

## **The less contributor paying a deadly cost: How climate change is affecting the livelihood of some farmers in Ghana.**

### **Abstract**

Few will doubt that the continual changes in the climate will have an adverse effect on the agrarian sector in most countries as the sector is deemed as “climate vulnerability.” Specifically, researchers believe that most countries within the global south will severely be affected as their economy tends to thrive on the agrarian sector. While these group of researchers contend that this effect will contribute towards a decline in their GDP we can only imagine how the livelihood of the very poor farmers would be. In particular, this assumption seems to put a country like Ghana in a quite questionable manner as 60% of its population are actively employed in the agrarian sector. Based on this premise, this research was undertaken to delve into the lives of some farmers in Ghana with the prime motive to find out how the ongoing climate change is affecting their livelihood. The paper is structured into five aspects. The first and second sections begin by presenting some evidence and arguments confirming that climate change is not a hoax and that it is global challenge that requires critical attention. It assesses the Ghana situation within the lens of farmers livelihood and their output of production. This included a convincing argument on why Ghana needs urgency within the agrarian sector as far as climate change is concerned. With cues from the two sections, the third section employs a qualitative and case study approach to investigate primarily on how the farmers are faring, their knowledge on climate change and whether they are able to adopt to meet the current alterations of the climate. The fourth section presents the findings which suggested that majority of 95% of a sample of 22 farmers interviewed were in deep crisis in relation to their livelihood, 45% blamed climate change on the “gods” being angry with them and 50% were clueless of adaptative measures. The main conclusions are to advocate for a thorough campaign in Ghana on adoptive measures which will enable local farmers to boost their output of production to improve their current livelihood condition, as well as educating these farmers on the causes and why the climate is changing.

*Key words: climate change, adaptation measures and agrarian sectors*

## 1.0. Introduction

According to the former UN Secretary General Ban Ki moon, “*climate change does not respect borders, it does not respect who you are, rich or poor, small, or big. Therefore, this is what we call global challenges, which require solidarity.*” Undoubtedly, this phenomenon is believed by many observers to be one of the greatest challenges to have engrossed mankind’s environment. There are ongoing vociferous arguments on the subject that the last two decades have experienced a drastic increase in temperature (Yanda & Mubaya, 2011). Specifically, Hope (2009) assents that the African continent has seen some changes over the last 100 years with the continent becoming extremely warmer than it used to be. Arguably, the damages these changes are causing is not something dwellers of the African continent can countenance. Justification of such an assertion stems from the fact that the continent relies on climate-sensitive areas (see, McCarthy; Canziani; Leary; Dokken & White, 2001) specifically the agrarian sector for development and poverty reduction (Nyong, 2009). Perhaps, it is not surprising that the long-standing problem of poverty reduction within the continent still prevails. To caption this within a conceptual framework, the fourth assessment report from the IPCC (2007) reminds us that climate change will definitely affect most countries from the global south, especially their agrarian sector. This is because climate change encompasses droughts and dry spells, irregularity within the rainfall pattern, torrential downpour, potential damage of the topsoil as well as the destruction of vegetation (Boko et.al, 2007). The World Bank (2009) also evince that the negative or perhaps the severe impact of climate change is mostly bounded within the fringes of the poor countries making them poorer. Similarly, research studies from Hatibu (2006), Challinor; Wheeler; Garforth; Craufurd; & Kassam, (2007) confirm the negative impact of climate change on the African continent. What is more depressing is the fact that none of the countries within the global south appeared on the top emitters of the greenhouse gases that is believed to have triggered the alteration in the climate. Another area of contention which is beyond the scope of this paper is how climate change is displacing people and that, that trend is expected to increase if we fail to react positively. Hence it seems reasonable to argue that this concept raises major challenges which merit some sort of global attention.

