



Gender Dynamics in Climate Change, Mitigating Mechanisms and Outcome: Evidence from Women Farmers in Muyuka, Cameroon

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ABSTRACT

Climate change is not a new phenomenon in Cameroon but its ramifications and dynamics are still challenging. Women food crop farmers continue to experience high postharvest losses, food insecurity, increased poverty and low family nutrition. They increasingly remain vulnerable to climate change compared to men because of their gender which limit their access to social and economic resources. Consequently, agriculture which is a traditional mainstay for women and reliable recourse to livelihood is jeopardized. Meanwhile government's effort has been loudly minimal. To mitigate impacts of climate change, women in spite of limited education and income have taken the front line, adopting local techniques through group action. Specifically, women anticipate or update their expectation of the climate in response to unusual weather patterns by altering agricultural calendars, applying manure and farming in marshy areas. These adaptation strategies have not restored agricultural reputation. Family nutritional intake and women's income remain low. This paper examines the challenges of climate change on food production and local adaptation mechanisms by women food producers in Cameroon. 100 women farmers in three quarters of Muyuka were randomly selected for this study which adopted a descriptive design. Questionnaires, interviews and focus group discussions were used to elicit valid responses which were analysed both quantitatively and qualitatively. Women's voices and gender sensitive policies are imperative in climate-smart socio-economic development and to achieve agricultural needs in Cameroon's vision 2035.

1. INTRODUCTION

Climate change has increasingly remained a contemporary issue that has prominently featured on the development agendas of my countries in the world (OECD, 2014). This phenomenon occurs when the average long term weather pattern of a region are altered for an extended period, typically a decade or longer. Examples of climate change include shifts in wind patterns, the average temperature or the amount of precipitation. These changes can affect one region, many regions or the whole planet (Ian, 2010). Climate fluctuations are of three main kinds according to Ekpoh (2002), namely, climate noise, climate variability and climate change.

Climate change is caused by changes in the total amount of energy that is kept within the earth's atmosphere. The change in energy is then spread out around the globe mainly by ocean current as well as wind and weather pattern to affect the climate of different region (Ian 2010). Most importantly climate change has generally been known to affect agriculture where women form the back bone. Women play a significant role in agriculture, in the world making over 70% of the agriculture workers, 80% of food produce and more than 2/3 of the workforce in agricultural production FAO (1985).

Climate change affects women's agricultural productivity through change in average temperature, change in rainfall, extreme climate, changes in pest and diseases, changes in atmospheric carbon dioxide and ground level ozone concentration and changes in sea level. Since women are the most vulnerable group, in the society a slight change in climate will lead to a greater effect on their productivity thus affecting livelihood for the household. For example in Cameroon, climate change has led to the extinction of "Ibo Coco" which has affected the women's household negatively. This confirms the declaration of the World Summit on food (November 2009) which indicated that climate change poses additional risks to food security and the agricultural sector.

While climate change is a global phenomenon, its impacts are felt locally. According to the international panel on climate change (IPCC), developing countries are expected to be hit the hardest by climate change. This is not because agriculture represents the primary source of income and livelihood for 75% of the world's poor but because their national, local, and household capacity to cope with climate change impact is limited (IFAD 2002, World Bank 2008). Although poor smallholders are hardest hit by climate change, they are the group list responsible for it. When a family livelihood strategy is altered by climate change, all its members are affected.

Apparently men and women also contribute and are affected differently by climate change. Consequently they have different ways of coping with it, adapting to it, and mitigating its impacts (Denton, 2002). Disparities in

the effects of climate change on women and men exist because of the social position of women in the family and the community and because climate change affects the factors most essential to women's means of subsistence: food, water and energy supply. Climate change can alter the allocation of tasks and time in different ways for men and women. For example, water stress, decreasing the time available to women for food production and preparation as well as participating in income generating activities, will likely affect household food security and nutritional wellbeing. (AfBD, 2009a). This is enough evidence to suggest that women farmers have a higher exposure to climate risks compared to men.

