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ASSESSMENT OF ADAPTATION TO CLIMATE CHANGE IN NAMAYINGO DISTRICT, UGANDA, THROUGH A GENDER LENS

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ABSTRACT

The impacts of climate change are especially problematic for poor rural people living mainly by means of subsistence farming**.** Hence this study assessed the adaptive capacities of a rural Ugandan community named Namayingo to the effects of climate change, with emphasis on gender. The objectives were to identify climate change effects and adaptive measures being employed and to examine challenges and gender roles in climate change adaption. Ten semi-structured interviews and four focus group discussions were conducted, involving both men and women. The interviews were recorded, transcribed word by word and thematic content analysis used for data analysis. The study revealed that people in the Namayingo community experience many effects of climate change, e.g. prolonged drought periods, unpredictable rainfall, water scarcity, decline in soil fertility and more pests and diseases than before. Many adaption strategies were identified, e.g. men taking over the water collection role from women, intercropping, cultivation in wetlands, small scale businesses, and some urban migration in search of income. Mutual helpfulness among community members was also evident. The community faces many challenges, like limited financial resources, inadequate extension services, limited land, and unequal support from the government, which supports women and youth by soft loans, but not men. It is important to support poor subsistence farmers struggling to adapt to the detrimental climate change effects. This study therefore recommends that Ugandan authorities and NGOs revise policies and support strategies to affected communities, that new support strategies target whole communities, not only women and youth, and that the communities are involved in developing them. Also, that, extension services and other necessary resources should be made available to all subsistence farmers.

Key words: Climate change adaptation, gender, subsistence farming.

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1. INTRODUCTION

Climate change may be the largest and most complex environmental problem facing mankind. It is characterized by increased temperatures, changes and unpredictability in precipitation patterns and extreme weather events like drought and floods (see e.g. Nelson 2009). Climate change increasingly impacts people's health and livelihood, e.g. by way of affecting agriculture, especially food production, and access to water (Bathge 2010). The impacts of climate change are especially problematic for poor rural people, living mainly by means of subsistence farming. This is evident in many African countries, for example Uganda. Deforestation, wetland reclamation, certain cultural practices and population increase aggravate the problem further. Poor people have very limited capacity to take precautions and engage in measures to adapt agricultural practices and local use of natural resources to the ever-changing climate and its impacts (Anderson 2002). This is particularly true for women in these communities, as in most African countries they are responsible for producing food for the family and in charge of other domestic tasks, such as fetching water and firewood. At the same time, they usually have less decision power and access to money and other resources. When designing policies and other interventions targeting climate change adaption, it is therefore important to focus on the needs of poor rural farming communities. Furthermore, the measures must be gender sensitive, taking into account the different needs and capacities of men and women (UNDP 2008).

In Uganda, men and women experience different levels of vulnerability and adaptive capacity to climate change. The Ugandan government has made some efforts towards climate change adaptation by carrying out a review of Uganda's national policies on climate change adaptation and mitigation based on stakeholder engagement and analysis (Banana et al. 2014). The government also tries to sensitize and inform the public about the dangers associated with climate change effects through institutions such as the National Environment Management Authority and non-governmental organizations (Hepworth and Goulden 2008). These efforts are valuable, but they seem to have only limited influence on rural people's capacity to deal with the climate change impacts affecting their livelihoods.

This study was aimed at assessing how people respond and adapt to the effects of climate change in a rural community in Uganda named Namayingo, focusing specifically on gender. The findings will be shared with local policy makers and other authorities to help them design gender sensitive policies and other support measures that could hopefully increase rural peoples' capacity to adapt their daily activities to climate change. The main goal is to improve people's livelihood in Namayingo and other rural communities in Uganda.

The study objectives were:

1. To identify the effects of climate change in Namayingo, seen through a gender lens
2. To identify strategies women and men in Namayingo have taken to adapt to climate change and its effects.
3. To identify gender roles and capacities in climate change adaptation in Namayingo
4. To identify the challenges and restrictions women and men in Namayingo face in their adaption efforts.

2. MATERIALS AND METHODS

2.1 Study area

The study was conducted in Banda Sub-County in Namayingo district, located adjacent to Lake Victoria in the eastern part of Uganda (Fig. 1). In 2016, Banda had 43,345 inhabitants living in 8,085 households (Uganda Bureau of Statistics 2016).

