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**DISSERTATION TITLE: COMMUNICATION STRATEGIES
AND PLANS ON THE IMPACT OF CLIMATE CHANGE ON
COCOA PRODUCTION IN GHANA: A CASE OF COCOBOD.**

SEPTEMBER, 2020

DECLARATION

I hereby declare that this dissertation is the results of my original research, and that no part of it has been presented for another degree in this institute or elsewhere.

AMOAKO MABEL

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DATE

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CERTIFICATION

I hereby declare that the preparation of this project work was supervised by me in accordance with the guidelines of supervision of the project laid down by the Ghana Institute of Journalism.

DR. ETSE SIKANKU

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DATE

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DEDICATION

This work is dedicated to the Almighty God for his love and protection, Also to my dear mum (Mrs. Rachel Amoako Darko) and my sweet dad (Mr. William Amoako Darko), who gave financial support to this work and also helped us throughout our entire four years stay in the School, we say thank you.

Again, to the Faculty of Public Relations at the Ghana Institute of Journalism and to all lecturers who contributed immensely to my attainment of knowledge acquired throughout the entire programme.

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Finally to Dr. Francis Paddy, Lloyd Brobbey Adasi, Pastor Constant, I say thank you.

ABSTRACT

This long essay assesses communication strategies and plans on the impact of climate change on cocoa production in Ghana. The study adopted the mixed research methodology comprising both qualitative and quantitative to establish the impact of climate change on cocoa production using communication strategies and plans as the main variables. Primary data were used in the form of interviews of certain key directors and public affairs officials of COCOBOD.

The Cocoa Research Institute of Ghana in anticipation of future climate change and taken cognizance of the debilitating effect of drought on cocoa production has continuously adopted a communication strategy by giving farmers education on climate-related issues with the use of a unit called the Social Science and Statistics Unit (SSSU) with use of flip charts which has a representation of the scientific ideas concerning climate change in pictorial form for the farmers to better understand.

Information gathered from the interview revealed that COCOBOD communicating plan is inbuilt in the various program being implemented to enhance cocoa productivity. And this include the use of both print and electronic media, and increasing the number of extension agents to increase the contact hours between farmers and extension agents. In determining the best communication plan to address climate change on cocoa production in Ghana, COCOBOD engages cocoa farmers and affected communities are engaged regularly through town halls meetings, durbars, and phone-in program to collect inputs and plans from the design stage to the implementation phase.

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CHAPTER ONE

INTRODUCTION

1.0 Background of Study

Cocoa is one of the major agricultural exports from West Africa. Production from Côte D'Ivoire alone is 40 per cent of the world's market share and constitutes 1.2 million metric tonnes per annum (UNCTAD, 2009). In 2000, raw cocoa represented 80 per cent of the Côte D'Ivoire's commodity exports, over 50 per cent of all exported goods and services and 21 per cent of gross domestic product (Bogetic et al., 2007). Currently, Ghana and Nigeria contribute 20.98 and 6.70 per cent, respectively, to the world market (ICCO, 2009). Other cocoa-producing countries in West Africa include Togo, Benin, Guinea, Liberia and Sierra Leone (ICCO, 2009). Overall, the West African sub-region contributes a total of 70 per cent of world market share of cocoa and yields considerable revenue to these economies. World production of three million tonnes with exports of the beans and semi-processed products is valued at US\$5 billion annually.

The Ghana COCOBOD was established in 1940 as the West African Produce Control Board which operated through World War II, amidst the cocoa farmers in gold coast embarking on an 8 months strike as a result a refusal on the part of the farmers to allowing the British Empire from selling cocoa at a lower price set by the European merchants and also decided to withhold cocoa from the market. It was changed to The Ghana Cocoa Board in 1979, after its attempt to regulating the production and the market value through the Ghana Marketing Board which was established by ordinance in 1947. Cocoa Board underwent an institutional changes which subjected the cocoa sector to market force. In view of this, the government of Ghana introduced a new payment in system in 1982, known as the Akuafu Check System at the point of purchase, shifted responsibility of transport to the private sector, subsidies the production of impute like the fertilizers, insecticides,

fungicides and equipment, again implemented a strategic plan in placing sale of agriculture specifically cocoa, its regulation of pricing and manufacturing regulations in the hands of the Government. COCOBOD has been given a directive by the government of Ghana since 2019 to be buying fertilizer from local manufacture as a result of the one district one factory initiative by the current government. The Ghana COCOBOD is made up 5 subsidiaries, and they are Cocoa Research Institute of Ghana (CRIG), Seed Production Unit (SPD), Cocoa Health and Extension Division (CHED), Quality Control Company (QCC) and Cocoa Marketing Company (CMC). COCOBOD is to motivate in the production, processing and selling of cocoa and the other mandated crops thus (coffee, sheanut, cola and cashew) and also perpetuate Ghana's premium cocoa. With a conscious effort in sustaining and meeting the international market, COCOBOD engages in constructive plans or programs steered towards pest and disease control by promoting and motivating scientific research towards improving the standard of cocoa, coffee, shea, cola and cashew. COCOBOD as a regulatory body regulates the local marketing of cocoa, coffee, shea, cola and cashew and also secure arrangements which are complementary enough for buying, grading, sealing, certification, marketing and export of cocoa and the mandated crop in order to assist the industry in Ghana. The goal of COCOBOD is to reduce environmental impact of its activities and compliance to the environment and regulations laid down by their stakeholders along the cocoa value chain.

A survey conducted among cocoa farmers in 1991, 1999 and 2005 indicated a reduction in poverty levels among cocoa-producing households from 60.1% in the 1990's to 23.9% in 2005; the reduction was attributed to favorable cocoa prices, higher yields and increased production (Tawiah, 2015). In 2010/2011, Ghana's exports of cocoa reached 1,004,000 metric tones (MT) and, has since been the second largest exporter of cocoa in the world, in terms of quantity (Asante-

Poku & Angelucci, 2013). In addition, cocoa plays a significant role of providing a secondary habitat for some forest animals and species (Läderach et al., 2013).

Ghana is one of the largest cocoa-producing countries, with over 40% of the population relying on the crop as their main source of income. Besides providing employment, cocoa has many other economic benefits for Ghana, which makes climate change a real threat to the country's economy. According to climate projections in Ghana, the northwest of the cocoa belt will no longer be suitable for cocoa by 2050s if no action is taken; traditional cocoa regions will remain suitable, but stresses such as pest and disease pressure and drought are expected to increase; and the western region will remain suitable as well, but adaptation efforts are needed to avoid cocoa production losses (Bunn, Schreyer and Castro, 2018).

The World Meteorological Organization (WMO) reported on the Global climate in 2015-2019, release to inform the United Nation Secretary-General's climate action summit says that the global average temperature has increased by 1.1°C since the pre-industrial period and by 0.2°C compared to 2011- 2015.

Evidence shows the trend is accelerating such that the average temperature is rising every decade. With the rise in temperature, change in rainfall patterns, shifting ecological zone, sea warming and ice caps are melting (IPCC, 2007b).

As a result of this, developing countries are currently at double disadvantage where tropical areas stand to experience some of the most severe impacts of climate change on agriculture, specifically
o Cocoa Production.

The increase global temperature is likely to boost the agriculture production in the temperate regions however expected to reduce yield in the tropical regions of Ghana (UNEP-WTO Report, 2009) of which these areas are the cocoa growing are zones in Ghana.

Cocoa production like all other agricultural commodities depends to a large extent on interactions between comparative advantage which is determined by climate and resource endowment as well as a wide ranging set of policies, since climate change threatens many of our favorite foods, but perhaps none quite as beloved as chocolate. Periodic threats of global cocoa shortage never fail to elicit wide spread consumer panic among chocoholics. But for the millions of small-scale farmers in the tropics who depend on cocoa crops to support their families, the impact of climate change on their livelihood and their way of life.

However little or no research has been done on the communications patterns and trends used to educate farmers on climate change, its impact and the possible solutions regarding cocoa production.

The effect of climate change is expected to be particularly severe in Tropical Africa which, according to research (Mendelsohn, Dinar & Dalfelt, 2000b; Boko et al., 2007; Intergovernmental Panel on Climate Change, 2013), is the poorest and has the slowest technological change, and where domestic economies have depended heavily on rain-fed agriculture. Midgeley, Davis and Chesterman (2011) conducted vulnerability assessments for southern Africa to highlight “hotspots” of current and future (2050) vulnerability to climate change. This study showed that areas that relied significantly on rain-fed agriculture, and were characterized by high population growth, were more vulnerable.