### 1.1. Climate change: A global concern and the debates

History reminds us that, the concept of climate change appeared on the priorities of the Group of Eight (G8) as early as the 1979 and they have been advocating for a general accord globally to help mitigate the emissions of the deadly gases (greenhouse gases) in question. Admittedly, their massive efforts need to be commended. Specifically, from the Kyoto agreement to their recent achievement where 196 countries signed the new global climate change agreement held in Paris, 2015 to help mitigate the emissions of greenhouse gases (Sutter & Berlinger, 2015). Regardless of such monumental milestone from the office of the G8, mounting evidence suggests that the murkiness of the concept keeps unfolding into diverse discussions (Henderson; Reinet; Dekhtyar; Migdal, 2017). Especially when some powerful political figures and writers in the world’s largest economy: -United States debunk the idea of climate change. In particular, there have been a popular agenda in the US where climate change has been labelled as a “hoax” to deceive to mankind. Paradoxically, the UNDP (2007) confirms that the USA contributes 20% of the greenhouse gases that causes climate change.

Indeed, in a world where wealth has “replaced” prosperity and good life, the norm to many people has been to satisfy their interminable cravings at the detriment of others. More specifically, findings from Greenpeace International (2016), revealed that some top executives of ExxonMobil, one of the world’s largest oil and gas company, were knowledgeable about climate change dangers after investing in an in-house research team that confirmed it. However, their profit consciousness made them insouciant about the findings from the research team and again, invested as much as \$20 million in climate change deniers to campaign against the general

assumption that the climate was altering. This investment yielded massive returns as they defeated the climate legislation in the United States.

Further to that some studies argue that countries lying within the mid and high latitude benefit from Climate change. In particular, Brown (2003) contends that most of the Russian Scientist were against the Kyoto protocol because they found the global warming beneficial. This is mostly because potatoes and grain farming within the region needed much heat which the global warming was inevitably providing. This results in an increase in output of production which benefited farmers, individuals, and the State as a whole.

## **1.2. Why climate change needs critical attention in Ghana**

As noted from the previous section, the agrarian sector is one of the key areas that is been affected by climate change. Whiles it may be true that some countries output within the agrarian sector has mushroomed owing to climate change, we cannot present similar evidence in the case of Ghana. This is because the output of production from the agrarian sector keeps declining (see, World Bank Group, 2018) and though it might be unfair to point fingers to climate change as the sole reasons one cannot disregard its contribution. Regardless of such an unfortunate situation agriculture continues to be one of the strongest pillars holding the economy and the livelihoods of majority of the people in Ghana. Statistically, it accounts for one-fifth of the State's GDP (see, World Bank Group, 2018) and used to be the main sector that the State relied on for economic growth and development until the discovery of oil as well as the other manufacturing sectors taking good shape. Though the State is advocating for a robust private sector economy with most emphasis on the manufacturing sector as a way of mitigating poverty and improving the lives of people, this seems not to benefit the destitute who really farm for a living. As if this minimal attention or perhaps the minimal efforts towards the agrarian sector is not enough, climate change is also adding misery to the livelihood of these destitute farmers in Ghana. We can only imagine how depressing it could be for the destitute trying to make ends meet through farming and only to experience some unexpected changes which affect their income in the long run.

## **2.0. What the literature says**

The United Nations Framework Convention on Climate Change (UNFCCC), (2002) explains climate change as the changes in the global climate for some time and these changes are usually elicited either directly or indirectly by humans. Mounting evidence from researchers confirm that the climate has not only changed but the process is currently ongoing. These changes encompass grievous flooding and droughts, variabilities in temperature and precipitation. With the emerging of these challenges, many observers believe that most developing countries including Ghana's economy will be undermined. This is because, farming which is mostly rain-fed is the backbone of their economies (Blignaut; Ueckermann; & Aronson 2009). Several research works confirm this assertion as the agrarian sector is known to be climate sensitive (Mendelsohn, Morrison, Schlesinger, & Andronova, 2001 & Rosenzweig, 2002).

