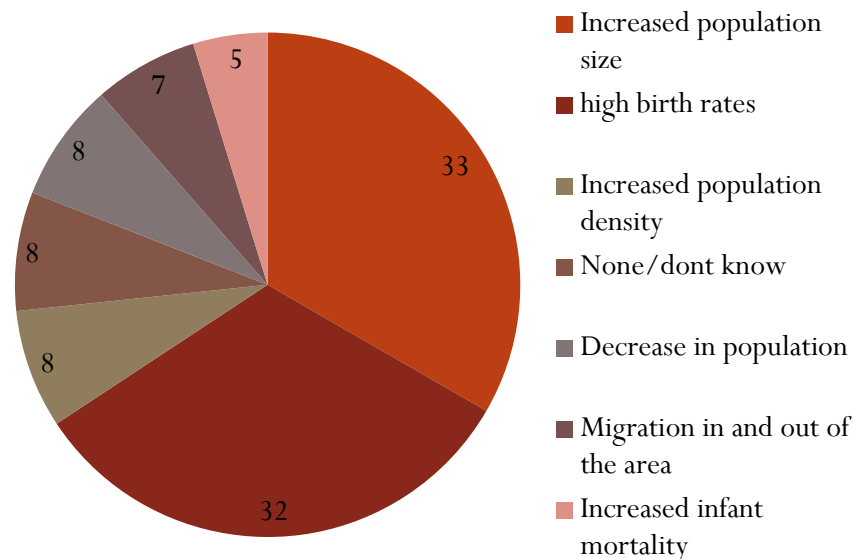
When asked what factors contributed to the challenges, climate change was the most prominent, as noted by 45% of the respondents. Three other factors were common answers as well: rapid population growth (16%), inadequate land (10%) and unemployment (10%). To some extent, those three factors noted by 36% of the respondents all depend at least in part of the region's population dynamics. This suggests that population density is crucial as it may directly contribute to challenges faced by community. As mentioned earlier, Lake Chilwa Basin is a very productive ecosystem and therefore attracting migrants into the basin.

Figure 4 Major factors that contribute to challenges faced by communities



Recognizing the importance of population dynamics in the community, figure 5 shows that communities are observing the trends of population growth in the region. Thirty-three percent of households surveyed said they have observed increased population size in the recent past in Lake Chilwa Basin. Thirty-two percent saw a higher birth rate, 8% noticed increased population density, and 7% noted about increased migration into the area. In total, 73% of the focus group participants noted an increase in at least one of the following demographic factors: birth rate, population size and population density. These community are observing what the Malawi Development and Growth Strategy (MDGS) II document asserts, that Malawi faces a number of challenges stemming from population growth, including increased demand for land emanating from population pressure (GoM, 2012).