Figure 1. Map of Uganda showing Namayingo district in red. (Source: Wikipedia 2014).

The Namayingo community is highly dependent on rain-fed subsistence agriculture for peoples' livelihoods and they mostly use fuel wood for cooking. The women and men, together with their children, grow cassava, maize, sweet potatoes, etc., as staple food. Figure 2 shows a typical homestead in Namayingo. Fishing is a supplementing source of income, and it is usually done by men. Three decades ago, this sub-county was highly forested, but because of continuous tree cutting for firewood and charcoal making for income, this has now made Banda among the most deforested areas in Uganda. Banda is now a victim of climate change, experiencing very high temperatures during drought periods, poor agricultural soils and a low water table, among other problems.

Figure 2. On the left is a rural household with a borehole that has gone dry in the foreground. On the right are women working in the garden. (Photos: N. Betty, 6 July 2018).

2.2 Methods

This study was qualitative in nature because it aimed at exploring climate change effects, adaptation strategies and connected challenges in Namayingo district and people's thoughts and experiences related to these issues in a social context (see e.g. Daniel 2016). The data collection methods were semi-structured interviews and focus groups. In total, 10 interviews were conducted, five with women and five with men, and four focus group discussions, each with five to six participants from two different parishes. To enable women to freely express themselves, separate focus groups were held for women and men. Purposive sampling (see e.g. Daniel 2016) was used to select interviewees and focus group participants who had lived in these communities long enough to have experienced the effects of climate change on agriculture and other aspects of their livelihood.

Two persons conducted the interviews and focus groups; one female community development officer and one male assistant community development officer. They were chosen because they are familiar with the study area, speak the native language and because their engagements are in community mobilization. The interviewers also took field notes and photos on site. Interview instructions and a semi-structured interview guide with open-ended questions were formulated by me. My role was also to coordinate the data collection. I had frequent contact with the interviewers through phone calls before and during the interview phase.

The interviewees were contacted two days in advance to schedule convenient times for the interviews. The respondent's anonymity was guaranteed, and all were given equal treatment to

enable them to participate willingly (see e.g. Haines 2017). All interviews and focus group sessions were conducted in the local language Samia. Both interviews and focus group discussions lasted for between 15 and 40 minutes.

The interviews and focus group discussions were recorded and the sound files were sent to me in Iceland. I transcribed the recordings and used thematic content analysis (Jugder 2016) to analyse the data. I also made the English translations of the interview citations in the Findings section.

3. FINDINGS

Below, the findings from the interviews and focus groups are presented. The direct quotations, presented in italics, were translated by me from the local language Samia into English.

3.1 Effects of climate change in Namayingo

Many respondents agree that there are serious climatic changes in their area and some of them said that they cannot do anything about it. One person even stated:

…situations to do with climate change are God determined and we cannot do anything about it.

The respondents described several effects that were directly and indirectly attributed to climate change as noted in the findings below**.**

3.1.1 Unpredictable rainfall

The interviewees stated that, unlike before, there are now prolonged drought periods in the area. Furthermore, it is not easy for the people to predict the exact month when it will start raining and for how long it will rain. This keeps fluctuating between years, hence negatively affecting the planning of their farm activities. Most times the rains come unexpectedly, usually when farmers have not prepared their gardens. By the time they are prepared to plant, the rains decline and eventually stops.

…we used to have seasonal rains from February to July but now it rains, though not consistently, from March to June and sometimes it comes with storms that destroys our crops.

Most often when the rain is inadequate it leads to poor germination of seeds, requiring farmers to do multiple sowing of seeds. The women are more affected by this because they are responsible for sowing, as stated by a female respondent.

… we are often prompted to double the number of seeds planted per hole. Just in case other seeds do not germinate, something will survive and in case all fail to germinate, we replant again when the rains stabilize.

A respondent stated that, whenever people fail to produce food due to harsh weather like prolonged drought, whole families suffer because, in most cases, whenever people don't get a good harvest, food prices go up and most people in the rural communities cannot afford to buy it.

Whenever we don't get food or have a good harvest we resort to "egoori", a small container used for measurement when purchasing food items, and yet most of us cannot afford it.