In hindsight, Ghana used to be one of the most advanced countries within the South of Sahara after colonization. This achievement was mostly as a result of their ability to export agricultural products. Agriculture used to contribute a bigger percentage of the GDP as well as boosting forex reserve (Szrereszewski, 1965). Today, the state holds a different story with a strong headline on a drastic reduction in agriculture. In 2003, there was a reduction in cocoa, a predominant sector in the agrarian sector from 5000kg to 2000kg and many commentators related this unfortunate situation to climate change (Codjoe; Ocansey; Boateng & Ofori, 2013). More precisely, evidence from the scientific body; Intergovernmental Panel on Climate Change (see, IPCC, 2007) which is under the auspices of the United Nations as well as the World Meteorological Organization (WMO, 2013) confirm the changes in the climate and vehemently argues that, it is mostly human-induced.

Then as well, Edenhofer; Pichs-Madruga; & Sokona, (2014) contends that, the burning of the fossil fuel specifically for the industrialization contributed to the escalation of the Greenhouse Gases in the atmosphere to 78% from 1970 to 2010 and undeniably humans engineered such actions.

Regardless of these reputable institutions and scholars' findings, Rahmstorf (2004) discovered that, there are groups of sceptics who though approve the veracity of climate change, have different perspective from the general assumption. According to his findings, those with the label "attribution sceptics" disagree with the claim that, the changes in the climate are human-induced whereas, the rest of the so-called "impact sceptics" bemoan that, the concept seems less destructive than what the various scholars and scientists have been presenting to the world. Indeed, climate science is a bit complicated for the comprehension of the layman and as a matter of fact those scientists who are heavily involved have not been able to communicate the message effectively to the understanding of all. This is what Aven and Renn (2015) believe has contributed towards the emergence of massive climate deniers and sceptics who are taking advantage and communicating false information to the layman. In relation to Ghana, the concept seems very unpopular among the non-farmers. However, there have not been any written evidence debunking the idea that the country is not experiencing some weather alteration. Rather, Brew (1991), found that the awareness level among the local farmers were quite high after interviewing some farmers in the Akim-Tafo, a suburb in Ghana as part of his research on the awareness of climate change. He argues that farmers within the area knew the disparities of the climate at that time. In a way, the research work of Maddison (2007) complements the findings of Brew, as he also found that farmers in 11 African countries including Ghana were convinced that, the climate was changing.

The high intensity of the awareness level triggered the yearnings of most farmers in the developing countries to find ways to improve their output of production as their cost of living are tied to farming (Komba & Muchapondwa (2015). These ways which have been captioned as the adaptation measures are argued by Raper; Wigley; Warrick, (1996) and Burton (1996) to be the only feasible option for the rest of the world who are severely affected. Unequivocally, they believe that, the current damage as a result of the emissions are severe to the extent that, even with mitigation at its apex, farmers would still have to rely on good adaptation measures to fit into the damage that has already happened. Research work of Kankam-Yeboah; Amisigo; & Obuobi (2010) shed light on the improvised adaptation methods which some Ghanaian farmers employ in their farming system. These included; planting of crops that are drought resistant and have adequate nutrients, varieties of root crops as well as the adjustment of the planting dates of crops. It is worthy to note that, there are farmers who could not employ any adaptive measures owing to financial constraints, low level of education and shortage of varieties of seeds (Komba & Muchapondwa (2015).

### **3.0. Objectives of the research**

In critical reflection and consideration of the above assertion, the prime purpose for this research is to:

1. To ascertain if the farmers are indeed aware of the current alterations within the weather and how they are reacting towards it.
2. To Investigate the extent of impact climate change is having on the destitute farmers in Ghana.

### **3.1. Methodology**

This research study draws on qualitative method as the prime motive is to delve into the lives of some local farmers in Ghana. Specifically, qualitative research enables researchers to explore

and disclose the truth of a phenomenon, based on the interpretation and the perceptions of the people being investigated (Vanderstoep & Johnston, 2009). To add much weight to the findings of the study, this study employs a case study design. This was meticulously chosen as Creswell (2013) reminds us that case study design seems to work well with qualitative method and that it enables researchers to critically explore and analyse a contemporary issue through the help of multiple sources of data. Furthermore, Yin (2003) puts forward that case study allows researchers to uncover the truth from a phenomenon through multiple means of data collection such as interviews, observation, and document review. Most significantly, Miles et.al (2014) argues that the robustness of qualitative data stem from a naturally occurring or perhaps ordinary events within a natural setting as this enables the researcher to have feel of real-life situations.