Figure 5 Observations by communities in relation to population dynamics

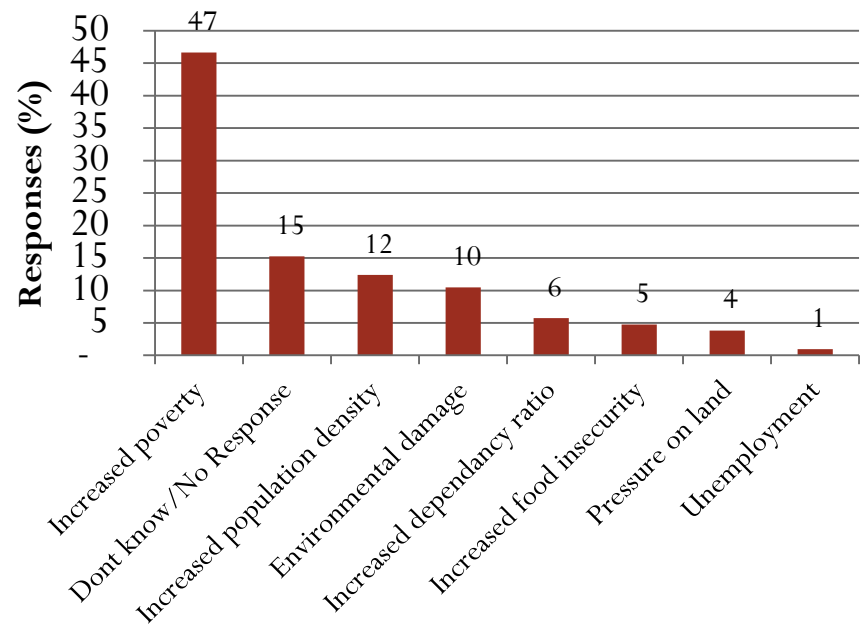




Downstream of Likangala Rice Irrigation scheme

When asked how population dynamics affect their lives, communities had various answers. According to them, the effects of population growth increased poverty (47% of respondents), increased population density in some areas (12% of respondents), caused environmental damage (10% of respondents), increased food insecurity (5%) and increased pressure on land (4%) (Figure 6). This is in agreement with MGDS II which states that “high rates of population growth have far reaching implications on the social and economic development of a country.” When individuals compete for natural resources for their livelihoods, poverty increases. Environmental damage, pressure on land and food insecurity then further increases as they are dependent on natural resources based livelihoods such as fishing and farming.

Figure 6 Effects of observed population dynamics





*"Due to overpopulation, land is now scarce, many people are now cultivating near river banks thereby causing siltation. As a result rivers are getting smaller and smaller."
Chrissy Manjawira, T.A Mposa, Machinga.*



Chikala Radio Listeners Club Chairman Moses Phulusa stands on dry Lake Chilwa (Mposa harbour)

Early marriages are common in Malawi with many girls dropping out of high school to get married very often to older men. This contributes to high levels of early child bearing. Communities mentioned increasing divorces and remarriages also as a contributing factor to increasing population. Malawi has both matrilineal and patrilineal societies. Societies that follow matrilineality in which one belongs to one's matriline or mother's lineage, which provides for the inheritance of property and/or titles. A man marrying into this society will leave his home and live in his wife's village. If he decides to leave his wife and children and marry elsewhere, the children will be looked after by his wife. This aspect may contribute to marital instability, as the responsibility of caring for children remains with the women.

In some areas in Mposa, certain religious groups allow polygamy and this contributes to increasing populations. Low education levels in these societies may also contribute to early marriages as they do not realize the importance of educating the girl child. This may also be due to lack of fatherly support in matrilineal societies. Radio Listeners Clubs which are formed by volunteers from communities have reported about this issue in their radio programmes. See Box 1 for a story about a girl forced into child marriage at age of sixteen.

“My village is just near Chikala hills. Due to population growth people have cut down almost all the trees in the hill, as a result we receive little rain. Farmers now don’t harvest enough food. Many people sleep on empty stomachs.”

Village Headman Mussa, T.A Mposa, Machinga





Mposa harbour during partial drying of Lake Chilwa in 2012

Compounding the problem is the lack of reproductive health services including family planning, as well as the myths, misconceptions and fear of family planning methods. All this contributes to increasing population in the Basin.

The partial drying of Lake Chilwa in 2012 contributed to increased child marriages and children dropping out of school. Many people migrated to areas where water was still available so that they could continue fishing activities, while others suffered with reducing to one meal a day to preserve their limited resources. Box 2 tells the story of a girl forced into prostitution at the age of thirteen by her parents and later rescued by a Mothers Support group.

Community support groups helped to bring much needed help during these hard times and non-governmental organizations provided relief to farmers for some months to help them survive the livelihood shock experienced during the partial drying of the lake (Box 3).

Box 1 : I am a child not a bride; Story of Samiyathu

In 2012, Lake Chilwa partially dried up affecting livelihoods of those who depended on fishing on the lake, trading along the shores and even farming in the Basin, as the dry spells affected crop yields too. Samiyathu Idrisa, a sixteen year old girl from Mphando village, T.A Mposa, Machinga District was one of the rural girls whose life was also affected by the drying of the Lake in ways that shocked many. Samiyathu is the eldest child in her family of four children and lives with her mother and step-father who is a fish trader. Searching for the receding waterline as Lake Chilwa partially dried in 2012, Samiyathu's step-father had to leave home for several weeks and brought back very little money that hardly met any of the family's needs. Her mother was left to fend for the four children with the poor harvest which was affected by the dry spells. Rumours of Samiyathu having a boyfriend reached her mother and fearing that she would get pregnant from the relationship, her mother and step-father decided to accept the offer of a 45 year old man who wanted to marry Samiyathu. Desperation made them not think twice that the man was already married, as they focused on the fact that the marriage would mean one less mouth to feed, furthermore, the man offered a handsome bride-price which was tempting for the poverty stricken family.