A good number of respondents acknowledged that they have problems with water scarcity, especially during dry seasons. People usually get water from village streams ("omwalo"), during rainy seasons and in some areas boreholes but during drought periods, all these sources dry up, including the boreholes. Lake Victoria, 7 km away from the community, then becomes the most common source of household water.

3.1.2 Decline in soil fertility

The farmers in the area acknowledged that mostly their methods do not pay due regard to soil improvement and, generally, people are not doing much to replenish the soils. This has caused their soils to become vulnerable to climate change effects, which usually leads to reduced agricultural production.

…our land has lost fertility. You find that out of two acres one gets one bag worth of maize harvest, which was not the case before.

The respondents described that prolonged droughts, characterized by increased temperatures, negatively affected the decomposition activities in the soil that should normally help improve soil fertility:

… crop residues left in the garden after harvesting are not able to decompose due to high temperatures. Instead they are eaten by termites.

3.1.3 Pests and weeds

The respondents stated that, because of reduced soil fertility, there are now many invasive species in their gardens which has in turn greatly reduced their agricultural production. One example is a striga species locally known as "kayongo" as described by this male respondent and farmer:

… kayongo usually comes on the land that has highly lost its fertility and if not eliminated while still young and if it can mature and disperse seeds in the gardens, then it will be extremely difficult to eliminate it since its seeds stay viable for a period of between 20 to 50 years in the soil.

Some respondents stated that these days, their crops are being infested with pests and they really don't know how to go about it. Some of them claimed they know the diseases while others had no ideas about the type of diseases.

…we do not know the diseases, but when our cassava and maize reach around two months, the leaves start folding and turn yellow, then get stunted and the maize tips start rotting and the leaves get eaten up by maggots and in a short while the whole garden will be wiped out.

3.2 Adaptation strategies to climate change and its impacts

The interviews and focus group discussions revealed many strategies that the community members use in their effort to adapt to the effects of climate change described above.

3.2.1 Adaptation strategies used by farmers

Several adaption strategies have been employed by the farmers, both women and men. One example is intercropping, i.e. planting diverse crops and varieties together to guarantee at least some harvest or minimize the risk of losses in case of unreliable rainfall. This strategy was widely adopted. Another example is the multiple sowing strategy to counteract poor germination in cases of inadequate rainfall mentioned earlier.

As a strategy to deal with reduced soil fertility, some people have started to cultivate the wetlands in the area:

…people have run to wetlands, especially those who can't afford to hire productive land elsewhere

The farmers mentioned that the problem with cultivating in the wetlands is that, in case of floods resulting from heavy rains, their crops are eroded and they end up with losses. Some respondents expressed dissatisfaction that people cultivating in the wetlands have denied them access to the wetlands, which have been their usual place for grazing and watering their animals.

On the issue of "kayongo", the invasive striga species, one respondent suggested to other members in the discussion group some of the methods he uses:

… the only solution to "kayongo" is to ensure that it is eliminated at an early stage and to use farming methods that can help to improve soil fertility and that is the method I use.

3.2.2 Adaption strategies targeting water scarcity

In Namayingo, it used to be the women's role to fetch water for the households, but since water has become scarce due to climate change, people need to go longer distances to fetch it. This has led to men partly taking over this chore. Even young boys help collect water when not at school.

Usually it is us women who fetch water but during drought we switch roles and men help us to collect water from distant places and we concentrate on gardening and doing house chores.

This change in roles is partly because the men and boys use bicycles for this task. Due to poor roads, long distances and the need to carry many jerrycans (vessels used to carry water), women find it very hard to ride and usually leave it for the men to help. They wake up as early as 4 a.m. to ride their bicycles for over 7 km in search of water, usually at the lake-side (see Fig. 3). Families

without bicycles suffer more because they must wait for those that own bicycles to come back so that they can borrow the bicycles.

… during drought periods, those without bicycles suffer most because sometimes those with bicycles fetch water twice or three times a day before they can lend to those without.