### **3.2. Study area, & Sampling**

To be able to provide robust findings embedded with diverse perspectives of climate change this study selected two regions (Ashanti and Northern regions) in Ghana as the study area. These regions were purposely sampled given that it was impossible to visit and interview farmers across all the regions in Ghana. Therefore, the northern region was selected to represent the 3 main regions within the northern part of the country and the Ashanti region was also selected to represent the remaining 7 regions in the southern part of the country. Further to that, the quest to choose one each from the southern and northern part of the country rest with the climate disparities and the vast availability of farmers within these two regions. Within these two regions, I focused on the farmers in Ejisu-Municipal Assembly and Tamale-Municipal Assembly in the Ashanti and Northern region, respectively. The farmers were again purposively selected as my focus was to locate at least farmers with more than five years' experience in farming. With the help of snowball sampling, the few that I met helped me to locate other farmers with similar or more farming experience. Within a period of 3 months, I was able to locate and interview 22 farmers, 11 each from the study area. My choice of selection lays support from the fact that qualitative research could employ small sample size (see, Cassell & Symon, 2004) with a minimum of 12 being sufficient enough to achieve saturation and the required codes for further analysis (Guest et. al, 2006).

### **3.3. Data collection**

With the aid of a semi-structured protocol, I was able to gather diverse and comprehensive information from farmers. The interview protocol though written in English; it was translated into the local dialect as most of the farmers were confident in expressing themselves using their local dialect. All the interviews were on a one-on-one basis, mostly in the evenings at the residence of the farmers as that was the most convenient time and place. This made them comfortable in expressing themselves towards the questions that were posed. All the interviews were audio recorded. Primarily, the questions covered whether they are knowledgeable about climate, its effects on their livelihood and their actions towards battling it. The semi-structured protocol was design in a way for them to tell their own stories rather adhering to a stringent structure.

### **4.0. Data Analysis: Findings and Interpretation**

The sample size has a large representative of male as far as gender is concerned. That is to say there were 15 men and 7 women who took part in the interview. Most significantly, majority of the respondents were into commercial farming. Given that the average duration of farming was 10 years, it is worth stating that the purpose to interview farmers within a least 5years experience in farming was successful. Table 1 provides a summary of the characteristics of the respondents.

Figure 1: Socio-demographic Data

<b>Characteristics</b>	<b>frequency</b>	<b>Percentage</b>
<b>Gender</b>		
Male	15	68
Female	7	32
<b>Age</b>		
Average	40	
Minimum	20	
Maximum	80	
<b>Educational level</b>		
Primary	14	64
Secondary	6	27
Undergraduate	2	9
Postgraduate	0	
<b>Duration of farming</b>		
	<b>Years</b>	
Average	10	
Minimum	2	
Maximum	60	
<b>Type of farming</b>		
Commercial	14	64
Subsistence	8	36

Source: Field data (2020)

The data gathered was first transcribed under the 24hour rule (see, Eisenhardt, 1989) using orthography notation designed by Banister, Burman, Parker, Taylor & Tindall (1994). Working within the framework of thematic analysis, I adopted an inductive approach by following Kissling's (1996) idea that it is imperative for researchers to allow the data to suggest names for the emerging themes. These themes were supported with direct quotation from the respondents, giving the data a bit of dense and elucidation on the kind of data categorized by each theme. In all, there were three interrelated themes that emerged from the data. More importantly, these themes collectively aid in understanding the phenomenon under study. The main themes comprise the effects of climate change on, productivity, income of farmers, and the level of climate change awareness and adaptation measures.