However in Cameroon climate change has also spurred agricultural innovation. That is, when women experience high postharvest losses because of heavy rainfall, women harness their indigenous knowledge by turning crops into processed foods that last longer and have a better market value (Fordham et al. 2001). This notwithstanding, the role of women in these activities economically has remain obscured for long because women seldom played any major roles in political activities or decision making processes.

According to Gemma (2011) there is currently little government awareness around climate change in Cameroon although national focus on environmental and conservation issues has increased since the early 1990s. Government officials engaging in climate change are largely restricted to a climate change unit within MINEP and a selected number of officials in the Ministry of Forestry and Fauna (MINFOF) who are engaged in climate change issues through the ongoing REDD process. Awareness is predominantly focused around REDD and REDD+ initiatives although other activities include the development of a NAPA, preliminary work towards around the Clean Development Mechanism (CDM), and the development of a small number of climate change components within existing and planned sector level projects, for example in a forthcoming agriculture project.

The country's national development strategy, the Vision 2035, makes only a brief refer to climate change and fails to articulate the development challenges that Cameroon is facing with regards to climate change or how these should be addressed. The medium-term Growth and Employment Strategy (GESP) subsequently mentions climate change only once. It is therefore difficult to identify how government plans to address climate change mitigation and adaptation needs as part of the country's wider development process (ibid, 2011).

Food productivity and nutritional security remain at risk due to climate change. This obviously affects the already vulnerable women and children more than other groups. The linkages between health, nutrition, agriculture, education and climate change need to be proactively mainstreamed into policies and programmes to improve women's quality of life and also facilitate the progress toward achieving sustainable development.

2. Research Problem

According to the international panel on climate change (IPCC), Africa is likely to be the continent most vulnerable to climate change. Among the risks the continent faces are reduction in food security and agricultural productivity, particularly regarding subsistence agriculture, increase water stress and, as a result of these and the potential for increased exposure to disease and other health risks, increased risks to human health (Parry et al 2007).

African women are an essential stakeholder in the agricultural sector. They tend to be ultimately responsible for household welfare and food security mainly by depending on agriculture. Consequently, variations or dynamics in climate shocks take a heavy toll on them. Since men and women are affected differently by climate change, they consequently have different ways of coping with it, adapting to it, and mitigating its impacts (Denton, 2002). Disparities in the effects of climate change on women and men exist because of the social statuses of women in the family and the community and the different crops they cultivate. While men are specialized in cash crop for income, women are into in food crop for subsistence. A change in climatic condition tends to affect these women's agricultural productivity which poses a threat to the women agricultural production, household income and their family life.

With the lukewarm attitude of the government towards climate change, African women have decided to stand on the frontlines of the impact of climate change. Unfortunately they are poorly equipped, slow to change or even make the necessary adaptation strategies sustainable. Agricultural change does not involve a simple linear relationship between changes in a farmer's decision making environment and farm-level change. It is against this background that this study examines to answer the following questions:

3. Research questions

- What are the dynamics and manifestations of climate change in Muyuka
- What are the effects of climatic change on women's agricultural productivity in Muyuka?
- What are the challenges faced and coping strategies to climate change in Muyuka?

4. Literature Review

4.1 Gender Dynamics and Mitigating Mechanisms of Climate Change

According to UNDP (2011) the degree to which people are affected by climate change impacts is partly a function of their social status, gender, power and access to and control over resources. Despite the international

community's increasing acknowledgement of the differential experiences and skills women and men bring to development and environmental sustainability efforts, there is substantive evidence that, the adverse effects of climate on human society, and one's ability to mitigate and adapt to them, are significantly mediated by their gender (Surekha, 2010). However, till date women experience unequal access to resources and decision-making processes.

This notwithstanding, UNDP reveals that agriculture constitutes 79 percent of economic activity in Sub Saharan women involve in. In Cameroon, the agricultural sector contributes about 35% of the country's GDP, contributes to foreign exchange, job creation, provides raw materials for industry as well as poverty reduction (Abia and Endeley, 2014).