In Ghana, historical climate data recorded by Ghana Meteorological Agency (GMet) across the country between 1960 and 2000 shows a progressive and clear rise in temperature and a decrease in rainfall in all agro-ecological zones of the country (Sagoe, 2006; Boon & Ahenkan, 2011), which poses threats to Ghana’s cocoa industry and cocoa livelihoods as it is highly rain fed. Cocoa production contributes the highest to foreign exchange earnings of approximately 30% of the total

export earnings (Codjoe et al., 2013; Hutchins et al., 2015). It also contributes significantly to the generation of employment for about 800,000 smallholder farm families (Anim-Kwapong & Frimpong, 2004).

The purpose of the research is to examine the communication strategies and plans on the impact of climate change in cocoa production.

1.2 Objectives

1. To examine the communication strategies in climate change on cocoa production a case of COCOBOD.
2. To identify the communication channels to be used to train farmers on climate change
3. To determine the communication plan to best address climate change on cocoa production.

1.3 Research Questions

1. What communication strategies are cocoa COCOBOD using to address climate change and cocoa production?
2. What are the various communication channels which will be employed by COCOBOD?
3. What communication plan is COCOBOD designing to help farmers understand climate change and the measure to possibly take?

1.4 Summary of the theories

Multi-step flow theory/diffusion innovation theory

The Two Step Flow Theory gave way to the Multi Step Flow Theory. It was observed that the influence from the media can be multi directional and it is not necessarily downwards but can be

upwards or even backwards to the media as well. The Two Step Flow led to the change in name basically because of the opinion leaders who are more than just a second hand. This caused the description “Multi Directional” because the multistep had to do with more than one opinion leader, they could be two, three, four, five or even six people. Many a time, the information reaching the audience is altogether different from the original piece of information. That is, opinion leaders who pass the information add their own interpretation to it giving it a new meaning and making the information distorted.

In 1995, Everett Rogers studying how innovation occurs, argued that innovation consist of four stages which are invention, diffusion (communication through social system), time and consequences. Diffusion is the process by which an innovation is communicated through certain channels over a period of time among the members of a social system. An innovation is an idea, product or practice that is perceived to be new by an individual. Communication is the process in which participants create and share information with one another to reach a mutual understanding.

Strength of multi-step flow theory

1. Information travels fast and gets to everyone in the society.
2. Everyone participants actively in the communication process.

Weaknesses of multi-step flow theory

1. Misinterpretation and distortion of information or messages. Since messages gets to opinion leaders first, they add, subtract and change the meaning of the intended message from the media and send messages they deem important for consumption by the opinion followers.

1.5 Overview of Methodology

Mixed methods approach in research aids researchers to gather and analyze data both qualitatively and quantitatively within the same research work. Mixed methods research siphon possible strength of quantitative and qualitative methods. Thus researchers gain the opportunity to explore diverse aspects of the research and discover the relationships which exist between the entangled layers of the research questions. As policy makers and providers are keen to ensuring quality cocoa beans amidst this climate change, researchers can adapt the use of mixed methods to explore which communication strategies and plans can be put across to communicate the impact of climate change on cocoa production and the policies that will best address climate change to the Cocoa farmers.

1.6 Justification of the Study

Despite the discovery of oil in Ghana, cocoa production remains an important contributor to economic growth and development. Several communication gaps exist and which is a contributing factor potential for increased productivity in the cocoa industry. In spite of the various policies put in place by the government to increase the yield of the crop, the effect of climate seems to be ignored although it is the one factor that man has little control of. It is very imperative for the players in the Cocoa industries to have a communication plan geared towards education and informing Cocoa farmers in Ghana on what to do during this crisis since existing research by the EPA of Ghana suggests that climate is changing and some crops are already experiencing the effects. If cocoa production will continue to contribute significantly to the growth and Development of the country, there is the need to examine the nature and extent of communication on the vulnerability to climate change on Cocoa production in Ghana.

1.7 Significance of the Study

The findings of this research will contribute to the existing body of knowledge on the communication strategies and plans taken by the Ghana COCOBOD on the impact of the changes in climate on Cocoa production in Ghana. The study would be useful for COCOBOD to come out with a plan to address climate change in the cocoa sector. Knowing farmers' perception of the effects of climate on cocoa production and their resistance strategies would enable stakeholders design effective measures to reduce to the barest minimum the effects of climate change on the cocoa sector.

1.8 Organization of the Study

This research is organized into four chapters. The first chapter gives an introduction, the statement of problem, objectives, research questions, a description of the study area, and significance of the study, organization of the study, some ethical consideration and limitations of the study. Chapter Two presents a review of pertinent theoretical literature on climate change and its effects on cocoa production. This chapter discusses the effects of climate change on crop production in general and on cocoa production in particular. Some key concepts used in this thesis are discussed. A section of this chapter discusses climate trends in Ghana and some projections made for the future with regard to climate change. It also describes and discusses some models for predicting the effects of climate change on crop yield. Chapter three describes the methodology used for the study. The research philosophy and design are presented. Chapter Four present the conclusion of the research work, a brief discussion on the communication strategies and plans used by COCOBOD to address climate change and recommendations. This chapter looks at the communication strategy as well as plans that will help COCOBOD to best communicate climate change especially in an era of covid-19.

1.9 Ethical Considerations

Social science research often involves the study of real people in real situations, and this raises ethical questions regarding the relationship between the researcher and the respondents. Where care is not taken in conducting social science research, the validity of the research may be questioned.

The researcher, therefore, takes responsibility for all procedures and ethical issues related to the project. The research is conducted in such a way that its integrity would be maintained, and any negative after-effects which might diminish the potential for future research would be avoided. Again the research was conducted as an objective scientific project and without bias. The research took into account the issues of informed consent, anonymity and confidentiality.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter discusses reports and articles on definitions, concepts and prior research on strategies of communications and the effect of climate-change of cocoa production in Ghana. This section discusses key concepts, communication plans, communication strategies, climate change and the production of cocoa in Ghana. The section also reviews empirical research on the impact of adaptation measures on farm income.

2.1 Climate change

Climate change is related to variations in the patterns of the weather. According to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), climate change is defined as “A variation in climate pattern emanating from changes in the variability properties that persists for a considerable period of time, mostly decades or longer. It means variation in climate pattern over time, resulting from either human activity or nature”.

Weber and Stern (2011) also defined climate change as cognitions of the meaning of “climate” and “climate change”, what constitutes the important aspects of climate, how these aspects are interrelated, what the causes of climate change are, the adverse effect of climate change and the degree of confidence that should be attributable to knowledge claims concerning climate change. Researchers such as Leiserowitz et al., 2010; Leiserowitz, Maibach, Roser-Renouf, & Smith, 2011 have argued that considering the increase in aware of climate change, progress in United States of America has been slow for the past decades (Reynolds, Bostrom, Read, & Morgan, 2010).

A study conducted by Reynolds et al. (2010) found that from the period of 1992 to 2009, Americans contribution to global warming (conflate stratospheric ozone depletion) decrease as more Americans became enlightened on the causes of climate change. In contrast to 1992, 2009 yielded a better result in that the American public could clearly distinguish between specific activities that result in global warming and other generally accepted environmental practices. However, over the period of time, people could not fully appreciate that the main cause of climate change was atmospheric carbon dioxide. Further, as of 2009, a sizable number of Americans were still oblivious of the fact that fossil fuel usage also resulted it atmospheric carbon dioxide concentrations (Reynolds et al., 2010). The study recommended that public understanding must be improved in other for people to be well informed and fully grasp the concept of climate change. The IPCC concluded that global warming is unequivocal as observations presented in the Physical Science Basis Report shows an increase in the global average temperature from 1906 to 2005 of $0.74 \pm 0.18^{\circ}\text{C}$ (Solomon et al., 2007). In the last century, continuous variations in the climate system such as extreme events, variations in precipitation patterns and global sea-level rise. The outcome of the study revealed that from 1960 to 2003, the level of global mean sea has risen with an average rate of 1.8 ± 0.5 mm per year and variation in precipitation patterns (Solomon et al., 2007).

Also, IPCC observed that the eastern parts of northern Europe, South and North America, and central and northern Asia has experienced increasing precipitation trends from 1900 to 2005. While sub regions of subtropics and tropics are influence by longer and intense drought periods from the 1970s. Further, rise in extreme events were noted including more frequent heat waves and heavy precipitation events over the past 50years (Solomon et al., 2007). Sequel to the above observations, IPCC developed future climate variation effect projections considering existing

scientific literatures. Out of the emission scenarios analyzed and different uncertainty intervals, the team projected a global warming of about 0.2°C for two decades. At the end of the 21st century, the model based projections of global average sea-level increase from 0.18 to 0.59 m which influenced precipitation patterns in much more intense and frequent drought and flood events (Solomon et al., 2007). Again, the impact of climate change to different spatial scales were translated by the IPCC climate change scenarios.