#### *4.1. Climate change awareness level and potential causes*

To enable me to have a fair understanding of the climate change situation among these farmers, it was imperative that I first ascertain their level of awareness of the concept. Given that majority of them fall within the primary education level, this exercise was quite imperative. From the findings of the interviews it was evident that all the respondents had noticed some sudden changes as well as some level of uncertainty within the climate. However, only 4 out of the 22 related these changes to climate change. Perhaps what is more intriguing is based on the fact that the remaining 18 with primary and secondary education explained and provided concrete examples (rise of sea level, drought, temperature changes) of things that were in line with climate change. However, they were confident that these were as a result of natural occurrence and a punishment from the lesser gods ("abosom", in their local dialect) for some wrong doings in their communities. In particular, one farmer argued specifically that:

*“...These days people within this village and the larger community have failed to acknowledge our gods and always go contrary to the things accepted by the gods. Younger generations now see farming as burden and do not even listen to grown-ups in this community. The gods must be agree with us because of these things and that explains why they hardly send rains like before. That way forward is to continue doing some rituals to appease the gods...”*

At the broader perspective, I found that the awareness level in particular was high within the farming communities in the sense that some of them had studied the pattern and had made some reasonable adjustments. One farmer pointed out that:

*“...I have not studied much about the weather in school or university but with my experience I have noticed that we are living in strange times and the weather is unpredictable like before. For me I have seen that the rains do not come in June-July as in past and the sunshine is extremely hotter than before. Therefore, I have changed the crops that I used to cultivate and currently doing farming to meet these weather changes...”*

#### 4.2. Climate change adaptation measures

With a high level of awareness, one would expect that all the farmers would practice some sort of adaptative measures in order to keep up with their work. That being said, it was surprising to discover that out of the 22 only 10 of them had some adaptation measures in place. Expectedly, 9 of them were those into commercial farming with the remaining 1 being the oldest farmer (80years) that i interviewed. The older farmer noted that:

*“... as a way to keep-up with my farming despite few rains coming in, i personally drilled this bore-hole as you can see to help with irrigation whenever the rains disappoint...”*

It is worth stating that the rest who had barely implemented any adaptative measures pointed out that there was a need for them to employ a proactive measures in addressing the issue of climate change. In particular, they mentioned measures such as investment in agricultural technologies, eg. flood resistance varieties, usage of modern seedlings for planting of crops and adequate irrigation methods. Notably, they admitted that these were capital intensive and that they were unable to fund them. Hence, they had to rely on their own improvised means of keeping their farming dreams alive since they were unable to find investors. One of them explained to me that:

*“Personally, i have now shifted to planting different kinds of crops within the year so that when the weather fails one crop i can at least turn to the others...”*

Another farmer shared his experience by stating that”

*“I have changed the dates and times that I used to plant crops now just to correspond with this weather uncertainty. It is quite challenging as I am not entirely successful all the time...”*

One intriguing revelation was noted from some farmers who practice single crops production and had no adaptative alternative to rely. Primarily, these farmers continued to stick to nature in addressing climate change. They noted that:

*“We cannot do much whenever the rains decide not show up. So, we make sure our crops are free from any unwanted weeds so as the morning dews can serve as some sort of irrigation. When the crops are well spacious with no weeds, the dew can fall on them perfectly for them to grow well...”*

Others noted that:

*“our dreams keep shuttering as we lacked the required resources to keep up with these sudden changes in the climate”*

Few farmers mostly with higher education mentioned that they had invested in adaptative measures.