However women in developing countries are particularly vulnerable to climate change because they are highly dependent on local natural resources for their livelihood (UN, 2009). Besides they are ascribed the gender role of caring for the family (Kabeer, 1994) which remain a practical responsibility. However women still have lesser economic, political and legal influence as far as coping with effects of the changing climate is concerned, with limited mobility in rural areas that affect the identification of gender-sensitive strategies that respond to climate change crisis.

A number of factors account for the discrepancy between women's and men's differentiated exposure and vulnerability to climate change risks. Firstly, gender-based differences in time use, access to assets and credit and assets (Women often have limited or no control over family finances) and treatment by markets and formal institutions (including the legal and regulatory framework) constrain women's opportunities. As a result, there is a global gender gap in earnings and productivity women make between 30 and 80 percent of what men earn annually. A World Bank survey in 141 countries showed that 103 countries continue to impose legal differences on the basis of gender that may hinder women's economic opportunities (UNDP, 2011). Gbetibouo (2009) purports that the level of education attained by an individual goes a long way in shaping his personality, altitude to life and adaptation of improved or adverse condition as the case may be. Consequently the low educational level of many women may also account for their inability to perceive, interpret and respond to the impact.

Moreover, a lack of sex disaggregated data in all sectors (e.g. livelihoods, disasters' preparedness, protection of environment, health and well-being) often leads to an underestimation of women's roles and contributions. This situation can then result in gender-blind climate change policy and programming, which does not take into account the gender differentiated roles of both women and men (i.e. their distinct needs, constraints and priorities). As such, such policies and programming can have the unintended effect of actually increasing gender-based vulnerability.

Lastly, compared to men, women are dependent and face huge challenges in accessing all levels of policy and decision-making processes. In many communities, women are underrepresented in community politics, and thus have little influence over community strategies for adapting and over policies that support women's right and priorities. This renders them less able to influence policies, programmes and decisions that impact their lives (Care international Adaptation, Gender and Women's Empowerment, 2010).

In Ethiopia, women farmers identify shortage of land as the single biggest constraint to adapting to climate change, followed closely by lack of information and credit, labour, inputs and water, as well as poor soils. South Africa women farmers identify lack of access to credit as the major obstacle to adapting, followed by lack of water, information, and market access, and insecure property rights. (IFPRI, 2008).

Since agriculture is the principal source of income into the rural households and women in particular, adaptation of agricultural sector is imperative to enhance resilience of the agricultural sector: productivity, livelihood of the poor and ensure food security (Bryan et al, 2011). Consequently, though men and women in many developing countries experience difference in terms of vulnerability and adaptive capacity to climate change (Denton, 2002) by virtue of their gender subsequent specialization in the cultivation of various crops (cash crop for men and food crop for women respectively), they still strategize to cope with climate change.

Maddison (2006) posit that farmers learn about the best agricultural adaptation options through three ways. These include: learning by doing, learning by copying and learning from instructions. In this light, Tuned (2011), avers that planting of trees constitute a major mitigating mechanism. He explains that this activity helps to compensate for trees felled and construct water reservoir to collect rain water to spray cocoa farms.

Other farmers irrespective of gender employ the use of manure and compost as fertilizers to maintain soil fertility. This practice according to Muller (2011) increases soil organic carbon. Some female farmers cope with climate change using the adaptive measures proposed by extension workers in terms of information on agricultural technologies (Ifanyi -Obi et al. 2012). Apart from the above other women simply changed planting date and plant late when they are sure there is enough water in the soil for plant to germinate.

Women play a pivotal role in agriculture and in other productive and reproductive activities at the household and community levels. This puts them in a position to contribute to livelihood strategies adapted to changing environmental realities. Their extensive knowledge and expertise that can widely be used in climate change mitigation, and adaptation strategies is absolutely important and by so doing, making them effective actors and agents of change.

The study was informed by the African Strategy for Climate change 2014. The Vision of the African strategy is to provide the AU as a whole, Member States and other stakeholders with a reliable source of strategic guidance to enable them effectively address climate change challenges. The strategy also proposes to carry out other interventions to address some specific priority areas including adaptation and risk management. This is with the view of improving the livelihoods of the African people and environment they live in.