The Royal Netherlands Meteorological Institute in the Netherlands advanced a set of scenarios on national climate for 2050 to 2100 using the Institute research and scenarios from IPCC. Rise in global temperature resulting from different air circulation patterns were deduced from these scenarios (KNMI, 2003, 2006, 2009).

In cocoa production, climate change remains one of the important uncontrollable factors. It affects the development of pathogens, cocoa pods and insect pest which reduces crop outputs and eventually affect farm income (Agbongiarhuoyi et al., 2013). Variability in the climate variables such as temperature and rainfall affect significantly fruit development and the cocoa tree itself. Extreme temperature during flowering reduces the seed number (Challinor & Wheeler, 2007). Indirectly, pesticide and fertilizer application, seed varieties, nutrient and moisture and health of farmers are other production factors cause by climate variability which eventually affect the overall cocoa outputs.

2.2 Communication

Communication can simply be defined as a process in which a message are sent to recipients. In technical terms, it is assumed that the sender encrypts or encodes the message and the receiver is expected to decode it (Thao, 2005). Selinker (1972) propounded the term “communication

strategy". According to him, communication strategy refers to the way and manner in which the learner communicate with a native speaker. With reference to Surapa and Channarong (2011), Communication strategies classification and typologies have different categorization following the principles of the classification and terminology of difference authors. Hence to date, researches have expressed diver's opinion on this subject.

Communication is our way of disseminating information and it's what makes us who we are as humans. Communication interventions are influence by individual, cultural and social factors among others. How information is received and decoded depends on Social prisms and individual prisms. In a communication intervention the actual message sent and the one receiving the message are two different things. This is particular so because of two main reasons; one is the different exposure to the intervention by the message sender and receiver and two, that they information is processed differently by them (Rimal & Lapinski, 2009).

The process of communication can be categorized into "Communicators", "Sender", "Idea", "Encoding", "The message ", "Communication channel", "Noise", "Decoding", "Context" Receiver and "Feedback". "Communicators" considers the fact that a minimum of two people are needed to be involved in a conversation for communication to take place. This gives clarification that communication is a one-way-street, where one person is the "sender" (the individual who encode and attempt to carry a message across) and the receiver (the individual who and decode the message). While the sender speaks, the receiver must listen. Communication in real life is byzantine as within the same time, people send and receive messages to and from each other. The process is interactive where the receiver can send feedback in different forms for instance body language while listening

While one speaks, the other listens. In real life communication is more complex. It tends to be simultaneous in the sense that people send and receive messages to and from each other at the same time. It is an Interactive process, where the listener can send feedback in the form of for example body language while listening (Chand & O'Hara, 2015). "Idea" is what the sender intends to convey. "Encoding" is the process of converting or transforming the ideas into symbols or signals such as gestures, words, facial expressions, tone and other non-verbal language, which is the "message". "Communication channel" is the medium or mode through which the sender sends the message for instance vision or speech for face-to-face communication. "Noise" in communication theory, noise have different meaning as compared to the traditional understanding of the word. In normally (traditional) sense noise is physical noise, such as a mobile phone ringing in the middle of a meeting. However, in communication theory, noise refers to unsuitable body language, cultural differences, complicated jargons and lack of interest or attention (Chand & O'Hara, 2015). "Decoding" refers to the process of extracting meaning from the signals and symbols by the receiver from the sender. However, people have their own understanding of the world and beliefs that can interfere with the actual meaning of the message. "Context" affects all communications. Context refers to situation where communication happens or take place, however also to expectations of participants, emotional climate and social factors. Social context can be assessed through the communicators or relation: what are their responsibilities, roles and relation and roles to one another. "Feedback" in principle refers to how the receiver of the message reacts and as a result replies to the message. It signifies how well the receiver of the message understood the message in the way the sender meant it. Feedback can take different forms ranging from verbal statements to subtle hints like changes in posture or facial expressions. Feedback might show dissatisfaction or uneasiness with what the receiver might have heard. Feedback is crucial as

it allows the sender to mend misinterpretations. Feedback is crucial as it gives an opportunity for the sender to fix (Chand, Dixon & O'Hara, 2015).

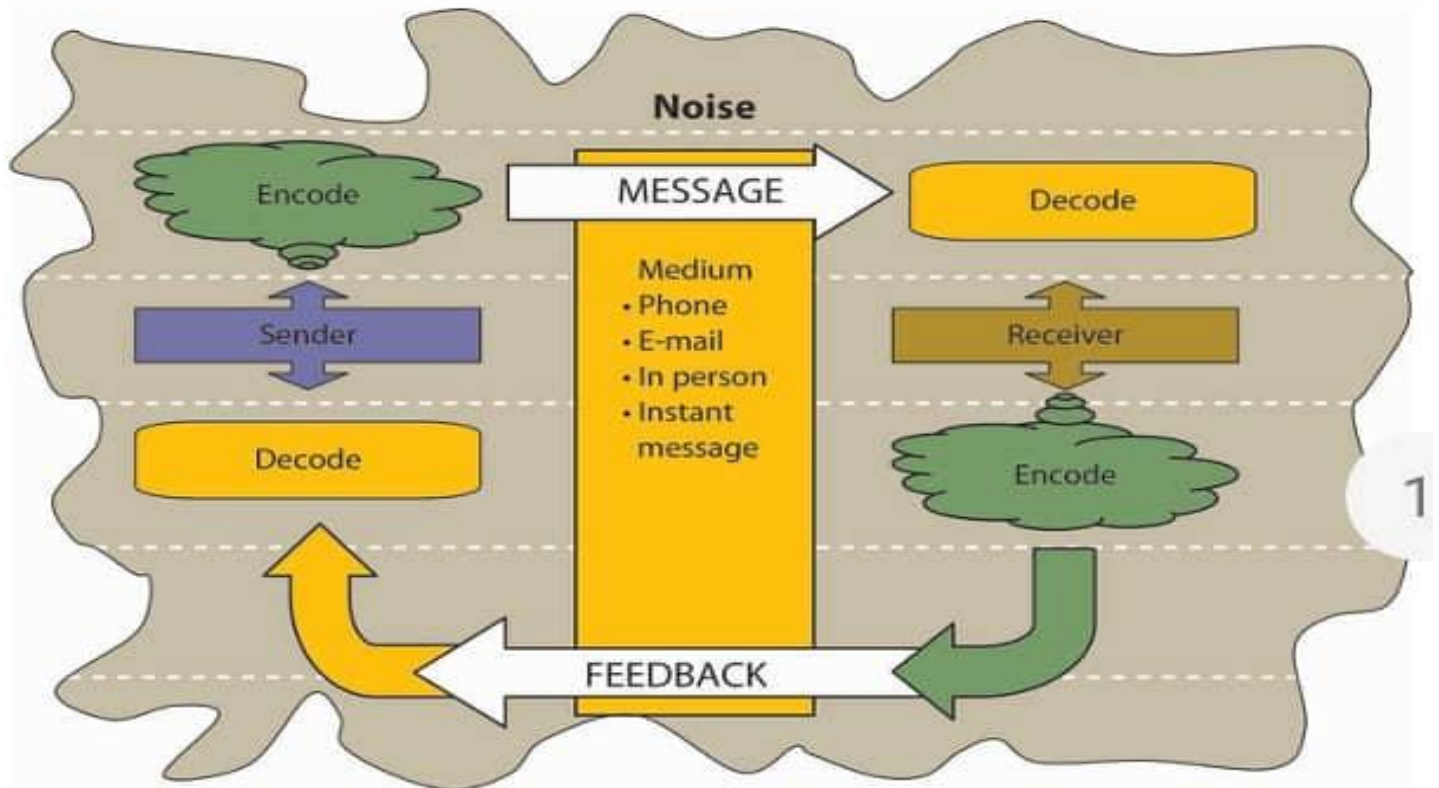


Figure 1: Process Model of Communication (Carpenter, Bauer & Erdogan 2015.)

Communication is categorized into two forms: internal and external communication. Internal communication refers to way in which communication is organized within the company. It focuses on the sharing of information within the members of an organization. On the otherhand, External communication can further be sub-divided into marketing communication and concern communication. Marketing communication centers on services and products that the company offers while concern marketing focuses on the entire organization's image such as financial, crisis and public affairs communications.