Samiyathu was shaken and tried to reason with her parents that the rumours were not true and she did not have any boy-friend and pleaded to not be married off. But the pleas were drowned in the anxiety for feeding the younger siblings of the family. Samiyathu then decided to approach a local Radio Listeners Club (RLC) with her story. Moses Phulusa, the Chairman of Chikala RLC listened to her story and understood that Samiyathu was not ready for marriage and saw ambition in her eyes as she explained that she wanted to continue her education. The RLC members then decided to make a radio programme about this matter and interviewed Samiyathu's relatives and parents to verify the story. The RLC found that the family's main motivation was the financial support they would receive through bride price as Samiyathu's step-father's income had been affected by drying of the lake and their farm yield affected by the dry spells. Getting Samiyathu married was the family's coping strategy as a result of the drying of the lake and erratic rainfall pattern experience in the year. The local secondary school opposes early childhood marriage, however, they were only in a position to offer guidance to students and their families and could not coerce the parents to stop the marriage. The RLC team consulted the Area Development Committee and the Area Health Assistant who all advised against the marriage, however they could also not stop the marriage forcefully.

In September 2012, Samiyathu's story was developed as a radio programme by the Chikala RLC and aired on national radio. It was heard all over Malawi and exposed the issue of child marriages. Advice started pouring in from outsiders and Samiyathu's parents felt pressurized to allow their daughter to continue her schooling and not marry her off. As a result of the programme and increased awareness, Samiyathu received a scholarship from Her Excellency The President of Malawi's "Joyce Banda Foundation" to continue her secondary school education at Msigalira Secondary School, Domasi. Samiyathu works hard at her school and has scored good marks for her exams and will now be able to fulfill her dream of becoming a nurse, after all.



Box 2 Thirteen year old defies all odds and returns to school

Duniya Jonesi is a thirteen year old girl who hails from Mposa, Machinga District and lives with her mother, step-father and four siblings. The drying of Lake Chilwa affected her step-father's livelihood as he was a fisherman. In their misery, Duniya's step-father convinced her mother to allow Duniya to practice prostitution to bring some income for the family. She was forced to drop out of school and be with several men but they paid very little as most of the people did not have disposable income due to partial collapse of the economy in Mposa from drying of the Lake. The innocence of Duniya was lost and she was at high risk of contracting diseases, further-more her education was being affected.

The Mchilima Mother's Support Group is a self-formed group consisting of fifteen women who collectively pool their resources to help and encourage children who drop-out of school to come back to school. This group heard about Duniya's case and decided to rescue the child. They approached Duniya's parents and provided some support in the form of food and money which they had voluntarily assembled from their homes and convinced the parents to send Duniya to school.

Duniya now attends school and hopes to realize her dream of becoming a nurse. Her name means "The World" and Mchilima Mother Support Group wishes she will forget her past and her world will be beautiful again. Mchilima Mother Support Group continues to bring drop-outs back to school ensuring a future for them.







Box 3 Mchilima Mothers Support Group puts children back to school

Enisa Kacoma is a school teacher at Mchilima Primary School at T.A.Mposa, Machinga District in Malawi. Most of her students come from fisher families, farmers or traders and poor households. She noticed that during the partial drying of Lake Chilwa experienced in 2012, many children had dropped out of school due to poverty. The management of the school was concerned about the high drop out rates and asked Enisa to visit families whose children had dropped out and convince them to return to school. Enisa's concern was shared by some mothers living in her neighborhood and fifteen of them came together, thus Mchilima Mothers Support Group was born.

