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# Barriers to Climate Smart Agriculture Adoption in Cameroon: The Role of the Media in Promoting the Technology

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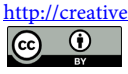



## Abstract

Agriculture is passing through a generational challenge in the 21st century as a result of climate variability. More and more, there is a need for farmers to adapt to new ways of farming with the overall objective of producing food that will be able to sustain the ever-increasing population growth. This study sought to evaluate the challenges faced by smallholder farmers in adopting Climate-Smart Agriculture (CSA)—an adaptation method that is out to fight the negative effects of climate change on agriculture. It employed qualitative data with the use of 26 sessions of Focus Group Discussions with 400 farmers in Bachua and Matazem, two areas in the North West and West Regions of Cameroon that are heavily involved in the horticulture value chain. Findings from the study indicate that inadequate access to knowledge and information, limited access to land, lack of funding, and no training on Climate Smart Agriculture are impediments to the smallholder farmers' ability to adopt Climate Smart Agriculture. The study recommends that, since one of the principal findings of the study was inadequate access to knowledge and information, the media, based on its agenda-setting role, should be put to use in order to be able to convey messages on the importance of adopting Climate Smart Agriculture. This will accelerate the narrative on CSA, thereby implicitly leading to a quicker adoption of Climate Smart Agriculture by many smallholder farmers. The media (community radio stations) could frame messages on the importance of CSA, tackling the effects of climate change on agriculture. This will motivate other farmers to emulate, thereby leading to a rapid uptake of the technology. Government agencies and development partners like the TAGDev 2.0 Programme at The University of Bamenda, implemented in partnership with the Regional

Universities Forum for Capacity Building in Agriculture (RUFORUM), should be able to accompany the smallholders in setting up experimental farms that will train and implement the techniques of CSA in the farmers, consequently leading to a rapid adoption rate of the technique.

## Keywords

Media, Agenda Setting, Climate Smart Agriculture, Cameroon, TAGDev 2.0 Programme, RUFORUM

## 1. Introduction

Climate is said to be fundamental in ensuring agricultural productivity and yields. Environmental shocks are severely reducing crop yields, increasing pest and disease pressures, and a decrease in livestock productivity. Agriculture is fast becoming a victim of climatic hazards as rainfall is unpredictable, the streams are drying up, while too much rainfall has been causing soil erosion and withering of the crops. Panel (2015) estimates that by 2100, it is anticipated that up to 40% of the world's land surface will have to adapt to a novel or partially altered climate. A range of climate change impacts on crop and livestock production are projected to lead to a 2% fall in agricultural output per decade through to 2050. Over the same period, food demand will rise by 14% each decade in response to population growth, urbanisation, and increased incomes. The regions of the world facing the prospect of the most serious impacts of climate change are Sub-Saharan Africa and South Asia, which already have the highest burden of malnutrition and where the poor rely heavily on agriculture for their livelihoods. Raising the production of staple crops will not be enough to make agriculture more resilient or to address the world's need for improved diets.

Mengistie & Ray (2026) further assert that the agriculture sector is highly vulnerable to unpredictable climatic conditions. The heavy reliance on conventional agricultural practices, inorganic fertilizers, and intensive water usage for irrigation has significantly endangered the utilization of natural resources, consumer health, and the environment. Moreover, the increasing severity of various climatic changes has exacerbated challenges that directly impact the agricultural practices of small-scale, underserved, and resource-limited farmers in both developing and developed countries (Mengistie et al., 2015; Tian, 2023). These changes include reduced land productivity, irregular rainfall patterns, and rising average temperatures, which predominantly affect underserved communities. As agriculture serves as the source of food, fibres, and fuels for humanity and as the backbone of social stability, its relationship with climate change and extreme weather events has garnered increased attention (Prajapati et al., 2024).

It is against this backdrop that Ma & Rahut (2024) advocate for a transformation of the agricultural sector towards climate-resilient practices that can help tackle food security and climate change challenges successfully. One such innovation is Climate-Smart Agriculture (CSA), which experts say is an approach that

guides farmers' actions to transform agrifood systems towards building the agricultural sector's resilience to climate change based on three pillars: increasing farm productivity and incomes, enhancing the resilience of livelihoods and ecosystems, and reducing and removing greenhouse gas emissions from the atmosphere (FAO, 2013). Promoting the adoption of CSA practices is crucial to improve smallholder farmers' capacity to adapt to climate change, mitigate its impact, and help achieve the United Nations Sustainable Development Goals.