Africa's priorities are to implement climate change programmes in such a way as to achieve sustainable development and alleviate poverty with the emphasis on the most vulnerable groups, especially women and children (AMCEN, 2011).

The main objective of this strategy is to enable the continent achieve "climate-smart" socioeconomic development. In preparing a climate change strategy for Africa, it is important to note that adaptation is an overriding priority for the continent, and that there is an urgent need for the implementation of adaptation measures and actions, including through the provision of substantial new and additional public financial resources, environmentally sound technologies and capacity building in a predictable and prompt manner. Key considerations on adaptation include the focus of adaptation must shift from vulnerability assessment to the implementation of adaptation programmes (AMCEN, 2014).

5. Materials and Method

The study was carried out in Muyuka, situated at the foot of mount Cameroon. The reason for selecting Muyuka is because of its rich volcanic soil which attracts both men and women from all parts of the country and especially women from the communities around like Ekona, Mautu, Meanja, Owe, Yoke, Malende, Bafia, Ikata, and Muyenge who cultivate crops like cocoyam, cassava, yam, plantain, water melon, egusi, groundnut, cocoa, and palms and sometime in the mix farming system. The majority of people in these areas are mostly involved in agriculture and petit trading though a few of them are formal sector workers.

100 women farmers in three quarters of Muyuka were selected using a quota and random sampling methods. This includes (Mokanga (30), Bitter leaf quarter (30), Stranger quarter (40)). The criteria for selection included the following:

- The respondent must be a female aged between 30 and 55.
- The respondent must have farmed for at least 10 years.
- The respondent must be present at the moment of the selection.

The study adopted a descriptive research design and the main instruments for data collection were secondary and primary: questionnaires (addressed to women farmers), Interview guide addressed to officials involved in environmental development and focus group discussion for women farmers to elicit and confirm valid responses, along side journals, books and official reports. These primary instruments were pre-tested to ensure reliability and validity. Data was analyzed quantitatively with the use of Statistical Package of Social Science and qualitatively using the thematic content analysis. Data is presented using frequency distribution, tables and statistical description.

6. Results and Discussion

The Profile of Women Farmers

The majority of women (55%) were in the age range of 40-49 years and most of them (46%) were married. A significant proportion of respondents (64%) had attained primary or basic education and 98% had children of ages between 1 and 16 with the mode of household size being 1-5. Only 2% of respondents rented farm lands on which they work and 97% owned between 1-5 farm. Moreover women farmers cultivated food crops for three reasons: for subsistence and commercial (61%), commercial (11%) and subsistence (28%). A substantial number (95%) of the women have been farming independently for over 10 years which gives them more experience in farm work. These statistics could be likened to Defang et al (2014) who also found that farming is the main activity practiced in Muyuka which contribute to sustenance of families. Apparently, women cultivate food crops (56%), cash crops (10%), food and cash crops (34%) using basically crude tools such as machetes and hoes. Other farm tools include; diggers, trucks, wheel barrows and sprayers

Dynamics and Manifestations of Climate Change

All women were aware of climate change and had experienced this phenomenon within the last 10 years. In this regard climate change was defined variously: "A change in rainfall and excessive heat", "Too much sun and less rainfall which dries up crops", "Changes in

precipitation patterns", "Changes in season that affects production, farming and harvest of crops", "A period that changes the planting calendar of the year" and "...fluctuation in season which causes a problem with crop growth" Furthermore some 92% of the respondents additionally had knowledge of the causes of climate change as seen on table 1 below:

Table 1: Distribution of respondents based on causes of climate change

Causes of climate change	frequency
Too much heat	93
Too much rain	89
Too much sun	79
Bush burning	66
Burning of waste that intoxicates the soil	54
Deforestation	45
Pollution	31
Drought and flood	11
Increase in gases like carbon dioxide	9

Source: Field work, 2018

The manifestations of climate change were described differently by women farmers. According to these women climate change manifests in the form of increased temperatures and changes in precipitation patterns, increase greenhouse gas emission, change in land use, more drought and heat waves and increase in sea level. Furthermore while some of these women farmers were equally able to identify duration period of the manifestations of climate change which varied between: 6-10 months (52%) and 1-5 months (39%) others did not have an idea of the duration period.