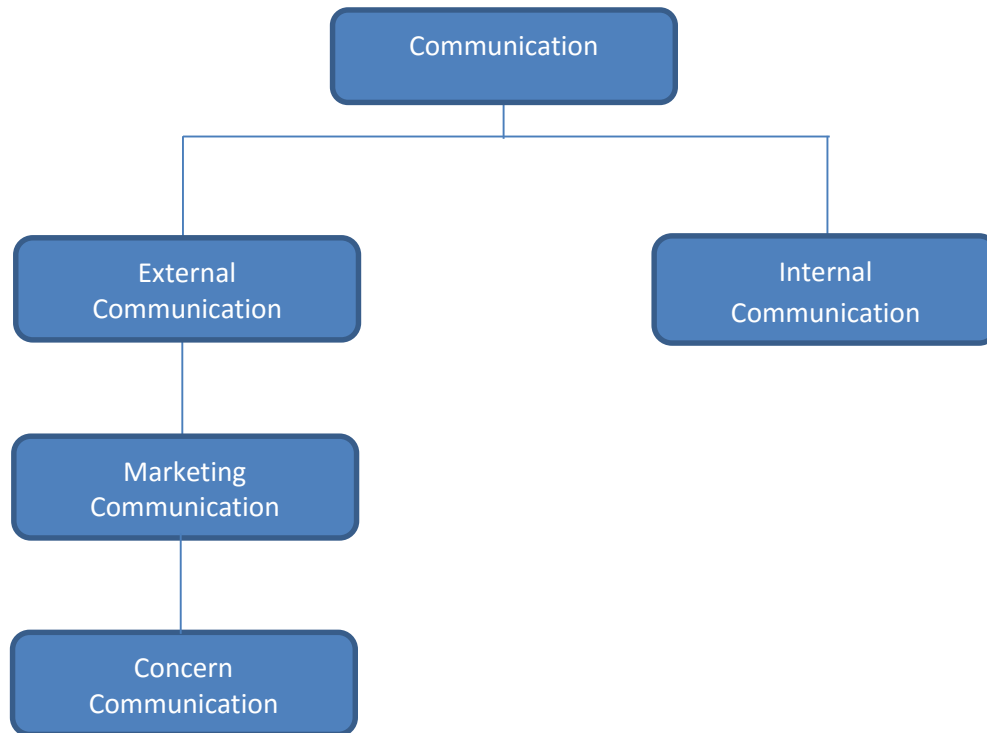


Figure 2: Forms of Communication

2.3 Communication Strategies

Communication strategies involves both linguistic and non-linguistic schemes that a speaker avail to recompense for his/her insufficient knowledge when communicating. This consist of the main policies, guidelines and goals that intends to bring success in communication. According to Dornyei and Scott's (1997) define communication strategy as a problem-management method used for second language communication to assist non-native speakers to understand ambitious words. They described communication strategies as techniques aimed at solving problems that related to the language which is obvious by speakers during the course of communication (Dornyei & Scott, 1997). Rababah (2002) categorized communication strategies into two: one, the speaker's first language and two, the second language. Rababah designed a new taxonomy which represented 16

strategies into first and second languages based strategies similar to those introduced by the other scholars. By so doing, he defined communication strategies as “methods used by second language learners to resolve their communication difficulties arising from limited linguistic resource”. On a more comprehensive manner, the authors incorporated “repair” strategies as part of communication strategies and analyses their effects on the behaviors of communication (Dincer and Erbas, 2010 ; Cho and Larke, 2010).

A communication strategy relates to a plan that form the opinions of the key audiences of an organization and also advances the reputation of the corporate goals and maintain the brand’s goodwill (Randy Ryerson, 2003). A communication strategy has a number of elements. First, it is critical to identify what image the communication plan will present. Second, who the target of the communication is, how the image will be communicated and in particular, what types of media will be used, how often, and in what ways. Finally, regardless of the media and the target audience, it is necessarily to identify whether the message that is being presented is consistent, and whether all the audiences will receive the same message and have the same view of the organization (Randy Ryerson, 2003).

To make their businesses effective, corporate leaders develop management plans. However, many executives cannot quit strategically worrying about one area of business that they are interested with much of their time every day and it impacts everybody in the organization: communications. In order to better accomplish corporate priorities, corporate relations integrate all internal activities with the business agenda of the group. (Argenti 2016,29.) The corporate plan describes the general purpose of the enterprise and a future outlook for the commodity, sector or regional reach of the company. Organizational communications act as a connection between the stakeholders and the business, since correspondence is used both to introduce the business to the environment and to

evaluate data obtained from the environment. It is also essential for the communications specialist of the organization to be interested in shaping Strategic Relations Plans or establishing a communication policy by designing a leading star that provides the basis for all the organization's realistic relations. Few organizations use comprehensive schedules, whereas some choose protocols that are clearer. The sense is to build a framework for everyday interactions and to help determine what is important and what is not, whichever sort of strategic planning is used in the organization (Juholin 2013, 86-87.) The communication strategy represents the personality of the organization and typically seeks to ensure that all corporate messages are coherent and coordinated in such a manner that the understanding of the business by the customers is matched with the corporate picture desired. The communication approach is used to strengthen the current credibility as the organization's image among customers is still in line with corporate identity. This suggests that for both marketing initiatives and services, the communication approach acts as direction (Cornelissen 2011, 10, 81- 82).

The communication approach consists of priorities, key guidelines and strategies that are known to be effective as communication is used as an internal tool and everybody is active in the organization. The plan determines what the primary objective of communication is and what the organization's core communication mission is. The strategy's primary focus is on the future which entails regular analysis and review of interactions. Communication technique directs behavior and is shown in all activities of communication.

As the communication approach is based on the underlying mission and corporate plan of organizations, it often varies as things are altered or revised. It is also important that the communications plan is revised along with the whole organization's approach. (Juholin 2013, 88-89, 100.)

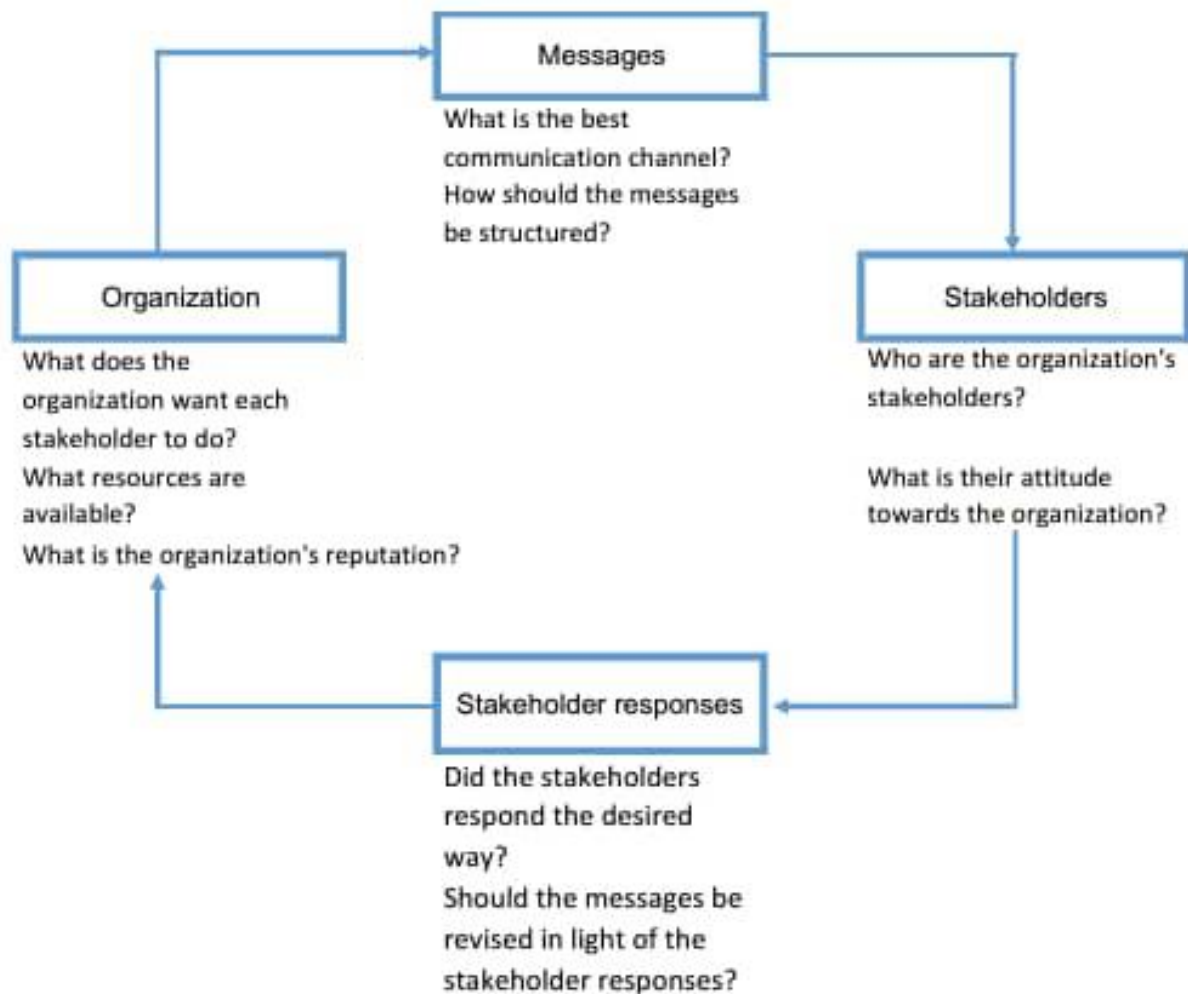


Figure 3: Framework for different parts of a communication strategy.