Neupane et al. (2024) reiterate that the framework for evaluating current CSA methods is built on three main pillars: food security, adaptation, and mitigation. This method ensures a fair and comparable evaluation of individual tools. It is crucial to recognize that some challenges, such as sustainability, affect many pillars. For example, sustainability has substantial implications for both food security and adaptation, while its environmental components are covered by the mitigation pillar (van Wijk et al., 2020). **Figure 1** below explains the various pillars of climate-smart agriculture.

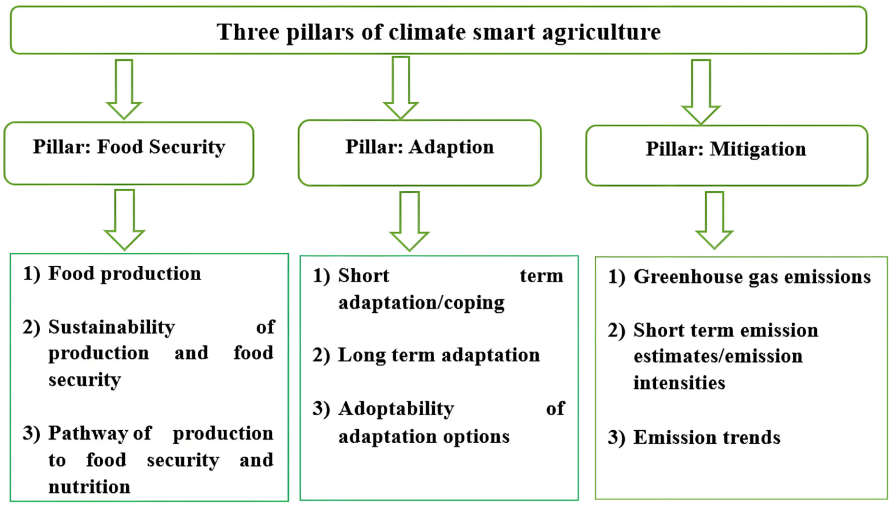


**Figure 1.** The scheme of the three Pillars of CSA and some components.

Pillar 1: Food Security: Sustainably increasing agricultural yields and farmers' incomes to support equitable growth and food access. This is done through methods like improving seed varieties, utilizing organic fertilizers, and adopting precision farming.

Pillar 2: Adaptation: Building the capacity of agricultural and food systems to withstand climate shocks such as droughts, floods, and erratic rainfall. This involves conservation agriculture, water harvesting, and crop diversification.

Pillar 3: Mitigation: Lowering greenhouse gas emissions and enhancing carbon storage. Practices include agroforestry, improved livestock digestive management, and reduced tillage.

Despite this move, the adoption of Climate Smart Agriculture remains particularly timid. Amadu et al. (2020) uphold that resource constraints are a major reason for limited adoption rates. Lack of access to land, labour, and financial capital may pose

an especially significant barrier to adoption of certain resource-intensive CSA practices like conservation agriculture (a sustainable farming system that aims to improve crop yields and farm profitability while protecting the environment), Bell et al. (2018), Brown et al. (2018) and construction of physical infrastructure for soil and water management (Paustian et al., 2016; Pradhan & Ranjan, 2016).

Thakur & Sidana (2024) rather advocate that the lack of knowledge about cultivation practices, lack of availability of seeds in the market, resistance to change the conventional practices, lack of adequate information on CSA technologies and weather status to plan their farming activities, and high cost for construction of well or farm pond are some of the constraints faced by the farmers (Rohila et al., 2018; Malik & Mishra, 2024). Constraints hamper the potential to identify, approach, and handle the risk that decreases the adverse effect related to climatic events and also affects the development and application of adaptation into use.

James et al. (2015), judging from the agenda-setting function of the media, emphasize that the media can play a crucial role in the promotion of Climate Smart Agriculture through the raising of awareness. Farmers can be informed about the benefits of CSA as well as best practices. Through the media, farmers' perceptions and attitudes towards CSA adoption can be influenced. More so, the media, through its various channels and mediums, can champion and encourage farmers to adopt CSA.