Effects of climatic change on women's agricultural productivity

The effects on climate change were generally negative. Crops most affected were cassava, cocoa, groundnut, cocoyam and maize. Others included: egusi, palm nuts, plantains, yams, vegetables and bananas. There were notably great discrepancies after climate change in terms of in quantity and quality of produce, crop size and colour, income, soil texture and increased occurrence of plant diseases and pests.

Table 2: Distribution of respondents based on changes in cocoa production

Product	Category	Before	After	N	%
Cocoa	Quantity	15 bags	5 bag	3	12.5
		13bags	1bag	2	8.3
		10 bags	6 bags	5	20.8
		10 bags	5 bags	9	37.5
		8 bags	5 bags	5	20.5
	Total			24	100
	Quality	Good, shining, smooth	Dark and rough	6	25
		Good	Good	2	8.3
		Weighty	Light	6	25
		Very good	Not good	10	41.7
	Total			24	100
	Size of crop	Big and mature	Small and immature	20	83.3
		Same	Same	4	16.7
	Color of crop	Green	Yellow	12	50
		Same	Same	2	8.3
		Green	Black pods	10	41.7
		Total		24	100
	Sales	Increased sales	Decrease in sales	24	100
		Increase in prices	Drop in prices	24	100
		Total		24	100
	Income	Stable income	Decrease in income	24	100
	Soil texture	Rich	Poor	16	66.7
		Good	Bad	8	33.3
		Total		24	100

Source: Field work, 2018

Less than a quarter (24%) of women farmers were involved in the production of cocoa. In terms of quantity 37.5% of respondents could only produce half of what they produced before the occurrence of climate change. The quality of cocoa deteriorated from good, shining, smooth and weighty to dark, rough and light while the size and colour of the crop changed from big and green to small and yellow respectively. These effects

influenced sales and income which dropped drastically. A 41-year-old farmer said; "...sales were not encouraging enough to meet our needs". In addition to these challenges was the soil which lost its proper texture. Nevertheless a third of women did not experience change at all in terms of quality, size and colour of cocoa.

Table 3: Distribution of respondents based on changes in cassava production

Product	Category	Before	After	N	%
Cassava	Quantity	300kg	100kg	10	10
		12-15 basins	4 basins	29	29
		7 bags	4 bags	8	8
		4-5 bags	1 bag	14	14
		4 basins	2 basins	20	20
		3 basins	1 basin	19	19
		Total		100	100
	Quality	Healthy	Unhealthy	68	68
		Fresh, big	Dry, small	16	16
		Large tubers	Tiny tubers	8	8
		Good	Good	2	2
		Oily	Not oily	4	4
		Total		100	100
	Size of crop	Very big	Small	88	88
		large tuber	tiny tubers	22	22
		Total		100	100
	Color of crop	Constant	Constant	7	7
		Constant	Slight changes	19	19
		White	Not white	74	74
		Total		100	100
	Sales	Increased sales	Decrease in sales	55	55
		Low prices	High prices	45	45
		Total		100	100
	Income	Stable income	Drop in income	100	100
	Soil texture	Rich and weighty	Light	10	10
		Cold and lose	Hard and lumpy	8	8
		Rich and fertile	Poor and unfertile	31	31
		Good	Bad	51	51
	Total			100	100

Source: Field work, 2018

Cassava was one the product that was hard hit by climate change. This could be seen from major drops in quantity especially, that is: from 300kg to 100kg and from 12-15 basins to 4basins. Quality varied from healthy to unhealthy, large to small tubers and from fresh to dry cassava product. The size and colour of the product were also affected and sales dropped which

affected income. The rich and weighty soil texture was reduced to poor, light and unfertile soil. It is important to note that like with cocoa, a small proportion of respondents were not affected despite climate change occurrence. This was in terms of quality and colour. Other crops like cocoyam, yams, palm nut and egusi were also affected by climate change as seen in table 4.