The group moved from house to house to find out why children had dropped out of school. Some of the stories they heard were heart breaking. One eight year old girl had dropped out to support her parents by collecting firewood from the forests and selling it in small bundles at the market. The group found the little girl in the market selling her merchandise and talked to her about the importance of going to school. The little girl replied that her parents needed money to survive the hard times. The group pooled in their resources and gave some money to the family, who was grateful for the help and sent their eight year old daughter back to school. She has done very well in her studies and hopes to become a school teacher, no doubt inspired by some of the teachers from her school. Another seven year old little boy had decided on his own to drop out of school as he always found no food at home when he returned home from school. Again resources were pooled to provide help for this family and bring the little boy back to school. He now attends school and wants to become a Policeman when he completes school.

The Support group found a girl who had dropped out of school and got married when she was seventeen and who now had a one year old son. She was suffering physical and emotional abuse from her husband. The girl wanted a divorce but had nowhere to go as her parents refused to allow her to live with them due to their inability to support her and her child. The Support group pooled in their resources once again and convinced the girl's parents to rescue the girl from her abusive husband. The girl is now divorced and staying with her parents along with her child and has returned to school. She aspires to become a nurse one day.

Mchilima Support group continues to bring many children back to school and its members continue working on a voluntary basis bringing whatever little food or money they have to share with families in their village to keep children where they belong- at school!



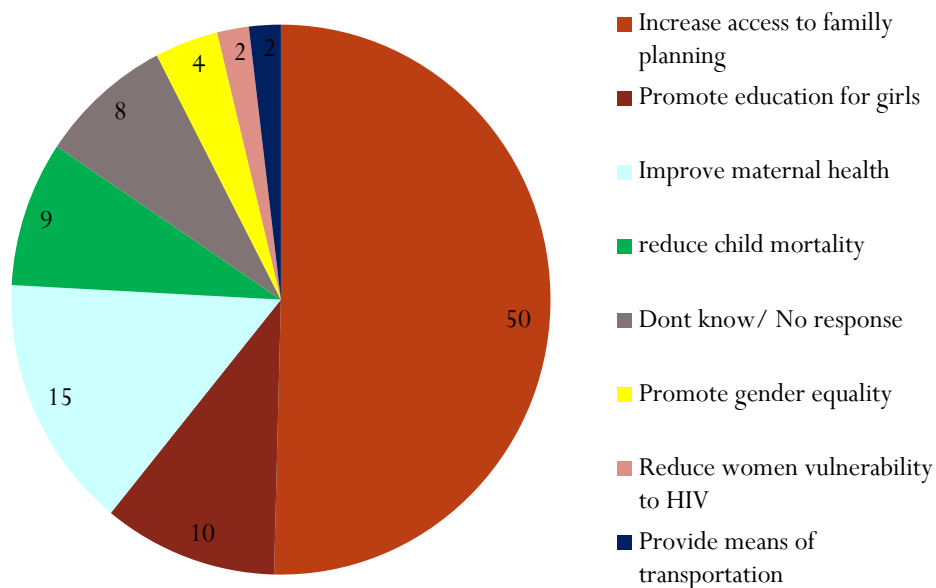
7 Perceptions on reproductive health and climate change

High fertility rates are noted as an impediment to women's adaptive capacity to climate change. Communities interviewed were aware of the linkage between reproductive health and climate change adaptation capacity. Having multiple children – they observed -- increases the time spent to take care of them, reducing the available time for farming, and fishing, and at the same time increases the number of dependents requiring resources. Rural women's participation in paid employment is hindered by their heavy domestic burden and therefore it is predominantly men who go for paid employment, thereby disadvantaging women in income generation activities.

More than half of women in Malawi have had a child by the time they reach age 20, many of these pregnancies unplanned and unwanted. Unwanted pregnancies can be dangerous, as approximately one third of all maternal deaths are due to unsafe abortions amongst teenage girls. According to UNICEF (2013), "For every 100,000 live births in Malawi, 807 mothers die as a result of pregnancy and childbirth related causes".