They further emphasize that information is a powerful tool for enhancing adaptation to climate change and variability (Ngigi, 2009). However, African smallholder farmers either do not have access to appropriate information or are unable to fully utilize existing information. Successful adaptation requires recognition of the necessity to adapt, knowledge about available options, the capacity to assess the options, and the ability to choose and implement the most suitable ones (Lee et al., 2007). In terms of climate change, this can be demonstrated through acquisition and dissemination of information on weather hazards. Once such information becomes more available and understood, it is possible to analyse, discuss, and develop feasible adaptation measures. Building adaptive capacity requires a strong unifying vision, scientific understanding of the problems, openness to face challenges, pragmatism in developing solutions, community involvement and commitment at the highest political levels (Holmes, 1996). Inadequately trained and skilled personnel can limit a community's or a nation's ability to implement adaptation options (Scheraga & Grambsch, 1998).

It is important to recognize that the media can play an important role in the promotion of climate-smart agriculture in Cameroon. Darji & Yadav (2024) echo that the Mass media play a pivotal role in the agricultural sector, serving as a vital conduit for information dissemination, education and advocacy. Its influence is far-reaching, impacting the decisions, practices and overall development of agriculture worldwide. In emerging nations, the majority of people still rely on "traditional mass media" including radio, television and newspapers. Accordingly, these three media outlets could be useful for spreading agricultural-related infor-

mation. Educating the public about new government initiatives, methods and technology is one of the main roles of mass media in agriculture. Numerous media platforms such as radio, television, advertising, movies, the internet, newspapers, magazines and so on are among the technologies used in this communication. Mass media is important in helping farmers receive developments in contemporary agriculture. Furthermore, by drawing attention to certain concerns, the media can improve people's understanding and alter their behaviour.

## 2. Problem Statement

The world is rapidly embracing the adoption of Climate Smart Agriculture as a strategy to restrain the adverse effects of climate change on agriculture. However, the rate of acceptance of this new technology is quite slow and there are fears that if smallholder farmers, who are the pillars of agricultural productivity, are not educated to get involved in novel practices that will mitigate the effects of climate change on agriculture, the production and cultivation of crops will not be able to sustain the ever-increasing population. This is so because yields from the farms are progressively decreasing, the soils are degrading due to over-cultivation, and there is worsening water scarcity.

The weight of this adaptation process lies on the shoulders of smallholder farmers who have the tasks of not only feeding the world but also making a living out of their activity. Khumalo et al. (2024) attest that the level of CSA practices adoption by Small-Scale Urban Crop (SSUC) farmers is hindered by several barriers, including limited access to land, water, and necessary inputs, coupled with challenges such as environmental pollution and land degradation. Furthermore, the initial costs of transitioning to innovative agricultural practices such as CSA can be prohibitive without substantial support from governmental and non-governmental organisations.

One of the challenges affecting the effective uptake of Climate Smart Agriculture is said to be a lack of knowledge and information. The media, based on the agenda-setting theory, can be used to lead the charge for the adoption of CSA. Unfortunately, the media in Cameroon is rather interested in politics, sports, conflicts and other natural occurrences. It has not done enough in disseminating information on Climate Smart Agriculture, and by not doing enough, farmers who are supposed to be at the centre of innovation in agriculture are not aware, thereby accounting for the low rate of adoption of CSA. By and large, most farmers in Cameroon are unable to adopt CSA as a strategy to ensure food safety. They still rely on conventional practices that will not be able to boost food security in the near future. This is partly blamed on the access of the farmers to information on CSA. Thakur & Sidana (2024) state that the lack of knowledge about cultivation practices, lack of availability of seeds in the market, resistance to change the conventional practices, lack of adequate information on CSA technologies and weather status to plan their farming activities, and high cost for construction of well or farm pond are some of the constraints faced by the farmers (Rohila et al., 2018; Malik & Mishra, 2024). Con-

straints hamper the potential to identify, approach, and handle the risk that decreases the adverse effect related to climatic events and also affects the development and application of adaptation into use. The preoccupation, therefore, is to establish what challenges farmers face in fully adopting Climate Smart Agriculture.

## 3. Objective

This study investigates why farmers in Matazem and Bachua in the North West and West Regions of Cameroon are not fully involved in the practice of Climate Smart Agriculture, considered by many as a step towards limiting the effects of climate change on agriculture. The study also aims to establish a link to the role the media can play in driving across the narrative on Climate Smart Agriculture in order to ensure steady uptake of the technology in the move to ensure food security for the increasing Cameroonian population.