Table 4: Distribution of respondents based on changes in cocoyam, palm nuts and egusi

Cocoyam	Quantity	1-5 bags	2-2½bags	43
		6-10 bags	3-4 bags	57
	Total			100
	Quality	Fresh and healthy	Not fresh and unhealthy	98
		Good	Good	2
	Total			100
	Size of the crop	Large	Small	77
		Big	Tiny	23
	Total			100
	Color of the crop	Black	Yellow	97
		White	White	3
	Total			100
	Sales	increase in sales	Drop in sales	100
	Income	Sufficient income for needs	Insufficient income for needs	2
		High income	Low income	98
	Total			100
	Soil texture	Rich and fertile	Poor and unfertile	100
Yams	Quantity	500 tubers	250 tubers	100
	Quality	Good	Poor	100
	Size	Big	Tiny	100
	Color	White	White	100
	Sales	Good	Very poor	100
	Household consumption	High	Low	100
	Income	Increase income	Little or no income	100
	Soil texture	Super fertile	Unfertile	100
Palm nut	Quantity	700 cones	300 cones	100
	Quality	Good	Bad	100
	Size of crop	Extremely big	Small palm nuts	100
	Color of crop	Reddish	Partly reddish	100
	Household consumption	High	Low	100
	Income	High	Low	100
	Soil texture	Good	Poor	100
Egusi	Quantity	3 tins	½ tins	82
	Total	4 tins	1 tin	18
	Total			100
	Quality	Healthy and fresh	Unhealthy and not fresh	65
	Total	Good	Poor	35
	Total			100
	Size of the crop	Big grains	Small grains	100
	Color of the crop	Yellow	Yellow	100
	Sales	Increase in sales	Decrease in sales	100
	Household consumption	High	Low	100
	Income	High, sufficient for needs	Low: insufficient for needs	100
	Soil texture	Fertile	Unfertile	100

Source: Field work, 2018

The effects of climate change were also visible on household consumption. Household pattern of consumption changed from high to low and enough to little or nothing. This did not only provoke hunger, drop in calories intake for family members but also exposed them to poor health and increased poverty. This is in line with Surekhka (2010) who affirms that changes in climate are likely to have severe effects on human health. It is also worthy to note that climate change generally reduced living standard and increased work load for women who had to look for other sources to

sustain family nutritional values. Moreover it increased women's dependence on men and probability to increased subordination and inequality.

Adaptation Mechanisms to climate Change

To cope with climate change women farmers adopted diverse methods of farming. This consist of bush burning, fertilizer application, spraying of chemicals, tilling and replanting, use of manure, change in planting season, plant trees for shelter, watering of crops and

pruning of crops. These various adaptation mechanisms had varying effects. As seen on Fig 1. Some women farmers adapted to climate change by planting of trees. This confirms Tuned (2011), who purported that planting of trees helps to compensate for trees felled and construct water reservoir to collect rain water to spray cocoa farms. Moreover other women adopted the use of manure and fertilizer which outrightly falls in line with Muller (2011) who asserts that manure increases soil organic carbon.

Most of the respondents held that there is the need for specific techniques to be put in place to manage climate change because they were necessary and useful. However as much as women needed to adapt to climate change to sustain livelihood and bring income into the household some of them think these techniques are inconvenient because they were time consuming and would likely damage the soil in the long term. Others were rather exposed to health problems like cough, nose bleeding, fatigue and other health disorders caused by air borne diseases.