Figure 7 Reproductive health measures to enhance women's adaptive capacity to climate change



In terms of limits to women's adaptive capacity to climate change, roughly 30% of the respondents expressed concerns about health problems for the mother and child ("maternal related morbidity and mortality" was 19%, and "infant and child mortality" was 13%). Neo-natal and child-birth related maternal illnesses may reduce capacity of women to work in a household, which would decrease capacity for the household to engage in income generating activities and effectively adapt to climate change.

Other important health problems were raised by the remaining 39% of the respondents, specifically the burden of HIV indicated by 11% of respondents, and the long distances needed to travel to reach health services indicated by 7% of respondents as well as poor health services as indicated by 4% of respondents.

Communities interviewed (Figure 7) pointed out the importance of access to family planning to enhance women's adaptive capacity to climate change, improving maternal health, promoting education for girls, reducing child mortality and promoting gender equality as some of the ways to improve reproductive health for women and help them adapt effectively to climate change.

“Land is a scarce resource now due to overpopulation. If a person has many children, it means he/she is going to share his land amongst all of them. Many people are failing to harvest enough food because of this. Women suffer the most as they are responsible for taking care of all the children and are overburdened by all the work in the house.”

Linice Kalanda, Mbando Village, T/A Mposa, Machinga District



"In 2011, the Human Development Index for Malawi was 0.400, placing the country at 171 out of 187 countries. For the Gender Inequality Index Malawi received a score of 0.594, placing the country at 120 out of 146 countries with data. In 2011, the World Economic Forum ranked Malawi 65 out of 135 countries in its 2011 Global Gender Gap Report, with a score of 0.6850 where 0 represents inequality and 1 represents equality."

Source: Social Institutions and Gender Index, 2013.





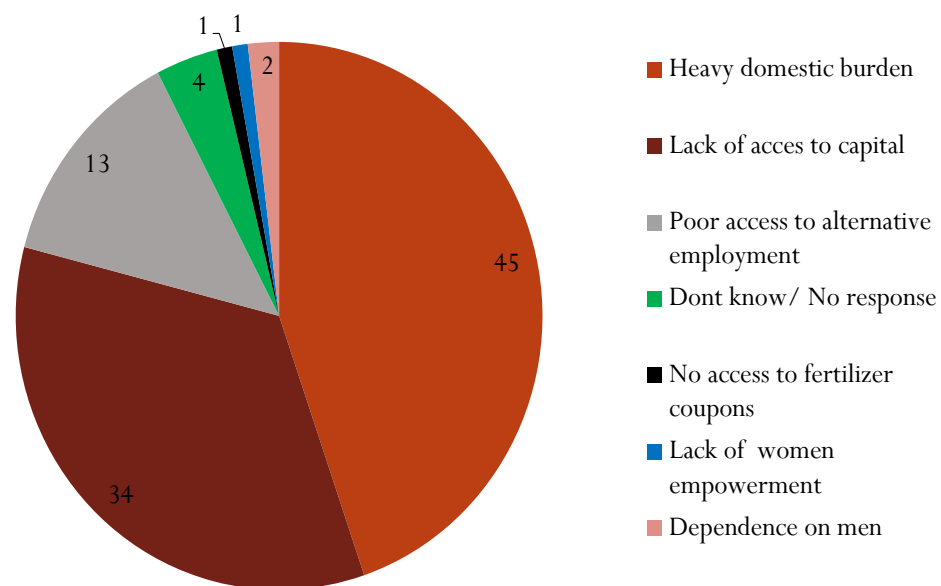
8 Perceptions on gender and climate change