In order to evaluate the communication strategies, the means available and the present credibility of the organization, a successful communication plan first assesses the organization itself. The research then turns to the partners and determines the required medium of communications and communications. It must also be determined how to analyze the correspondence to figure out if

the messages reached the stakeholders and were interpreted in the manner they were meant (Argenti, 2016).

2.4 Communication plan

A communication plan organizes activities that will lead to a communication purpose being achieved (University of Kansas, 2014, para. 3). The emphasis of a message is described by developing a communication plan, thereby making it easier for target audiences to access it.

A communication strategy offers a blueprint for how communication is going to happen and to whom it will be led. An approach to developing a sound engagement strategy is an eight-step method developed by the University of Kansas (2014) in their online Community Tool Kit guide. This involves, identifying resources, identifying audience(s), identifying the goal, crises and emergencies, designing the messages, utilizing others, creating action plans, and evaluating those plans (para. 8).

Another critical piece of communication preparation required to continue is to take an overview of what the interactions of the company presently look like. It is difficult to set targets and decide whether the communication strategy would be successful without having sufficient inventory.

A framework that is compatible with each annual organizational change would be the communication plan built through this initiative. Multiple means of addressing foreign and domestic audiences are used in some communication plans. Taking into account the digital platforms available, communication aims, strategies, objectives, and methods are developed. In order to strengthen the institution's mission and vision, these networks further foster the university's objectives. Under each institution's policies, the main goal is generally to foster understanding. One method for the University of Louisville Libraries is to strengthen swag content

for their student audience, host meetings, e-newsletters, and deliver multimedia updates to their student audience (Dowd, 2016). The University of Louisville Libraries, externally, approach their niche communities, circulating electronic messages regularly (Dowd, 2016).

The communication strategies of Indiana University of Pennsylvania (IUP) (2009) are graphically improved HTML e-Letters to target workers, central schedules, and relevant news pages on the school website, the event student newsletter, and the student email forum (p.5). A Journal, IUP reporter, parent contacts, emails, individual department newsletters and e- newsletters, leaflets, posters , banners, table tables, television, interactive boards and signs, multi-media displays, launch-and-learn activities, and face-to - face are other vehicles that support their contact blend. These strategies for addressing internal and external audiences are part of a larger communication mediums that will facilitate the correct exchange of messages among Universities.

2.5 Cocoa production in Ghana

In terms of production, Ghana is the second largest country producing cocoa (Ecobank, 2014).

In the 2013/2014 season, cocoa production in Ghana hit 896,229 tonnes and showed an improvement in relation to previous years (Ghana Cocoa Board, 2014). In an effort to make Ghanaian cocoa production more competitive, broad certification programs, such as those listed above, have stepped in (Potts et al., 2014). Governance in the form of certification, however, is not the only governance style that affects cocoa farmers. In how cocoa is developed and sold, state governance also forms a significant factor (Vellema et al., 2015).

Ghana 's cocoa industry is highly regulated by the Ghana Cocoa Board (also known as COCOBOD), a government agency that sets the annual cocoa price, decides who is authorized to buy cocoa on the domestic market, helped organize quality inspections, and provides farmers with

inputs (Grossman-Green & Bayer, 2009; Capelle, 2008). In Ghana, both COCOBOD and private certification guidelines are seeking to boost the output of sustainable cocoa (Vellema et al., 2015), but it may be debated whether a highly regulated cocoa industry is advantageous for certification uptake. Most cocoa is grown in the forest areas of the Ashanti, Brong-Ahafo, Southern, Eastern, Western, and Volta regions of Ghana by around 1.6 million small farmers on plots of less than three hectares (ha) (ESDD, 2002). The first export of cocoa from Veracruz to Cadiz to Europe dates back to 1585 (Mossu, 1992). Ghana generated about 546.72 tons (T) of cocoa in 1900, 2856.00 T in 1905, about 26,520.00 T in 1911 and 317,220 T in 1936, representing half of the total world production at the time (Manu, 1989). Cocoa production is carried out by smallholder farmers who, in addition to cocoa cultivation, typically cultivate food crops. Cultivation is achieved with basic tools such as cutlass, and before planting the seedlings, often hoes for the ground preparing. The subsistence farmer himself typically nurses the seedlings, but formerly it was supplied by Ghana's cocoa research institute. The farmer typically chooses a location when selecting the site for the plantation, which is a little too far in the bush to avoid threats to the cocoa tree yield (Tudhope, 1909).

The Republic of Ghana, founded in 1957 when the region was independent from Britain, covers an area of 238,540 km². Four agro-ecological zones are responsible for the development of agriculture in the country: savannah (Sudanese savannah and Guinean savannah in the northern part of the country), transitional (woodland savannah transition), woodland (semi-deciduous forest and rainforest) and coastal savannah. In the 17th century, cocoa cultivation in the Americas spread from the Spanish to the British, French and Dutch West Indies (Jamaica, Martinique and Suriname) and to Brazil in the 18th century, where large-scale development began. It spread from Brazil to West Africa, first to Sao-Tome and Fernando Po (now part of Equatorial Guinea) in 1840, and

then from there to other parts of the region, especially the then British colonial Gold Coast (Ghana) and Niger (Nigeria) and Ivory Coast (France). In the case of Ghana, cocoa farming was initiated in 1815 by Dutch missionaries in the coastal areas and later by the Basel missionaries (Dutch and British and most notably Jamaican), who first planted cocoa in 1857 in Aburi.

However, the commercial cultivation of cocoa in Ghana only started when, in 1879, Tetteh Quarshie, a native of Osu in Accra, brought Amelonado cocoa pods from Fernando Po to Ghana and founded a cocoa farm in Akwapim-Mampong, Eastern Ghana. Tetteh Quarshie became a popular cocoa farmer, with his farm serving until his death in 1892 as a source of supply for cocoa planting materials. Sir William Branford Griffith, the then governor of the Gold Coast, arranged for the distribution of cocoa pods from Sao Tome in 1886 to complement Tetteh Quarshie's efforts. In what is today's Eastern Region, the seeds from these pods were also cultivated. From there, cocoa cultivation and production spread to the now colonized Ashanti Territories (today's Ashanti and Brong Ahafo regions) along the Gold Coast (to the Western Region) and inland.

The first Gold Coast cocoa export was said to have been made in 1885, and the first recorded shipment was made with two bags of cocoa beans sent to Hamburg in January 1893. The Gold Coast had been the world's leading producer of cocoa by the end of the first decade of the twentieth century, with a output volume that increased from 20,000 mt in 1908 to 41,000 mt in 1911. Ghana contributed about 40 percent of the overall global supply of cocoa in the post-WWI period (Quarmin, 2013), with demand increasing between 165,000 mt and 213,000 mt (MMYE, 2008). Output increased rapidly from 218,000 mt in 1925 to 311,000 mt in 1936, after which it fell in the 1940s to between 200,000 and 300,000 mt due to extreme drought and disease and pest outbreaks, particularly the cocoa swollen shoot virus, which was found to be prevalent in the Eastern Region. In view of these difficulties, combined with the difficulties faced in replanting farms as a result of

environmental destruction, the development center moved in the 1940s to today's Ashanti and Brong Ahafo areas, where virgin forest lands were cleared and planted with cocoa (MMYE, 2008).

In the 1960s, Ghana continued to be the world's leading supplier of cocoa beans, owing to the rapid expansion in cultivation and the steps implemented to revamp farms, notably a mass spraying programme against capsids.¹² In the 1964/65 season, national production grew again, reaching a record high of 580,000 mt, which gave Ghana a 33 percent share of global supply. Furthermore, In the late 1970s and early 80s, the decrease in forest land available for development, uncertain political climate and low commodity prices caused a decrease to around 10 percent of world production (Bulir, 2003; Hutchful, 1995; Knudsen, 2007) during which the Ivory Coast became the largest cocoa producer in the world in 1978.

Cocoa cultivation and production takes place in about six out of ten regions of Ghana, namely the Volta region, the Central region, the Brong-Ahafo region, the Eastern region, the Ashanti region, and the Western region, which account for about fifty (50) percent of annual production (Anim-Kwapong and Frimpong, 2005). In the production of cocoa in Ghana, two major seasons have been established, the light crop season which begins from September to June and the main crop season which runs from October to May / June. Cocoa production requires a range of operations ranging from planting, care, processing, drying and selling beans for bagging.