## 4. Theoretical Framework

The work is anchored on the Agenda Setting Theory of McCombs and Shaw (1972). It suggests that media doesn't dictate what to think but what to think about. Through selective coverage and framing, the media sets the agenda for public discourse, determining which topics become prominent and even prepares, or primes us, on what to expect or prioritize. The theory is important to this study because one of the principal challenges farmers face in implementing Climate Smart Agriculture is a lack of knowledge and access to information.

The media (community radio stations) can be vital in setting the Climate Smart Agriculture agenda by constantly framing messages about the successes of the technique in other countries and also the fact that it will improve yields while tackling the challenges posed by climate variability on agriculture. Most of the farmers are not educated, so the use of community radio stations will be crucial because they will be addressed in their local languages directly, thereby leading to more understanding and acceptance of the technology.

## 5. Scope and Study Area

This study is limited to two popular horticulture farming areas: Matazem in the North West and Bachua in the West Region of Cameroon (**Figure 2**). Gur et al. (2015) detail that Matazem is a neighbourhood in Santa. Santa is one of the 32 subdivisions of the North West Region, which is located between latitudes 5˚42' and 5˚53' North of the Equator and longitudes 9˚58' and 10˚18' East of the Greenwich Meridian. It covers some nine villages, namely, Mbei, Njong, Akum, Mbu (Baforchu), Alatening, Baba II, Awing, Baligham, and Pinyin. Located in the Western Highlands of Cameroon, it covers a surface area of about 532.67 km$^2$. It is bordered to the North by Bamenda Sub-Division, to the West by Bali and Batibo Sub-Divisions, to the South by Wabane, Babadjou and Mbouda, and to the East by Galim. It lies some 20 km from Bamenda and is disenclaved by the national road number 10, which links Bamenda to Bafoussam and the rest of the country and sub-region.

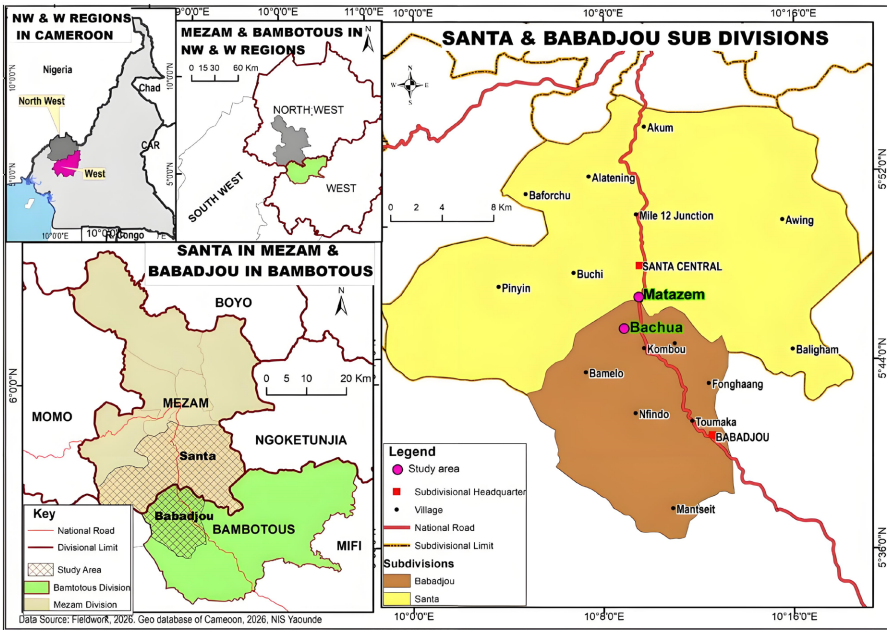


**Figure 2.** Map of the study area.

Santa has a population of 19,683 as of 2015 on a surface area of 14.3 km$^2$. Santa subdivision contributes in no small measure to food security in the Central African sub-Region. Market gardening is a very important farming type in Santa as it is a major livelihood activity of the people in terms of the income, employment, and sustenance it offers. Apart from grappling with the conventional pre- and post-harvest problems which plague the agricultural sector, observed variability in climate has added to the scenario. Variations in temperature and rainfall on a seasonal and annual basis for a 10-year period (2001 to 2011) have an effect on market gardening crops (tomatoes, carrots, cabbage and leeks). However, it should be noted that the effects of these variations vary with respective crops, indicating both direct and inverse relationships. The inability of the people to master and cope with variability in climate has been a major setback to current and future market gardening in Santa (Gur et al., 2015).