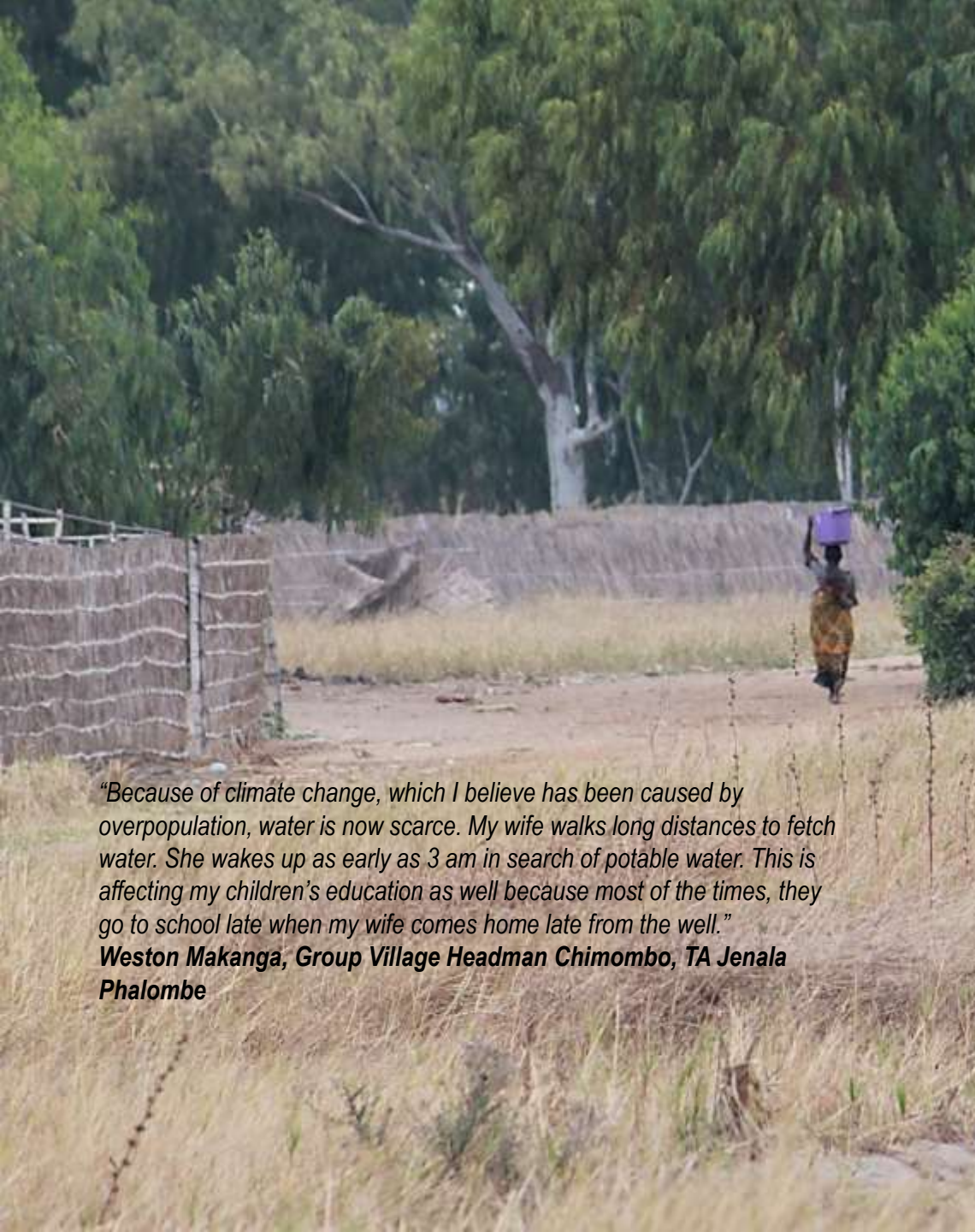
Due to climate change it is expected that Malawi will face more extreme weather events and erratic rainfall patterns which is anticipated to affect almost all sectors (GoM,2011). Farmers will have to find ways of adapting to the changing climate through technologies such as irrigation and practicing winter cropping for extra food amongst others. Although men and women are affected by climate change it is said to disproportionately affect women in Malawi. Women have the responsibility to source water, firewood, food and look after the sick in their families. With climate change they may have to walk longer distances to fetch water and dry spells and erratic rainfall will affect their ability to source food including wild fruits and vegetables, medicinal plants etc. Furthermore, as there are health implications for climate change, women will be further burdened by looking after the sick in their families.

Around 45% of the surveyed population stated that heavy domestic burden and 34% said lack of access to capital limited women from effectively adapting to climate change. Limited alternative employment opportunities, lack of access to fertilizer coupons (subsidized fertilizers) were noted by 13% and 1% of respondents as factors that limit women from effective climate change adaptation. Focus group discussion revealed that food security is affected due to erratic rainfall patterns. In addition, poor access to water, and competition over natural resources such as access to firewood were making women overburdened.