One respondent said that it is easy to get water for home consumption when you have a bicycle but that those who have animals find it a very big challenge to collect water for them. They are prompted to trek for long distances with their animals in search of water. Some of those who rear animals, however, did not seem much concerned about the water shortage in the area. As one cattle farmer stated:

… for us, if we need water or pasture for our animals we just walk and search for where we can find it regardless. So, we often have our own solutions in case we are faced with such challenges

Figure 3. Boys fetching water in Lake Victoria to carry home on their bicycles. (Photos: N. Betty, 6 July 2018).

The people who can afford it, especially those with iron sheet roofed houses, usually buy water harvesting tanks to collect water during rain seasons and store it for use during drought. Some respondents also wished that the government could construct a water reservoir for them and pump lake water into it. It would help people during drought.

…government should help us with irrigation schemes to help us in irrigating our crops since we are near the lake.

3.2.3 Socio-economic and cultural adaptation strategies

Due to the prevalent climate change effects on agriculture, people are forced to seek for alternative livelihoods. The people in this area have for many years depended on fishing in the lake for their supplementary income. Increasing competition for the lake resources has, however, promoted the use of harmful fishing gear and the catching of premature fish, which has prompted the government to introduce restrictive measures in order to protect the lake. This has increased the need for new income sources.

… originally many of us used to survive by fishing but now things have changed. Government has put a lot of restrictions on the lake and now people need to think of other things to do.

Many women and men have engaged in various activities to create alternative income for their families, though the activities vary from one individual to another based on their capabilities and experience.

For me as a man with a family of over ten children I decided to start a tree nursery bed, rear goats, make bricks, etc. All this is aimed at boosting family income. My wife too sells small items like silver fish, tomatoes, greens, etc. in the nearby markets and sometimes customers come here at home and buy. Women also engage themselves in doing handicrafts like baskets, mats, etc. to supplement our household income. In doing all this we involve our children.

A male respondent acknowledged though, that in general, women in Namayingo have more responsibilities than men, as quoted:

… we both come back from the garden, the woman goes to collect firewood, looks for vegetables, taking the maize grains for grinding and then settles to cook. But when a man brings water, for example, they often sit and wait for food to be served to them.

3.3 Special challenges and restrictions men and women in Namayingo face in their adaptation efforts

3.3.1 Limited l*and*

Most respondents stated that due to increasing population, most of the households now have on average less than four acres to share among the extended family. One person confirmed that, due to limited land, it is quite hard to do crop rotation and rest the land. Instead some people opt to hire land elsewhere to increase their production, but the hired land is equally vulnerable to the climatic conditions of the area. And one woman said that:

…some of us women go to our parent's homes where we were born to look for where we can cultivate.

One respondent described that, the limited land availability has prompted people to use "problematic" agricultural practices like planting multiple crops in a single garden repeatedly

which continues to drain the soil further (see Fig. 4). It also prevents them from taking climate regulating measures, such as planting trees.

…we don't have enough land to plant enough trees to help in regulating the weather, instead emphasis is on growing food crops for immediate benefits.

Figure 4. Gardens in Namayingo, intercropped with sweet potatoes, bananas, sugarcane, coffee, cassava and maize. (Photo: N. Betty, 29 June 2018).

3.3.2 Limited financial and labour resources

Most respondents stated that, whereas they may have ideas that can help them to adapt to the effects of climate change, they are restrained by lack of finance. For example, many of them cannot afford to buy water harvesting tanks to store water for use during drought and they cannot afford pesticides to safeguard their crops against pests and diseases. One person stated that:

…prices for our agricultural produce are too low and usually we are at the mercy of the buyers because they are the ones who determine the prices for our produce. So, we cannot save enough money to help us make ends meet.

Some revealed that:

…we even know some of the pesticides used to control the problem, but we cannot afford it. It is difficult for us to buy pesticides that can be used to spray the whole garden especially for those with one acre and above.

Some respondents also stated that, they use only manual labour and they can therefore not produce enough for both sale and home consumption. Others wished to have tractors and oxen for ploughing to help them cultivate a bigger area in order to increase production.

3.3.3 Institutional support

Some respondents explained that, the government supports communities with tree seedlings for planting with the aim of protecting the environment, but the government fails to restrict tree cutting when the trees become mature, hence the strategy is unsustainable.

…for those who have some land to plant trees, government cannot restrict them from cutting especially when they need to sell and get money because the trees are planted on individual private land which government has no control over.