In Ghana, there are three major forms of cocoa varieties grown: Amelonado, Amazonia and Hybrid. Unlike the clone, which takes just three (3) years of gestation time, the Amelona and the Amazonia take roughly five (5) years to bear fruit (COCOBOD, 2009; Tudhope, 1909). Maintenance is carried out by the farmer throughout this time to ensure reasonable production.

In this situation, the farmer was responsible for planting, fertilizing, cultivating and weeding the farm himself. However, many well to do farmers send their farm on contract to caretakers to

manage, according to Tudhope (1909). Among other items, the SPU offers a way of replacing new high yielding cocoa trees, disease/pest resistant and early bearing ones. The SPU uses results from the Ghana Cocoa Research Institute (CRIG) to multiply and make improved cocoa plants produced from breeding programs of hybrid pods and seedlings available to farmers. This seedlings are high, early-bearing, powerful and disease-resistant, all-year-round-yielding. Twenty-six seed gardens are currently run by the device, of which twenty-three are involved, delivering an average of around 4.5 million hybrid pods each year (Asare et al., 2010).

The Ghana Cocoa Board (COCOBOD) was set up by the government of Ghana in 1947 as a legislative agency for the growth of the industry. This was in appreciation of cocoa's contribution to the economic growth of the country (Ghana Cocoa Board, 2012). Actually, the cocoa growing areas are six out of ten of the country's administrative regions, namely Ashanti, Brong Ahafo, Eastern, Volta, Central and Western (Figure 1 shows Ghana with dots in the cocoa growing areas). The incorporation of cocoa into Ghana and its subsequent commercial development have contributed enormously to the economy of the region. The nation has remained the number one cash crop, as well as the top foreign exchange earner for agricultural crops. The Government of Ghana (GoG) totally dominates the business and monopolizes the purchasing and export monopoly of cocoa beans. The GoG-established Ghana Cocoa Board (COCOBOD) monitors and regulates the industry's operations. The Board achieves this by promoting the productive and cost-effective production, refining, and marketing of quality cocoa.

COCOBOD works under the auspices of the Ministry of Finance and manages and monitors the domestic distribution and sale of cocoa beans. COCOBOD registers and licenses private sector firms that buy beans from factories internally (Ghana Cocoa Board, 2012). Ghana is the second largest producer of cocoa in terms of volume (Eco bank, 2014). In the 2013/2014 season, cocoa

production in Ghana hit 896,229 tons and showed an improvement in relation to previous years (Ghana Cocoa Board, 2014). In an effort to make Ghanaian cocoa production more competitive, broad certification programs, such as those listed above, have stepped in (Potts et al., 2014).

Governance in the form of certification, however, is not the only governance style that affects cocoa farmers. In how cocoa is developed and sold, state governance also forms a significant factor (Vellema et al., 2015). Ghana 's cocoa industry is highly controlled by the Ghana Cocoa Board (also known as COCOBOD), a government agency that sets the annual cocoa price, decides who is authorized to buy cocoa on the domestic market, organizes quality inspections, and provides farmers with inputs (Grossman-Green & Bayer, 2009; Capelle, 2008). COCOBOD in Ghana and private quality criteria are also seeking to increase the output of sustainable cocoa (Vellema et al., 2015).

2.6 Cocoa establishment

The shady underwood of the humid tropical rain forest is the natural habitat of cocoa trees, so the location chosen for cocoa cultivation is situated around the forest vegetation. In order to make the cocoa grow so well, the scientist suggests using a fertile soil that is permeable at least 1.2m deep without rocks below, although it is not advised to use highly damp and swampy areas as well as clay soil. When precipitation is spread uniformly throughout the year between 1100 mm and 3000 mm geranium with a prescribed temperature of 30-32 degrees Celsius maximum and 18-21 degrees Celsius minimum, cocoa grows best.

By cutting unwanted forest trees, including those carrying the Cocoa Swollen Shoot Virus CSSV), the chosen site is cleared between December and January. The planting distance recommended is 3 m x 3 m. In order to provide the new plants shade by protecting them from extreme sunshine and

assault by Mirids (Capsids), popularly known by the farmers as "Akati," Cocoa is provided a temporary shade at the initial stages of the establishment. Suggested food crops such as plantain, cocoyam and maize may be planted to provide initial shade for the young cocoa plants on the field, which also from a form of livelihood for the farmers. When the cocoa plants have become sturdy and big, permanent shade is added and there should be about 6 to 8 trees on the farm.

Shade management is essential for the cocoa production, as per the best agronomic practices developed by CRIG. In order to protect young cocoa trees, it is therefore recommended to have smaller crop trees such as plantain or cocoyam, whereas 15-18 larger and mature forest trees per hectare are advised to provide shade on existing farms (CRIG 2010, p.26). Pruning, weeding under the leaves, clearance of mistletoe on the field, soil fertilization and disease and pest management are other effective agronomic activities for cocoa farming (CRIG 2010). Initially, farmers require tree seedlings to set up and sustain their cocoa farms. Nursed cocoa tree seedlings are purchased by farmers in the Fanteakwa district from either Cocobod's Seed Production Unit or the Mondelz nursery outside Tafo. Various chemicals to battle rodents, insects, weeds and diseases and simple tools and equipment such as rubber boots, cutlasses and machines for the application of chemicals and fertilisers are other inputs needed on the field. Input stores in the cocoa districts sell pesticides and essential equipment, while fertilizer must be purchased by Cocobod's mass spraying program that provides cocoa farmers with free fertilizer. In 2014, Cocobod also supported farmers with free high-yielding seedlings and distributed 50 million seedlings to farmers across Ghana (Interview Amengor). In addition, Cocobod also offers agricultural extension services to cocoa farmers at the community level through CHED. Cocobod has about 350 extension officers providing farmers with instruction on appropriate agronomic practices and advances in, for example, seedlings and chemicals (Interview Wiafe).

2.8 Historical institutional background of COCOBOD

Ghana mostly have success story on the African continent considering the vibrant nature of its cocoa industry, which in most cases provides large number of employment of the people and therefore central to policies relating to poverty alleviation and development (Kolavalli & Vigneri, 2011). The colonial government in 1947 established the Cocoa Marketing Board (CMB) due to the relevance of Ghanaian cocoa sector. The aim of the CMB was to resolve issues relating to unstable domestic prices, pricing fixing and market sharing. The name was later changed to COCOBOD in 1984 giving it the most important mandate in the Ghanaian cocoa market. In the 1980s, COCOBOD was the biggest employer in the country having over 100,000 employees (Kolavalli et al. 2012).

COCOBOD have however, experienced a lot of reforms aimed at reducing pricing systems and inefficient marketing. Some non-value adding tasks such as internal marketing were privatized. The internal cocoa marketing partial liberalization commenced in 1992 when licenses were granted by COCOBOD to private companies to procure cocoa from the farmers for a control minimum price and sell them to CMC after passing every quality controls by Quality Control Company (QCC) (Kolavalliet al., 2012). Produce Buying Company (PBC), a subsidiary of COCOBOD was the sole purchaser of cocoa on the market before partial privatization. However, the Produce Buying Company (PBC) remains the largest purchaser of cocoa in Ghana procuring 297,131 tonnes in 2014 representing 33% of the entire internally sold cocoa in Ghana (Ghana Cocoa Board, 2014). Aside the reform of the internal market, other tasks of COCOBOD were outsourced to different government institute and agencies such as construction of roads (Vellema et al. 2015: Kolavalli et al. 2012). In 2006, the number of COCOBOD employees decreased to about 5500.

The NGO's and Private actors' activities have expanded primarily in partnership with role of COCOBOD reducing. The main reasons for the expansion of the partnership with private actors were due to the increase in demand for certified cocoa at the world market and risk of failure on the path of supplier due to low productivity levels (Vellema et al. 2015). Despite the increase in private actor involvement through the liberalization, COCOBOD remain dominator actor in relating everything from quality control to price fixing provisions to farmers (Kolavalli et al. 2012: Grossman-Green & Bayer, 2009: Victor et al. 2010).

2.9 Synthesis and Conclusions

This theoretical literature review has shown how climate systems can influence variability and change in the local climate, leaving farmers with difficult decision making on what, when and how to produce. Increasing temperatures and rainfall variability associated with climate change and variability could have a devastating effect on livelihoods especially in countries that depend heavily on agriculture making it necessary for a laid down plan on how the information will be relayed to the farmers in order for them to really get the understanding and the measures which will be laid down to help mitigate or manage the impact of the changes in climate during Cocoa production.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

Methodology can be explained as the outline connected with a particular set of model assumptions that can help a researcher to conduct research (Creswell, 2003). The information contained in this thesis is the result of data collected both from the field and secondary sources. This chapter provides a summary of the whole process from the research design, study area, selection of population, data collection tools, data analysis and procedures.