Food security and natural resources access should therefore be addressed in climate change adaptation measures as a matter of priority and this will help women be able to adapt better.

Figure 8 Factors that limit women from effective climate change adaptation





"Because of climate change, which I believe has been caused by overpopulation, water is now scarce. My wife walks long distances to fetch water. She wakes up as early as 3 am in search of potable water. This is affecting my children's education as well because most of the times, they go to school late when my wife comes home late from the well."

Weston Makanga, Group Village Headman Chimombo, TA Jenala Phalombe

Women in particular have borne the brunt of Malawi's precarious food insecurity. 70% of Malawi's agricultural labour force is comprised of women; they produce 70% of household food and perform between 50 and 70% of all agricultural tasks (GoM, 2004). However, women continue to have poor access to and control over the means of agricultural production, including agricultural inputs, improved technologies, extension services, credit and land. This calls for increasing measures to help women empowerment through increasing their education, access to land and livelihood enhancing inputs.

When asked what measures could be taken to enhance women's capacity to adapt to climate change, they stated that reducing rates of child marriages, improving access to soft loans, improving access to voluntary counselling and testing, and increasing access to family planning methods to increase child spacing could help. Discussions with community members further uncovered that men discourage women to practice family planning methods due to traditional beliefs that a woman using contraceptives does not satisfy her husband sexually. Additionally, husbands do not assist their wives to do house chores such as firewood fetching, water fetching and feeding children, hence women are burdened. Anecdotal evidence from this survey reported that men are fond of drinking alcohol and spend more money on drinking and this affects families in term of food provision.

The communities suggested solutions such as: increasing access to loans for women to begin small businesses, encouraging non governmental organizations that focus on reproductive health should work directly with women rather than through the Chiefs for better disseminate information on reproductive health issues, increasing access to family planning, encouraging men to assist women in household chores and improving market for agricultural products.



Women carrying firewood. Photo courtesy Florent Cottin.

9 Conclusions

This study has highlighted the linkages between population, reproductive health, gender and climate change as perceived by communities living in Lake Chilwa Basin, Southern Malawi. The population of Lake Chilwa Basin has grown rapidly over the past 30 years with high fertility rate and migration into the Basin contributing to this growth. Rapid population growth is exerting pressure on scarce natural resources resulting in water stress and scarcity, land fragmentation (reduced landholding sizes), and over/unsustainable use of natural resources (forest products, fishery resources). The Basin environment is being degraded by human actions including: deforestation, uncontrolled fishing, poor agricultural practices, and poor waste management. Climate change is likely to exacerbate existing social, economic and environmental sustainability challenges in the basin. Moreover, there is an unmet need for family planning in the basin. The study found that communities in the Basin recognize that reproductive health and gender promotion initiatives are critical in addressing rapid population growth and thusly long term effects of climate change.

Government, non-governmental organizations and other stakeholders implementing climate change adaptation programmes and projects should integrate population, reproductive health and gender as key components in their plans. Family planning should form an integral part of climate change adaptation strategies in the basin; thereby reducing population growth which would reduce effort and cost to adapt to and mitigate the impact of climate change. Development initiatives in the Basin should aim at reducing the levels of mortality among infants and children by addressing reproductive health issues. Malawi needs to reduce gender inequalities in terms of access to alternative sources of income e.g. land for winter cropping and capital for business ventures, etc. Malawi needs to increase access to education for women, to at least secondary school level, which would help to reduce numbers of early marriages and young pregnancies, thereby achieving low fertility and slow population growth. Moreover, the country needs to implement initiatives aimed at reducing the burden of disease including HIV and AIDS, as it presents a disproportionately heavy load on women. This would ultimately increase women's adaptive capacity to the effects of climate change.

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*Some of the products sold in Malawi which are derived from natural resources
All photographs used in this publication were taken after seeking consent from those being photographed. In case of minors, their
consent as well as their guardian's consent was sought.*