They also said that the government cannot distinguish its own trees from the farmer's after planting, especially when the trees are planted in the same garden as trees from other sources.

One respondent explained that, due to climate change challenges, the government encourages women and the youths to form community associations to get financial support in the form of soft loans from the government with the aim of generating alternative incomes. The men, however, do not get the same kind of support to deal with their situation. As a man was heard saying:

Another thing, government does not think about men. All programs target the youths and women and yet we can all form associations and be supported by loan schemes since we all experience the same challenges.

As a result, the men resort to tree cutting for both firewood and charcoal production while others migrate to urban centres to gamble for money or search for job opportunities, as one female respondent stated:

…some men when they become idle at home they move to towns or trading centres to play cards and by chance if they get some work like loading bricks on trucks they go and do it.

3.3.4 Accessibility to extension services

Most of the farmers said guidance from agricultural extension officers would help them to improve their farming methods and soils, and to get to know the pests and diseases that attack their crops. The respondents stated, however, that although they are aware that there are extension officers in their area, they reported that their services have not trickled well down to the grassroots.

…government extension officers only concentrate on those farmers who have received support from government in form of cattle, chickens, etc. for guidance, hence ignoring the rest of the farmers.

4. DISCUSSION

4.1 Effects of climate change in Namayingo

The findings revealed that the Namayingo community experiences both direct and indirect effects of climate change, such as unpredictable rainfall, prolonged drought periods, increased temperatures, pests and diseases and decline in soil fertility. Similar climate change effects and their consequences are evident in other areas in Africa and elsewhere. Madulu (1996), for example, stated that most of the semi-arid areas of Tanzania have climatic conditions that are characterized by short and unreliable rains which limit the suitability of the land for crop cultivation. In this study, unpredictable rainfall was reported to affect the planning of agricultural activities and long dry spells and droughts equally led to low yields and even total crop failure due to water scarcity. Even though all family members suffer under these conditions, it can be argued that women are more affected because they are mostly responsible for sowing and producing food for home consumption. Also, reduced income opportunities due to the same conditions sometimes force men to move to urban centres in search of employment opportunities, which leaves the women at home to struggle alone with their families.

The farmers observed that there has been an increase in pests and diseases affecting their crops. Shao (1999) states that pests and diseases are among the critical factors contributing to unsustainable agriculture, especially in semi-arid areas. Increased pest damage may result from changes in production methods and resistance of some pests to pesticides. In general, a warmer and more humid climate may make plants or crops more susceptible to pests and diseases. Whenever crops are infested with pests and diseases, neither men nor women can meet their livelihoods and at the same time, they fail to generate enough income to pay school dues for their children.

4.2 Adaptation strategies to climate change effects in Namayingo

This study showed that several strategies have been employed by the women and men of Namayingo to respond to the effects associated with the changing climate.

In this study, even though the farmers engaged in strategies of adaptation, most of the strategies can be seen as unsustainable. While productive in the short term, cultivating in the wetlands in order to counteract declining soil fertility or land shortage elsewhere will eventually reduce the fertility of the wetland soils, and their ability to yield water for animals and other eco-system services. The intercropping strategy used by many farmers also depletes the soil further. The study also noted that not much is being done to improve the soil fertility. Mary and Majule (2009) found, for example, that farmers in Tanzania bury crop residues in the field for decomposition to replenish soil fertility, while others burn farm residues to enhance quick release of nutrients. Burning is also used to ease cultivation and it is one way of controlling crop pests such as the stalk borer. Soil organic matter stabilizes the soil structure, thus enabling the soils to absorb higher quantities of water without causing surface run-off, which could result in soil erosion or flooding downstream (see e.g. FAO 2007). Soil organic matter also helps to improve the soil's water holding capacity during extended drought. Some reasons why the Namayingo farmers do not practice such soil replenishing strategies could be the reported land shortage and decreasing yields, which force them

to make maximum use of their farmland all the time. They could, however, benefit from adopting such practices where possible. In this context, easy access to extension service would be of help.