The other study area is found in Bachua in Babadjou Subdivision of the West Region. According to the 3rd general population and housing census of 2005, Bachua, an area in Kombou, is one of the 72 villages that make up Babadjou Subdivision. It has a population of over 490 people out of the 33,883 people that make up the Subdivision. The economy of Bachua is dependent on agriculture. Locals are heavily involved in horticulture activities with a focus on the cultivation of carrots, cabbages, onions, leeks, garlic, celery, and other green leafy vegetables. Apart from horticulture, they also cultivate other food crops such as plantains, maize, beans, Irish potatoes, among others. The people of Bachua in Kombou also carry out livestock activities with the rearing of pigs, goats, as well as poultry farming taking center stage.

## 6. Methodology

The researcher used the qualitative approach to data collection. Farmers were pur-

posively sampled. Purposive sampling was employed to select farmers who are knowledgeable and representatives of the various smallholder farmer groups existing and practicing CSA. 26 recorded sessions of Focus Group Discussions comprising 16 farmers per session, amounting to over 400 farmers out of 1700 in Matazem and Bachua in the North West and West Regions of Cameroon respectively, were moderated and recorded using a digital recorder while themes were identified. Each of the recorded sessions lasted 10 minutes, with 5 sessions recorded per day (Figure 3).

Prior to the recorded sessions, the researcher had carried out a pilot study where he was able to talk to heads of farming groups in the two study areas. They were tasked with mobilising the farmers for the multiple Focus Group Discussion sessions.

The recorded sessions were analysed using Microsoft. Recordings were transcribed manually and typed out, with themes identified and discussed.

The researcher found that smallholder farmers have numerous obstacles in adopting Climate Smart Agriculture. The recorded sessions were transcribed and the findings were obtained and presented via thematic identification and discussions as seen in the following paragraphs below.

The discussion mostly comprised men, more so because men make up the dominant workforce in the two study areas (Figure 4).

The researcher had assured the farmers before the commencement of the FGDs that the participants were assured of confidentiality and anonymity and that the study was for academic purposes.


Figure 3. Segment of the participants at the Focus Group Discussion in Matazem (Source: Researcher during field work).


Figure 4. Segment of the participants at the Focus Group Discussion in Bachua (Source: Researcher during field work).

## 7. Inadequate Knowledge on Climate Smart Agriculture

Climate Smart Agriculture is not just a new concept in agriculture in Cameroon, but the knowledge about this new form of agricultural practice appears to be more theoretical than practical. It has not trickled down to the farmers in the two research areas. According to the findings obtained from Focused Group Discussions, these farmers agree that they practice some aspects of Climate Smart Agriculture, but admit that they have shallow knowledge of Climate Smart Agriculture.

> "We do not know what you are talking about. All we know is that we have to plant what we know can do better. Some of the things we plant on our farms, we grew up doing them." (Farmer from Matazem, FGD N0. 6)
>
> "The little knowledge we get about new types of crops, how to plant and maintain them till maturity, we get such information from the farmer's shops. When we go to buy, the shop owners tell us new methods of farming such as improved seedlings, fertiliser usage, pest management as well as new farming ways. Nobody invites us for training on these new farming techniques that you are talking about." (Farmer from Matazem, FGD No. 11)
>
> "Some of the new things we get about agriculture are from our colleagues. Some might travel to other towns and other areas and when they see or come across new things about agriculture, they always come back. Some will tell us and some will just try it out on their farms. When they do, we see and copy. That is how some of us get new things about climate smart agriculture." (Farmer from Bachua, FGD No. 19)

The transcriptions above validate the idea that smallholder farmers in Bachua and Matazem have little or no training on Climate Smart Agriculture. The little knowledge they have is obtained via friends who, through self-exposure with peers in other areas outside the North West and West Regions, are introduced to new farming techniques, among them Climate Smart Agriculture techniques. They solely depend on operators of shops specialised in the sale of farm-related items such as fertilisers, insecticides, seedlings, and others who, in the move to advertise and sell their various farm products, encourage these farmers over the counter to buy or implement this or that farm approach in order for them to make sales. These farmers are not taught in detail how it is done and how it happens in the long term. This therefore affirms that smallholder farmers in Bachua and Matazem have very little or no knowledge of Climate Smart Agriculture.