3.1 Research Design

Research design is a framework or blueprint for conducting a research project. It details the procedures necessary for obtaining the information needed to structure or solve research problems, Malhotra & Birks (2007:64). The research methodology is designed to meet the research objectives as outlined and consolidates the mixed methods (both qualitative and quantitative) approaches to research and a research techniques amalgamation. The research embraces the vital criteria for survey design which are a sample size representative, minimum cost, and with concentration areas of the targeted population in this case small-holder cocoa farmers aged 25 to 45 years and above and experts in Cocoa production at COCOBOD who are frontlines in terms of Cocoa production. A cross-sectional data was used in this research to obtain farmers Perception and understanding on changes in climatic parameters, the perceived/observed impacts of climate change on cocoa production and the livelihood of farmers, the communication strategies and plans implemented or laid down to address, educate and informing farmers decision to revert to cocoa production and the adaptation measures by farmers in the new cocoa farming in this time of climate change. The research drew on non-empirical (comprehensive literature review) and empirical (data collection,

formal and informal interviews) research approaches. It employed mainly the following methods and tools: desktop studies (literature review), interviews, questionnaires, observations, and key informant discussion and field assessments. The research design employed for this research is the case study design. Yin (2009) defines a case study as “an empirical inquiry that investigates a contemporary phenomenon in depth and within it’s real life context” (Yin, 2009, p.18). This definition shows the suitability of the case study for this research as it investigates contemporary phenomena (public policies) within its real life context (the cocoa sector in Ghana). One of the benefits of using the case study design is its high internal validity. However, the external validity is low. This means that the results are valid for Ghana alone, and are not applicable for other cocoa producing country. The research method used during this research is called mixed methods in which both quantitative and qualitative research methods. The main benefit of mixed methods research is that it allows for very broad analysis (Bryman, 2008), which makes this method very useful as a broad understanding of the cocoa supply chain is needed.

3.2 Thematic analysis

In a loose theoretical frame content analysis can mean the process of analyzing the contents of either written, heard or seen phenomena. Thematic analysis involves the identification of the most eminent themes in the literature and summarizing the findings of different studies under thematic headings. Thematic analysis can be either data driven or theory driven. (Dixon-Woods, Agarwal, Jones, Young & Sutton 2005, 48; Tuomi & Sarajarvi 2009, 91.)

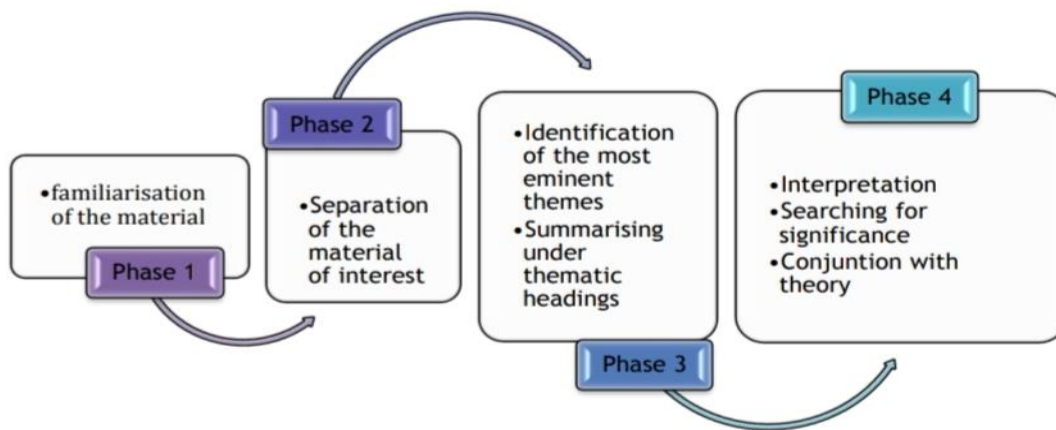


Figure 4: Phases of thematic analysis

3.3 Types of Data

There are two main ways in which to gather data for research: qualitative, and quantitative. Quantitative data refers to information that can be collected in numerical form and is quantifiable. Examples include, tests grades, movie ratings, fuel efficiency scores, etc. Qualitative data cannot be represented by numerical figures (Welman, Kruger & Mitchell, 2005). Take for example a study on the review of a movie. It can take a quantitative approach and simply take the average rating scores that the movie received or it can be qualitative and instead look at written reviews about the movie to draw the conclusions. It depends what the researched is trying to discover. This study will focus mainly on qualitative data. Qualitative data will be collected to discover trends and relationships about the interaction between business and consumer on social media. Qualitative data will consist of the specific content and subsequent responses and interactions (comments, shares, likes) between business and consumer which will provide insight into understanding why, for example, a specific post generates a lot of consumer interaction. Because this research is mainly

inductive in nature, the quantitative data gathered will be used to identify the important qualitative measures regarding social media activity that will be discussed in this thesis. However, a mixed-method and quasi-experimental approach has some disadvantages when used in a social research projects. It might be difficult for the researcher to amalgamate the results which are gathered using different research tools which, in turn, might require additional explanation and justification. The explanation may introduce an element of personal bias, Denscombe (2010),

3.4 Nature of the study

Descriptive research is that which answer the questions regarding what, when, where, and who. On the other hand, explanatory research goes further and answers how and why questions (Riley, Wood, Clark, Welkie and Szivas, 2000). This thesis is an explanatory in nature thus attempt to explore how COCOBOD communicates to the farmers, the various channels and how they go about with their communication processes in order to examine the strategies and plans used and come up with additional techniques which will best address come regarding the current crisis which has to do with climate change implications on the cocoa industry in Ghana.

3.5 Research approach: Case study

To answer the research questions this thesis focuses on the case study of COCOBOD for deep understanding on their communication strategies and plans which they have implemented to inform farmers on the impact of climate change on Cocoa production in Ghana. Saunders at al. (2009) states that case study is used in exploratory research. Explanatory research is used to try and answer the questions “why”, “what” and “how”. According to Yin (2009) both quantitative and qualitative techniques may be used for the data collection, which is what will be done throughout this thesis. Case study relies on many of the same techniques which may include direct observation of the events being studied and interviews of the persons involved in the events (Yin,

2009). Critical attitude to the case study research method is connected with the question about generalizing from a single case. Yin (2009) states that case studies are generalized to theoretical propositions and not to populations or universes.

3.6 Research strategy

When doing a research, it is very imperative to have a clear research strategy that aids in answering the research questions. There are several different strategies to choose from and even though some of them are clearly connected to deductive or inductive approaches, no strategy is better than the other and they are not mutually exclusive. The research questions, amount of resources, existing knowledge and the research philosophy help defining suitable strategy for a particular study. (Saunders et al. 2009, 141.) The research strategy selected for this study is case study research. Case study research focuses on examining a particular phenomenon in a real-life context. It is also typical to create a theoretical proposition before data collection and analysis and triangulate data gathered from multiple sources. Yin (2014, 16-17), definition on case study research, however, is criticized by Myers (2013) for being either too broad or too narrow for case studies in business. The definition can be seen as too vague because in business research, the focus is usually in a certain aspect of the organization. Hence, case studies that are conducted about other is important and not about issues of organizations cannot be called case studies in business. Myers considers Yin's definition also too shallow, due to the fact that, Yin explains case study research only from a positivist point of view, where developing theoretical statements is required. Theoretical hypotheses are not needed in other types of case studies, such as interpretive and critical case studies, which Yin does not mention at all. Myers defines case study research in business as a research that gathers evidence from one or more organizations in order to study a

matter in context. Interviews and documents are the sources that produce most of the evidence.
(Myers 2013, 77-78).

CHAPTER FOUR

CONCLUSION

4.0 Introduction

The study is concluded in this chapter. Some significant findings and the implications of these findings are noted. Conclusions relating to the research objectives are also presented in this chapter.

4.1 Conclusion

It is accepted that the climate generally is changing with striking effects, on the agricultural sector especially, although the effects direction is still not clear. Some agree generally that while tropical countries seem to be disadvantaged because of the additional warming, temperate countries are likely to benefit from it. Climate change due to anthropogenic factors has led to new patterns of temperature and precipitation. These new patterns are projected to reduce agricultural yields, especially cocoa, globally. The probability that change in climate would change the quantity of cocoa produced in the country is very high. Thus, Climatic limits set by the cacao tree imply that changes in climate will affect both the quantity (as a result of reduction in the suitable areas for cocoa production) and the quality (due to poor weather for drying cocoa beans) of cocoa production. On the basis of this, it can be concluded that the cocoa sector is vulnerable to changes in climate. Considering the number of smallholder cocoa farmers in the country, the effect will be devastating, threatening the livelihoods of many households (Baxton, 2018).