One of the major effects of climate change in Namayingo is water scarcity. This study revealed that, during drought periods, people in Namayingo now must travel for longer distances to fetch household water. This has led to men and young boys partly taking over this traditional women's chore, as they ride bicycles, which women do not in this community. This change of gender roles seemed accepted by the study respondents, but it was also reported that the women still bear the main load of domestic activities, subjecting them to being overworked. The necessity of using bicycles for this basic need also created extra problems for those families who could not afford bicycles, and it could obviously also be problematic for women whose men were away working in urban areas and for single women households.

The study revealed that to a certain extent, women and men, and their children, work together in trying to address the climate change challenges the Namayingo community faces. The men, for example, now take part in fetching household water, which used to be the sole responsibility of the women. Equally some community members help others by lending their bicycles to those who do not have them. This spirit of team work between women and men, and between community members of different economic status, is an important factor in further climate change adaptation and should therefore be encouraged and supported. And it certainly makes the management of households and the community in general much easier and could promote more self-independence and gender equality in the community.

4.3 Special challenges and restrictions women and men face in their adaptation efforts

In trying to adapt to the effects of climate change, the study also showed that women and men experience some challenges.

The climate change effects constrain women and men in their farming activities and cause decreasing agricultural yields, which in turn reduces their income possibilities. The governmental restrictions on fishing, even though necessary from an ecological point of view, lessen their income further. The study showed, however, that climate change adaption to some extent requires the use of "new" equipment and techniques that in turn require financial resources. The farmers stressed that even though they may have ideas about solutions to some of these challenges they are restrained by lack of financial resources, for example for buying water harvesting tanks and pesticides. Bicycles for water fetching is another example. It is therefore clear that rural communities in the same situation as Namayingo need support, both financial and other, to be able to maintain their subsistence farming in a sustainable way, and to generate additional income for school fees and other necessities. Such support could also prevent unsustainable and damaging practices people engage in to generate income, such as tree cutting, cultivating the ecologically important wetlands and overfishing.

The respondents in this study revealed that the Ugandan government supports women and youths in the form of soft loans aimed at getting alternative income, but the men do not get the same opportunity. The Government's decision to focus only on women and youth may have a negative influence on the adaptive capacities of communities, since the effects of climate change cut across

gender. Instead, a more holistic support approach that targets the whole community is needed. This could foster new adaptive strategies that might be of benefit to the community in general and help to build the community's resilience to climate change effects. Many respondent statements in this study indicate that over all, men and women in Namayingo are positive towards collaboration and finding new ways together to deal with their situation. The change of water fetching roles and lending of bicycles are just some examples. There were, however, signs that some people's attitudes might make it difficult for them to adapt and embrace new collaborative adaptation strategies. Adger et al. (2013) reported that cultural practices, values and views of individuals or groups may have a negative influence on the way people perceive climate change adaptation. It is therefore important to embrace and incorporate the varying perceptions and views of the people about any adaptation strategy if the idea is to succeed.

The study revealed that the services of extension officers in the area are selective and inadequate. Their emphasis is on those farmers who already benefit from government inputs in the form of agricultural supplies, for example cattle, thus denying others the opportunity to be helped. The problem in the area is that most land has lost fertility and most farmers, both men and women, are struggling to make a living, not only those already supported by the government. Extension agents could therefore play a key role in providing guidance to all farmers who need it for e.g. soil improvement and crop pests and diseases. Heyi & Mberengwa (2012) reported that adoption of good land management practices among farmers in Ethiopia was made possible because of adequate extension services. With continued depletion of soil fertility, and without adequate help, both women and men in Namayingo will continue to experience crop failure and thus food insecurity.

5. CONCLUSIONS AND RECOMMENDATIONS

This study has revealed that climate change is already having deleterious effects on agriculture and food security in Namayingo, mainly because of unpredictable weather patterns and increased occurrence of extreme weather events. This puts people's livelihood at risk as farming is the most common source of livelihood to rural women and men. However, it was also observed that women and men used a combination of strategies to adapt to the changing climate, such as shifts in roles between women and men, intercropping, small scale businesses, etc. Some of these adaptation strategies, such as intercropping and cultivating the wetlands, were aggravating the situation further. Development of adaption measures was limited by several factors including lack of adequate institutional support targeting the whole community, not only women, youth and selected farmers. There was also a reported lack of extension service to all who needed it, and a general, lack of financial and labour resources. It is clear that unless urgent steps are taken to support Namayingo and other rural communities in Uganda, the country will be faced with increasing food insecurity and rising poverty levels. Spending resources now on supporting rural communities in their climate change adaption efforts could therefore pay off in the long run.