## 8. Access to Land

Land ownership remains one of the silent challenges many farmers grapple with in order to practice agriculture, whether on a large scale or on a subsistence basis (**Figure 5**). This situation is very preoccupying to the farmers of Matazem and Bachua. Access to land here remains a challenge to the practice of climate-smart agriculture. Most of the farms are rented and the farmers do not have direct control over the parcels of land they are currently cultivating. The farmlands here are closer to either river beds or marshy areas where they can have access to water in order to irrigate the farms. Also, the proximity of the farms to the road makes it easier for the produce to be transported to the markets. Findings from the Focus Group Discussion revealed that one of the key challenges faced by the smallholder farmers in Bachua and Matazem in adopting Climate Smart Agriculture therefore remains their difficulty in accessing multiple or large parcels of land, especially in the fertile areas or swampy areas as the case may be. The farmers who are economically not viable are unable to acquire bigger parcels of land, thereby making it difficult for them to fully indulge in CSA techniques.

> "You see, we don't have bigger farm sizes here. We rent these smaller portions we currently have. At times one rents for half a year or one complete year, within this period, you have to make sure that the money invested is recovered and sustaining to the family. With all of these challenges it becomes difficult to get involved in this new farming technique you are talking about, all we do here is seeing how to pay the rents for the farms, sustain our families and the circle continues." (Farmer from Matazem, FGD No. 10)
>
> "I have heard about minimum or zero tillage. I have heard it's good when you plant crops directly on the soil without tilling. We hear that it is good because the top soil will not be washed away by the rains. It is good but if you have a smaller farm land like ours here and you are implementing little or zero tillage, yields will be low. There are crops that need the ridges to be soft

and if you don't till the soil, I can tell you that you will not be able to plant multiple crops in one piece of land. Here we plant variety of crops (intercropping) so as to meet up with the financial challenges. There are moments when the prize of one variety drops, the other will automatically compensate, so tell me if you plant only one crop, how will you survive till it gets ready for harvesting. Even at this stage, there is no guarantee the price will be encouraging." (Farmer from Matazem, FGD No. 8)

"You see, this place is swampy making it easy to cultivate all-round the season and even when the river beds dry off, we can easily dig a well and seeing water is not difficult here. This water is used in moistening the soil in the farms, secondly, the farms are closer to the road and when you harvest, it can easily be transported to the market (Figure 6). These are some of the factors that have contributed to us scrambling for land here. Elsewhere, land is available but these factors cited above are not thereby making cost of production and transportation too expensive." (Farmer from Bachua, FGD No. 23)

The transcribed excerpts above present findings about how accessibility to land is a challenge to the smallholder farmers in Bachua and Matazem in adopting Climate Smart Agriculture as a day-to-day farming practice. Findings show that these smallholder farmers in the selected research areas are competing with the available portions of farmlands in the swamps. Given that every farmer wants to have a piece of land in these swamps and by the watersides, reduces their farm sizes and limits their potential of adopting multiple approaches of Climate Smart Agriculture or its holistic practice. Inland farmlands lack water resources, most at times, there are largely not fertile, far from the markets leading to transportation difficulties and will require much capital that might not be recovered at the end of the production chain.


Figure 5. Farming sites at River Matazem (Source: Researcher during field work).

Figure 6. Irrigation Pipes on River Matazem during dry spells (Source: Researcher during field work).

## 9. Little or No Training

Every innovation comes with intensive training and the utilization of all training approaches to make sure that no one is left behind. Given that this study is about smallholder farmers, this category of persons is mostly not educated; many will be reluctant to adopt any new farming technique, and some will see such novelty as a pure waste of time because the farmers' long-established farming behaviours and routines are extremely difficult to stop. Here, only training and hands-on experiences can be able to give these smallholder farmers the skills necessary to adopt this new farming approach called Climate Smart Agriculture.