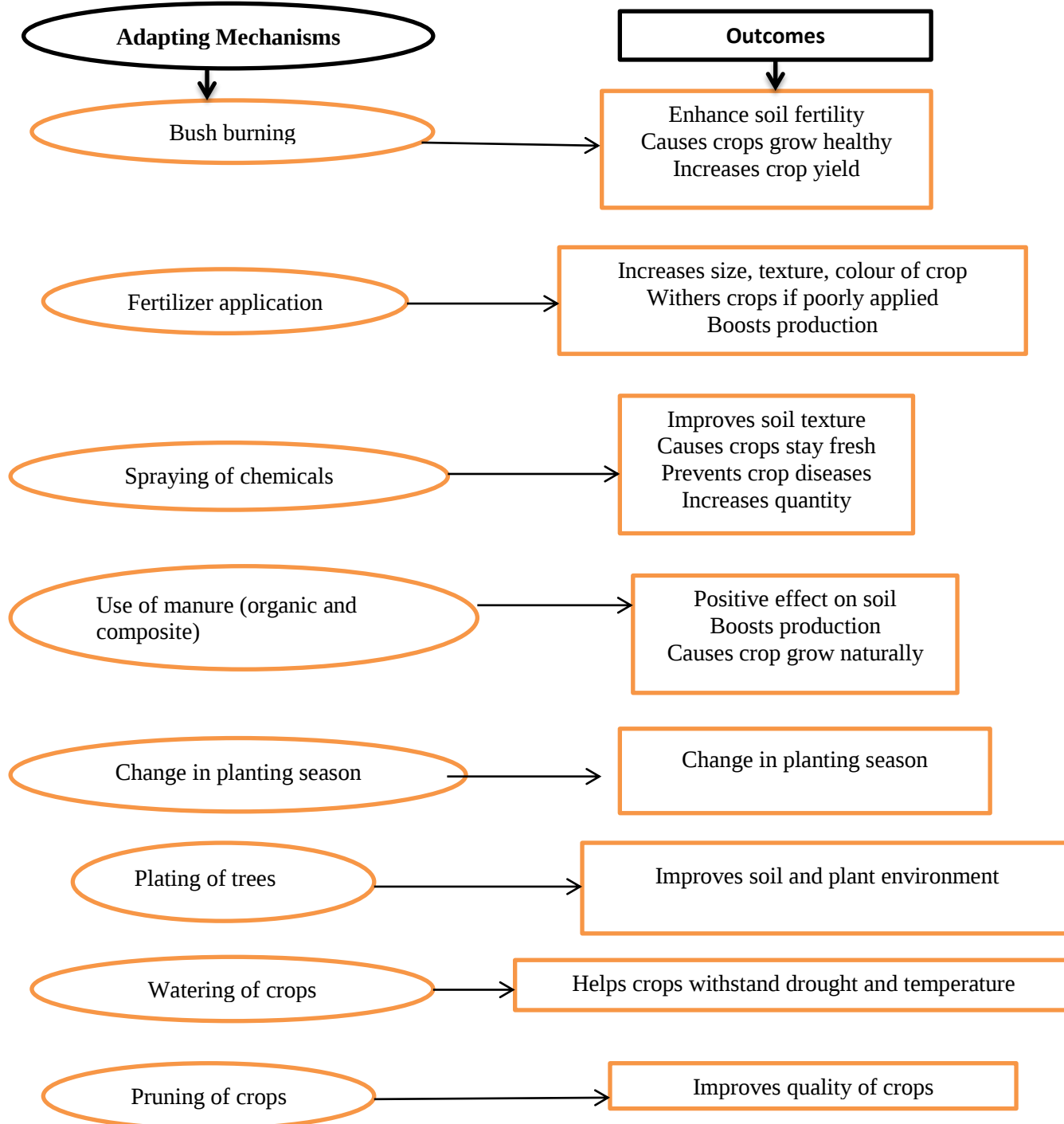


Fig 1: Adaptation mechanisms to climate change and outcomes

Web (2011) avers that gender and climate change are linked that is why women face so many challenges because climate change is a threat to development gains. Furthermore different roles of men and women give them knowledge, priority and concerns in relation to climate change. Adaptation interventions are often based on the belief that women's role in the home makes them critical agents of change and thus a focus for adaptation intervention but many women lack power over decision making and resources within the home even in female headed households. These barriers are not usually addressed by climate change and adaptation programs which tend to entrench gender inequality and increase women's workload. This is driving households and communities to change their lifestyles and roles which have different changes on gender.