Some recommendations, built on my findings, are therefore:

- That the Ugandan authorities and NGOs working in the country revise their climate change adaption policies and support strategies to communities facing serious climate change

effects to include the whole community, not only women, youth and selected farmers, thus making them more holistic and effective. The community members should be involved in deciding relevant support for their specific situations.

- Extension services should be made available to all farmers facing climate change challenges. If possible, they should also be helped to acquire other resources needed for farming, especially for subsistence farming. This would benefit women especially, as they are generally the ones growing food for family consumption.

This study only explored climate change adaption in the Namayingo community, but many other communities in Uganda and other countries are facing the same or similar problems. The findings and recommendations in this report could therefore benefit others as well. The study has also shown that it is important to take the gender aspects of climate change adaption into consideration in studies, policies and support mechanisms, and to deal with them in a holistic way, not as separate entities.

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LITERATURE CITED

Adger WN, Barnett J, Brown K, Marshall N, O'Brien K (2013) Cultural dimensions of climate change impacts and adaptation. Nature Climate Change 3:112–117

Anderson C (2002) Gender Matters: Implications for climate variability and climate change and for disaster management in the pacific islands. New York

Banana AY, Byakagaba P, Russell AJ, Waiswa D, Bomuhangi A (2014) A review of Uganda's national policies relevant to climate change adaptation and mitigation: insights from Mount Elgon. Page Working Paper 155. Bogor, Indonesia: CIFOR

Bathge S (2010) Climate change and gender : economic empowerment of women through climate mitigation and adaptation The Governance Cluster (GTZ):22

Daniel E (2016) The usefulness of qualitative and quantitative approaches and methods in researching problem-solving ability in science education Curriculum 7:91–100

Food and Agriculture Organization (FAO 2007) Adaptation to climate change in agriculture, forestry and fisheries: Perspective, framework and priorities. Interdepartmental working group on climate change, Rome, Italy

Haines D (2017) Ethical considerations in qualitative case study research recruiting participants with profound intellectual disabilities. Research Ethics 13:219–232

Hepworth N, Goulden M (2008) Climate change in Uganda: Understanding the implications and appraising the response. Proceedings of the Institution of Civil Engineers - Energy 161:1–48

Heyi DD, Mberengwa I (2012) Determinants of farmers' land management practices: The case of Tole district, south west shewa zone, Oromia national regional state, Ethiopia. Journal of Sustainable Development in Africa 14:76-96

Jugder N (2016) The thematic analysis of interview data: An approach used to examine the influence of the market on curricular provision in Mongolian higher education institutions. Hillary Place Papers:1–7

Madulu NF (1996) Changes in marital fertility in relation to the HADO project activities in Kondoa district. In changing environ, res. on man-land interrelations in semi-arid Tanzania, regional soil conservation unit, report No. 13. edited by Christiansson C and Kikula, I. S. published by Sida's Regional Soil Conserv. Unit, RSCU, 1996. Nairobi, Kenya pp. 84-95

Mary AL, Majule AE (2009) Impacts of climate change, variability and adaptation strategies on agriculture in semi arid areas of Tanzania: The case of Manyoni district in Singida region, Tanzania. African Journal of Environmental Science and Technology 3:206–218

Nelson GC. (Ed.) (2009) Agriculture and climate change: An agenda for negotiation in Copenhagen", 2020 Focus No. 16. May 2009, available at: www.ifpri.org/2020/focus/focus16.asp (accessed 5 September 2014)

Shao FM (1999) Agric. Res. and Sustainable Agric. in Semi-arid in Tanzania. In sustainable Agric. in semi-arid Tanzania, edited by Boesen, J. Kikula, I. S. and Maganga, F. P. Dares Salaam Univer. Press. ISBN 9976- 60-311-8

https://en.wikipedia.org/wiki/Namayingo_District

UNDP (2008) Gender equality strategy 2008-2011. New york: UNDP http://www.undp.org/ women/docs/Gender- Equality-Strategy-2008-2011