#### *4.3. Effects of climate change on productivity*

According to the results from the interviews, it was evident that all the farmers I spoke to within the regions were somehow negatively affected with climate change. Expectedly, this affects their output of production as most of their cultivated crops were extremely affected. In other words, these farmers relied on good weather conditions in order to produce large quantity and quality crops. Therefore, any unexpected changes were likely to cause more harm than good to these farmers. Throughout the interview, most of the farmers bemoaned that these sudden changes within the climate causes environmental hazards such as bush fires, desertification, drought, soil erosion and several conditions that makes farming quite challenging for them. These lamentations from the farmers suggested to me that the weather conditions determine their output of production and that bad weather conditions directly leads to low productivity. Given that majority of the working population are into the agrarian sector in Ghana, it seems reasonable to argue that climate change in this context can affect the economy of the country. One of the farmers in particular noted that:

*“I harvest a lot of crops whenever the climate is encouraging. However, I get low productivity when the climate conditions disappoint me throughout the year”*

These assertions echo the findings of Rosenzweig (2002) which reminds us that most of the drought conditions, desertification, soil deterioration, pest, and disease outbreak, increase or rise of the sea level are mostly associated with the effects of climate change. Further to that, Rosenzweig (2002) argues that climate induced profession such as farming is largely affected by climate change, causing the sector in their output of production. In the same manner, Hatibu (2006) and Challinor et.al, (2007) make it clear that drought situations which undoubtedly affects farmers output of production is mostly caused by climate change.

#### *4.4. Effects of climate change on the income levels of farmers*

Generically, there is a common assumption that the income of farmers from countries within the global south are likely to be affected as they mostly rely on natural rains and weather conditions for farming. Therefore, it was not surprising to hear farmers in Ghana sharing similar sentiment of a reduction in their income. In particular, out of the 22 farmers I interviewed, 18 pointed out that their income has drastically reduced within the last 10 to 15years. Among these 18 farmers, 14 of them were into commercial farming and this poses a question on the economy of Ghana. Indeed, this is worrying as Cudjoe et.al (2013) argue that Ghana is doomed to lose it spot as the third leading African country in exporting agricultural products should the current trend of climate



change persists. Through the interviews the farmers made a tall list of how climate change is changing the socio-economic landscape of the country. They mentioned that most of them borrow to fund the farming and hence whenever the climate alters, they run a loss. This situation drags them and the rest of the family into debt accumulation and eventually wearing away their interest in farming. Some of the farmers expressed their view on the phenomenon by pointing out that:

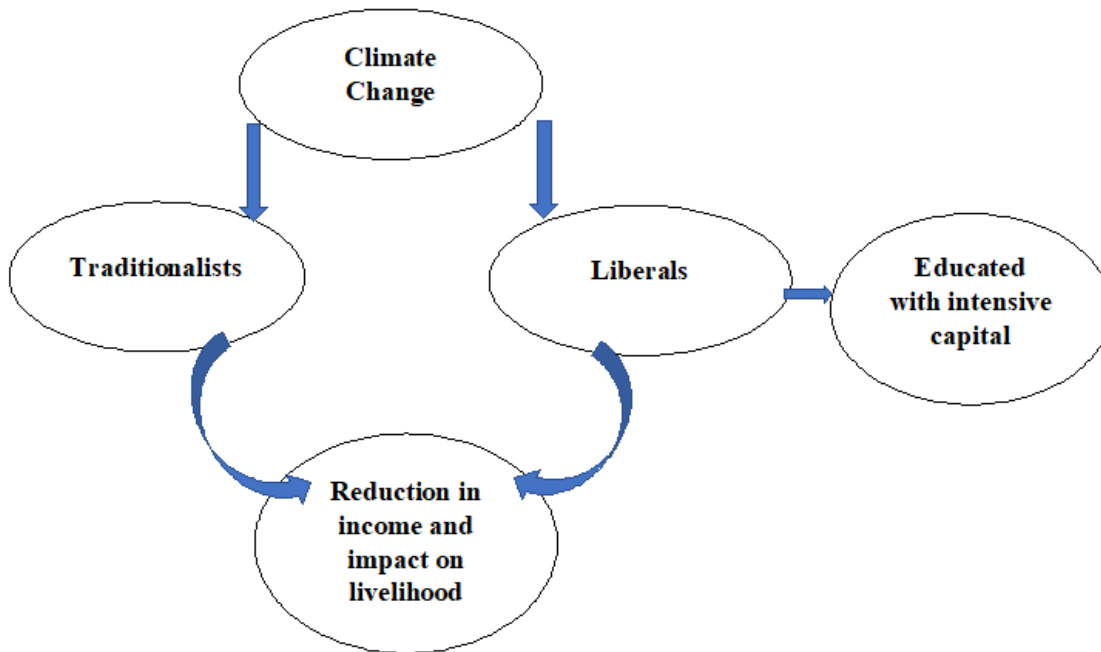
*“The alterations in the climate affects me and my family badly and literally puts us into economic hardship. In most cases the weather becomes less conducive for farming and this means we have to reduce the number of crops we plant. A reduction in crop plantation means our income and livelihood will also be affected. This is because, I rely mostly on farming to take care of family, including paying for my children’s fees. In the end I have to borrow from friends to support my family and it is always challenging whenever I have to pay back”*