> "Nobody has offered us training on anything. I get to know about new types of crops and how they are planted from the television or when I visit social media or when I go to the farmers shop to buy." Farmer from Bachua, FGD No. 13)
>
> "The agriculture extension workers who come around here, barely hold meetings and tell us what the government has decided. We have not attended any training or workshop especially on this new kind of farming before. I think if they can offer us enough training, we will be able to better understand and some of us will benefit from its advantages." (Farmer from Matazem, FGD No. 17)

From the findings above, it shows that if the Ministry of Agriculture and Rural Development of Cameroon, local and international NGOs like the TAGDev 2.0 programme of the Mastercard Foundation and RUFORUM and related structures currently promoting or implementing Climate Smart Agriculture open up Climate Smart villages, whereby community organisations and local authorities are mobilised to adopt CSA technology and practices to strengthen resilience to the effects of climate change in the selected areas and elsewhere, these smallholder

farmers will be easily exposed to hands-on training and they will have the opportunity to witness firsthand the outcomes of the new farming techniques and hence its fast implementation by smallholder farmers.

## 10. Funding

Climate Smart Agriculture requires a lot of funding for it to be fully practiced by the farmers. Funding is necessary for farmland acquisition, irrigation tools, watering equipment, farm inputs and seeds. Without funding, smallholder farmers will not be able to go about the adoption of Climate Smart Agriculture. The Focus Group Discussion with smallholder farmers in Bachua and Matazem revealed that these smallholder farmers have no access to funding opportunities.

> "We need money to rent the farmlands; you need money to hire workers daily to till it; You will need money to dig a well; You will need money to buy pipes; You need money to install the sprinklers and you will need money to buy inputs like seeds, manure and fertilizers and generators and fuel to irrigate the farms.
> When the crops are planted, you need to spray often to fight diseases and various forms of pests and insects. Money is needed at all levels." (Farmer from Bachua, FGD No. 15)

The transcriptions above reveal that funding is a major challenge for smallholder farmers who are interested in adopting Climate Smart Agriculture. Most of the farmers are involved in farming activities to be able to feed and withstand their families. So, without funding it becomes practically impossible to indulge in a technology like CSA that they are not sure will give them quick proceeds. They need funding from the government, civil society and related structures and even soft loans from microfinance institutions that will help them without which adopting Climate Smart Agriculture will remain largely a farce.

## 11. Frequent Power Outages

Frequent electricity failures constrain the farmers from completely practicing Climate Smart Agriculture. There are some aspects of the technology that functions only with the availability of electricity. Some of the irrigation systems (sprinkler) can only be operated with the use of electricity (**Figure 7**).

> "Look at this water system, first, it is very expensive to install and secondly it cannot serve its full purpose because we have constant electricity failures here. The frequent electricity failure in this area causes the system not to work, in the dry season we are unable to water the farms, this sometimes leads to the crops drying up (**Figure 8**). We are sometimes forced to incur extra expenditure by using water pumps with fuel in order to irrigate the farms. So, tell me how can we practice Climate Smart Agriculture, when we don't have constant electricity?" (Farmer from Bachua, FGD No. 18)

Figure 7. Sprinkler in Full Gear in Bachua (Source: Researcher during field work).


Figure 8. Crops drying up due to lack of irrigation in Matazem (Researcher during field work).

The transcriptions above reveal that electricity remains pivotal to the holistic practice of Climate Smart Agriculture. Water smart technologies like sprinklers can only operate with the availability of electricity. The farmers cannot irrigate large farms by using pumps or watering cans, electricity must be able to help them by powering the irrigation systems that have been installed in the farms to help water the farmlands during dry spells.

## 12. Discussion

The farmers in Matazem and Bachua, through Focus Group Discussions, have outlined a number of issues that are hindering them from effectively adopting Climate Smart Agriculture. These factors range from lack of access to the farms, inadequate knowledge of the technology, little or no training on Climate Smart Agriculture and lack of access to funds and electricity. These challenges tie in with a study conducted by Duc Truong et al. (2022) on the Factors Affecting Climate-Smart Agriculture Practice Adaptation of Farming Households in Coastal Central Vietnam: The Case of Ninh Thuan Province. The study conducted focus group discussions, in-depth interviews and a survey of 436 households in 3 districts of Ninh Thuan to collect data. Research results showed that local farmers have a high awareness of natural disaster trends and impacts on agricultural livelihoods. Challenges for CSA adoption include lack of capital, information, technical support and land ownership institutions in Vietnam.

The above analysis presents the study as being contemporary with similar problems faced by farmers in the two areas to those faced by the farmers in other parts of the world.