Challenges to Adaptation strategies to climate change

Table 5: Distribution of respondents based on Challenges to climate change

Challenges to Adaptation strategies	Frequency
limited knowledge on adaptation methods	83
Limited capital to purchase chemicals	70
Increased workload on women	92
Negative effect on health	46
Limited access to farm equipment	29
Inaccessibility to loans to purchase equipment	37
Difficulties in transporting equipment to the farm	44

Source: Field work, 2018

Women in Muyuka like others elsewhere struggle to resist climate change by employing adaptation mechanisms. However they experience a host of challenges which limits the adaptation process. A substantial percentage (83%) lack adequate knowledge on appropriate adaptation methods to employ against climate change. This was virtually because of their low educational background. This tallies with Gbetibouo (2009) who posit that the low educational level of many women may also account for their inability to perceive, interpret and respond to the impact. Women farmer (70%) had limited income to cover the constant purchase of chemicals and equipment. This is unlike the situation in Ethiopia where women's biggest constraint to adapting to climate change was shortage of land (IFPRI, 2008). More importantly upto 92% of women farmers experienced an increase in workload which affected other gender roles. A 36year old woman said:

...coping with climate change has been very complicated and difficult. I no longer have enough time to care for my children because I spent time following up for my cassava. It is

either I am looking for where to buy fertilizer at a low cost or applying it to crops or, pruning the crop or convincing a neighbour to lend me his sprayer or...that is it... too much work...

The Cameroon government is not unaware of the dangers of climate change and its effect on women. However, policies related to food security and climate change have often sidelined women and prioritized the interests of male farmers involved especially in large scale cash crop production. Nonetheless Non-Governmental Organizations have increasingly played an important role in educating women on climate change and related issues but without necessary follow-ups and specific interest in women.

CONCLUSION

Climate change is a threat to the livelihood of farmers in general and women in particular because of the challenges they face. Generally women experienced a decrease in crop yields, low output hence low income which affects household consumption, standards of living, access to information, bank loans. Women in Muyuka sub division on their part farmed mainly for subsistence and commercial purposes. However changes in climate took a heavy toll on their crops (cocoa, plantains, cocoyam, yams, egusi, cassava, groundnuts maize and palm nuts) which resulted to hunger, poverty, high rate of school dropout, low living standards. The climate event which mostly affected them was too much sun and increased temperatures which caused crops to dry up before maturity, thereby increasing workload for women as they had to water crops consistently. Since agriculture is their main source of food and income, adaptation of the agricultural sector is therefore compulsory for every woman. This is particularly to mitigate vulnerability of these communities and ensure food security thereby fostering the African Strategy on Climate Change. But the sustainability period could however not be determined which thus expose them to new risks. Consequently integrating climate change measures into national policies and particularly promoting mechanisms for increasing capacity for effective planning and management of climate change issues, including focusing on women will not only transform the situation but also contribute to the achievement of Sustainable Development Goal 13: Take urgent action to combat climate change and its impacts.

RECOMMENDATIONS

- Sensitize the community on gender, climate change and its effects on women and men in the community.
- The need to empower women farmers by investing in women farmers' education and enhance farmers'

wellbeing. This will achieve the objective of the African Strategy for Climate change 2014 if implemented. That is to address some specific priority areas including adaptation and risk management.

- Other stakeholders like non-governmental organizations involved in agriculture should work hand in glove with the Ministry of agriculture to encourage the implementation of the African Strategy for Climate change 2014
- The Ministry of Agriculture should integrate rural communities including women in decision making platforms on climate change.
- The Ministry of Agriculture should improve institutional set up for climate change adaptation and help review and reinforce policies on food crops to suit women farmers and provide aid to farmers like scholarships, jobs, allowances, equipment, training to enable them acquire knowledge, techniques and capacity on how to handle challenges of climate change.

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