Another farmer noted that:

*It is true that we are affected by climate change. This is because we use the profits from our farming to start new farming season as well as taking care of our families.*

Indeed, these findings compliment the research works of Blignaut et al, (2009) as they argue that farmers are most likely to have a direct effect of climate change especially when it changes the rainfall pattern. Mbilinyi et al, (2013) also pointed out that the income of farmers in the villages of Tanzania are reduced as a result of climate change.

Figure 1: Summary of the interviews



Source: Authors construct (2020)

#### 4.0. Discussion

Throughout this paper, the purpose has been to present a picture of how climate change is affecting the destitute farmers in some rural areas in Ghana. In my attempt to comprehend the findings from the fieldwork, I labelled the farmers that I spoke to into two groups, namely, “traditionalist and liberals (see, figure 1).” The traditionalists represent the farmers who relate climate change to a response from the gods towards mankind’s unacceptable behaviour and had no intentions on relying on adaptative measures. On the other hand, the liberals believe climate change was happening and that they needed to react positively towards it. Out of the liberals, there was a group of educated and capital-intensive farmers who fortunately, experience mild effects of climate change. This was mainly because of their massive investment into adaptation measures. This leaves the rest of the poor farmers in mayhem as they had to either rely on improvised means or to endure the climate change situation. In general, at least using the responses, I found that climate change has a negative relationship with most of the farmers’ output of production and eventually their income. Building my analysis from the insight of these rural farmers in Ghana, this study indicates that climate change a concept deemed as one of the most significant environmental challenges to ever graze our continent (Hanley & Owen, 2004) is indeed affecting rural farmers the most (Spoor, 2004). Given that these farmers hardly contribute towards the emission of the said gases that is causing climate change, it is indeed true that regardless of whatever actions being implemented, some countries will experience harsh conditions than others (Hanley & Owen, 2004). That being said, my findings is somehow in contrary to that of Komba and Muchapondwa (2015) as they contend that most rural farmers do not know what climate change is. In a narrow perspective, one may kowtow to such assertion as rural farmers may not necessarily be knowledgeable with the term “climate change” as a discourse or concept. However, a qualitative approach as seen from the Insights from the rural farmers from this study indicate that most farmers are aware of the alterations within the climate and others to some extent have found ways in addressing it. Therefore, I agree with the findings from Brew (1991), and Maddison (2007) who contend that farmers in general are aware of climate change and are expected to react positively towards these changes. Perhaps, with an average of 10year-farming experience among these farmers, one may suggest that observational evidence has naturally presented itself to these farmers. Hence, it was not surprising to learn that these farmers had noticed some alteration within the climate.

From this paper, it is evident that some of the rural farmers concur to the fact that adaptation measures were the only way forward. Though, some noted that the way forward was to appease the lesser-gods, majority shared the sentiment that adaptative measures indeed was crucial towards the survival of their farming. With capital intensive adaptative measures being far from reaching majority of these rural farmers, they had to rely on improvised adaptative measures. This meant that some of them had to switch to production of other crops which might not necessarily fetch them the require income to enable them to take care of their family. In other words, this means that those who are unable to fund the production of other crops may have to desist from farming, a profession that generated income for them and their entire family. Some of the farmers noted that engaging in mixed cropping as an alternative way of battling climate change was ideal though there is no assurance that all of the crops will survive and provide the farmers with bumper income. It is important to state that these improvised measures carried out by these farmers do not seem to be a recent practice as research works on climate change adaptation in Ghana from Kankam-Yeboah (2010); Ahenkan & Boon (2010) and Osei-Asare et.al (2013) reveal that farmers engaged in similar measures.