## 13. Conclusion and Recommendation

This work sought to present the challenges faced by smallholder farmers in Matazem and Bachua in the North West and West Regions. From the discussions emanating from a Focus Group Discussion conducted with 400 smallholder farmers, it is evident that smallholder farmers cannot fully get involved in the practice of Climate Smart Agriculture owing to a number of factors including financial challenges, lack of access to land, little or no training, and lack of adequate knowledge and information on the practice of Climate Smart Agriculture.

First and foremost, one of the principal issues impeding the full-scale practice of Climate Smart Agriculture in the two study areas remains access to knowledge and access to information on the technology. This is where the media comes into play. The media, based on the agenda-setting function as propounded by McCombs and Shaw (1972), should be utilized to push the narrative on Climate Smart Agriculture. The theory anchors on the fact that the media does not tell people what to think, but what to think about. If CSA is on radio (Community Radio Stations), TV, and the front page of daily newspapers, the public and the farmers will see it as important. Also, the media tells us how to think about CSA, the attributes. If the media frames CSA messages as "costly farming" vs "solution to hunger" vs "youth opportunity", this might lead to a higher adoption rate by farmers.

Still, on how the media, farmers in the Bachua and Matazem are increasingly getting used to drought, poor yields, soil degradation, irregular rainfall, and others every year. If the media (community radio stations) do not report CSA techniques like mulching, agroforestry, improved seeds, then farmers won't "think about" CSA as an option. Therefore, agenda setting will mean media puts CSA on the public agenda through frequency, prominence and placement.

More so, media associations such as the Regional Bureau of the Cameroon English Speaking Journalist (CAMASEJ) can be involved in the promotion of CSA by training journalists by prioritizing what issues reporters cover, like CSA. It can also set ethical guidelines on how to report CSA without exaggeration by focusing on the key issues so that farmers can easily believe in the technique. CAMASEJ can organise press briefings with officials of the Ministry of Agriculture and Rural Development, TAGDEv 2.0 Officials, the International Institute of Tropical Agriculture (IITA), and farmers on the importance of CSA. This can lead to mass adoption of the technology.

Lastly, in the media, many radio programmes on the Lingua Franca (Pidgin English) understood and listened to by many persons in the North West part of Cameroon can be sponsored by government and Local and international NGOs with the objective of driving home the message of farmers aligning their practice to that of Climate Smart Agriculture.

Another issue acting as a barrier to the practice of Climate Smart Agriculture is the lack of electricity. Electricity is needed to set in motion some of the water-smart technologies such as sprinkler irrigation. This technology, which is commonplace in Bachua and used abundantly in the dry seasons and sparingly during the rainy season during moments of dry spells, can't operate fully due to epileptic electricity supply. This usually leads to some of the crops drying up. Therefore, the government must tackle the pressing concerns of the farmers by first of all providing basic social amenities like electricity to the farmers. This will render the installed irrigation systems fully functional, thereby irrigating the farms during dry spells.

The government of Cameroon through the Ministry of Agriculture and Rural Development must train and develop a curriculum in Agric schools with emphasis laid on Climate Smart Agriculture. This process will have a ripple effect wherein, upon graduation, these Agric technicians are deployed to the fields to assist farmers in the adoption of Climate Smart Agriculture.

Lastly, adopting Climate Smart Agriculture technology requires a lot of money in order to acquire CSA inputs such as improved seeds, installing irrigation systems, fertilizers, and agroforestry seedlings need cash before harvest. Secondly, planting needs loans, so without loans, many farmers stick to low-input farming, which will amount to low yield and high climate risk. Government structures such as the Agriculture Competitiveness and Enterprises Development Project and, ACEFA are not known to farmers. The project helps small family farms and agropastoral enterprises. Farmers can obtain subsidies, training, and loans. Farmers can also obtain loans from Microfinance institutions to be able to repay within a year in order to adopt CSA technology. This will tackle the issue of funding that's said to be a hindrance to farmers in pursuing Climate Smart Agriculture.

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## Author Contributions

LEW (Langmia Eric Wuffor) who is the first author designed the project, carried out field studies and data analyses, drafted and developed the manuscript. VNC (Prof. Victor Ngu Cheo) and ML (Prof. Mbanga Lawrence Akei) provided supervision and guided the development of the manuscript.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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