Taken the challenges of implementing adaptative measures into consideration, it was not surprising to learn that output of production of these rural farmers has reduced. Contrary to this assumption, some farmers who had undergraduate degrees and were into commercial farming

had invested in better adaptative measures. Needless to say, these measures yielded results as they indicated that their output of production has not by any chance reduced. What is quite peculiar about these few farmers was that they had huge financial backing, and this could be seen from their refined structures and their modern way of farming. Therefore, it is quite unfair to place them under the same umbrella with the rest of the native rural farmers. In particular, majority of the native rural farmers barely invest in technological adaptative measures owing to financial constraint. This was evident from the data collection that even those who relied on an improvised adaptative measure had to undergo some sort of sacrifice. That is, to substitute a crop for the other or to engage in mixed cropping which some did not have the financial prowess to practice. These challenging shows how bad climate change is affecting the native rural farmers. In the end, a reduction in productivity translates into a drastic reduction in income. Given that these farmers only rely on farming for a living, one could only imagine how climate change is extremely affecting their livelihood.

## **6.0. Conclusion**

In this article, I rely on qualitative and a case study approach to conceptualise the impact of climate change within some rural settings in Ghana. The findings from this study indicate that climate change is extremely affecting the lives of the rural farmers and their families in Ghana. Using the insights from this study, I categorize the farmers into two-folds namely, Traditionalists & Liberals. By this I learn that these traditionalists hold the view that whatever changes occurring within the climate stem from the fact that their gods are unhappy with the actions of mankind within the society. And that the only way forward is to keep offering sacrifice as well as living a pleasing life in other to appease the gods for redemption. It is worth stating that this group of farmers hardly believe in adaptation measures as the way forward and are quiet radical to change. On the hand, the liberals employed proactive measures toward addressing climate challenges. In practice, there are three groups within this category. First, the well-educated with strong financial backing who could afford capital intensive technological means of farming. Second those who use an improvised adaptative measure owing to financial constraints. And finally, those who were opened to all measures, however, could not even afford to employ any of the adaptative measures. With the exception of the first group (well-educated with strong finances), the rest shared similar concerns on how their income had reduced as a result of low productivity.

Though, these findings from this research especially on the concept of income reduction complement existing research work (see, Spoor, 2009), it is distinct in a way that it further reveals the perception of the “traditionalist”, (a group which hardly receive attention in the literature) on the concept of climate change. These group of farmers are quite essential as these misconstrue ideologies, that they hold merit urgent attention from policy makers and researchers. Therefore, from a public policy standpoint of view, it is imperative to argue that the government should provide robust policies, training, and education programs to help shape the perception of these farmers. Whiles it may be true that there are government agencies such as agricultural extension officers and the likes carrying out training programmes, the findings from this study indicate that the rural farmers are missing out as these institutions are not living up to expectation. Therefore, there is a need for the government to practically revise and enforce these policies and training programs. Accorded that majority of these rural people are into farming, it suggests to me that most of them will be facing similar challenges. More importantly, helping these farmers adjust to the needs of the current situation will go a long way to improve their livelihood arguably on a narrow perspective and to help boost the economy on a broader perspective. Further to that, doing this will even motivate other rural dwellers who might want to embark on farming and have doubts about the current weather conditions. In addition, NGOs who have keen interest in improving the lives of rural dwellers could channel their campaign towards educating these farmers on modern methods. They could also help them in setting up an association where

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farmers could share and discuss ideas on farming methods. That being said, all of these if possible, should be treated as a matter of urgency as it does not seem fair for these rural farmers who may already have several challenges to be victims of someone else gains.

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