According to Baxton (2018), a reduction in household income in most cocoa growing areas due to climate change will widen the vicious circle of poverty and decrease the general well-being of cocoa farmers and their usually large number of dependents. Thus, Cocoa farmers are adapting to climate change on the basis of the training given to them by extension officers. This is as result of

the fact that cocoa, as the major cash crop of Ghana is not only in the contribution of about 25% of the total foreign exchange earnings annually, but also in being the source of livelihood for many rural farmers; hence the need for a sustainable production. The study analyses COCOBODs' short-term and long-term responses to climate variability in the cocoa industry in Ghana. Studying the "coping strategies" and plans with regards to communications as well as the longer-term or permanent changes in the ways of communicating to sustain cocoa production and income are acquired as "adapting" or "adaptation strategies", after the work of Davies (1993).

The study also intend to assess the communication options used by COCOBOD to the farmers to combat the adverse effects of climate change on cocoa production in Ghana and the which are vital to helping COCOBOD formulate policies that enhance adaptation as a tool for managing different risks associated with climate change and the various information needed for and by cocoa farmers to increase their capacity to moderate potential damages or threats and to take advantage of opportunities if any. The dissertation focused on studying the plan used by these cocoa extensions of COCOBOD in communicating climate change to the farmer and whether the plan is effective in giving vivid understanding to farmers and the various means information is being communicated to the farmers, if any. In view of this the study intended to critically construct a communication plan which will identify alternative communication channels and process which will enable COCOBOD communicate effectively the impact of climate change on cocoa production to the farmers across the nation and explore the various technological alternatives for farmer -to-COCOBOD communication and COCOBOD-to-farmers extensively on climate change developments and climate perceptions in order to reduce its effects on cocoa and the livelihood of the farmers.

Communication is the fundamental drive for achieving integration and coordination of the operations of peculiar units at different levels in the organization (Radovic Markovic, 2011). Communication in issues and crisis management in a firm demands extensive understanding of the communication process. Thus constructive strategies and plans that will enable the organization to transfer its policies, decisions, goals and instructions governing the job to the various people they are working with at different levels.

Ghana is vulnerable like other developing countries to the dissenting impact resulting from the interminable climate alterations and weather patterns. Thus change in temperature and seasonality, to the more consistent and intense weather-related events. Development is impeded based on the striking challenges which has to climate our country is currently facing. The immensity of the challenges and effects demands the adoption of novel approaches that would help farmers to understand climate change and its impact and the needed precautions to withstand, recover, mitigate the impact and adapt to change. Within this context, the achievement of sound environmental stewardship, natural resource management and sustainability is imperative.

Tackling the informative aspect of climate change as the report recognizes, the Transformative potential and productivity of communication strategies and plans, that is the channel, tool and manner can help Ghana and the other developing countries to adapt better to the challenges posed on cocoa production and various technologies to reducing the impact of climate change.

The effects of climate change on the production of cocoa in Ghana has made farmers very vulnerable, given a low income to most of these peasants, low motivation as well as inadequate formal credit to further invest in the cocoa business. Hence making it very difficult for cocoa farmers to adapt the recommended practices to reduce the impact of the change in climate on

cocoa. As a result of this, COCOBOD in collaboration with the ministry of Agriculture have constructively come with policies and actions that may be put in place to deal with the adaptation of cocoa to climate change. Thus rehabilitation and restoring production degraded which are sustainable, cocoa farms which are moribund and previously cultivated forest lands to cocoa to subsidize or mitigate migration and deforestation rate which amounts to adverse effects of climate change on cocoa production. Per the policies, farmers will be encouraged to adopting an effective farming practices that is easing relatively the acquisition of credits, farmers' income stabilization through efficient pricing policies and effective land tenure systems. Again, implementation of a drought management policies with the use of information systems to communicate the conditions and patterns of climate change, prefatory practices options to eventually manage drought, allot farm insurance programs will be set in place. Since traditionally, irrigation is not part of the systems of cocoa production in Ghana, provision of infrastructure, education and training policies have been put in place to promote the establishment of systems of irrigation in various cocoa farms in Ghana and the encouragement of shade trees planting and maintenance. Systems of shaded cocoa crops is a maintainable agricultural land system used to provide fairly optimum value of environmental services which include conservation of habitat, mitigation of climate change, hydrological cycling and protection of watershed.

The Cocoa Research Institute of Ghana in anticipation of future climate change and taken cognizance of the debilitating effect of drought on cocoa production has continuously adopted a communication strategy by giving farmers education on climate-related issues with the use of a unit called the Social Science and Statistics Unit (SSSU) with use of flip charts which has a representation of the scientific ideas concerning climate change in pictorial form for the farmers to better understand. This unit, thus SSSU visits farmers in the cocoa growing areas, assist them

on their various farms. Again the Public Affairs of CRIG organizes tour for the farmers in order to educate them on cocoa related problems and the ways to combating it of which climate change has become the fundamental topic of discussion since it is an integral part of COCOBOD's interventions on sustaining cocoa production. As such, several rallies are organized at the District and community levels across the cocoa producing regions in a year include climate mitigation strategies.

According to the Deputy Executive Director of Cocoa Research Institute of Ghana, the communicating plan is inbuilt in the various program being implemented to enhance cocoa productivity. This include the use of both print and electronic media, and increasing the number of extension agents to increase the contact hours between farmers and extension agents. In determining the best communication plan to address climate change on cocoa production in Ghana, COCOBOD engages cocoa farmers and affected communities are engaged regularly through town halls meetings, durbars, and phone-in program to collect inputs and plans from the design stage to the implementation phase. This work is planned by COCOBOD and executed by cocoa extension officers. Monthly, about 5,000 communities and farmer groups are engaged on plans of climate change. Further, each group of farmers involves 40 farmers, hence about 150, 600 farmers should be trained monthly on climate change. Also, the purpose of this training is for the trained farmers to assist the other farmers on the farm when the extension officers are not on the farm.

COCOBOD is keen to establishing an open channel of communication for all forms of engagements with farmers and the communities which will assist it's disseminate information to projects and potential impacts on climate change and equally receive concerns by farmers. This channel provides opportunity for farmers to express their opinions about the preferred plan, channels and methods for future engagements. Further, COCOBOD is implementing grievance

redress mechanism which accepts farmers and communities concerns on climate change and receive prompt response (Ghana Cocoa Board, 2018).

However, inadequate newspapers in circulation as well as high level of illiteracy rate makes it difficult to understand or get the information sent across by the board hence making it imperative for the farmers to seek or rely on other sources of information to understand what is being communicated. The radio program timing sometimes is not in tune with the time the farmer is free, making it very difficult to get them to listen to the program. Distance from the farmers place of abode to the venue of rallies place a cost burden on the farmers making it difficult for the farmers to attend such programs. Regarding direct contact with the extension agents, the low number of community extension officers means that contact period between the extension and the farmer is too short to enable the farmer fully grasp the concepts as explained by these extension agents.

Mobile telecommunications sector in Ghana has from 2011 showed growth of about 21percent with 21.2 million subscriptions of the mobile-cellular. The growth has the tendencies to continue by extending its coverage to reaching more geographically areas as the adoption by the users continues to increase. Hence industry source believes that penetration of the mobile-cellular will increase to over 90 percent by 2014. The Ministry of Communication per their definition of the target sought to provide a universal access to telephone, internet and multimedia services to every community in Ghana by 201032. The goal of the target is to help to drive further telecommunications services growth in Ghana in order for climate change policies to be communicated with the use of ICTs, to get the maximum reach.

Information and Communication Technologies (ICTs) are increasingly playing roles in local to the global levels in the society , that is, ICTs have pervaded all aspects relating to socio-economic

development and are aiding the developing countries to develop new skills, competitiveness and growth (Haruna Iddrisu, 2012). This however makes it very imperative for policy makers and stake of the COCOBOD to introduce the use of ICTs to subsidize and mitigate the gabs and challenges they in trying to communicate the plan and impact of climate change on cocoa production in Ghana especially in this era of information society, to promote technology as an effective tool to combating climate change. Thus ICTs like WhatsApp, message can be introduced in their communication channels in order to effectively get the message across to the various farmers.

According to Haruna Iddrisu (2012), the development of the ICT4AD policy and provision of hospitable environment has tremendously contributed to investment towards ICT infrastructure and board for national development availability. The Ministry of Communication as at 2012 was embarking on a review to come up with policies of ICTs to be able to introduce an all circumscribing ICT focus, climate change and the environment in response to global trends. In response to the Government's vision, the interest in amalgamating ICTs in climate change strategies and plans has been a mutual attempt among many stakeholders and committed organizations.

The well-being of the cocoa farmers has become very paramount to the development of Ghana's economy and communication consequently has become an imperative tool for climate change crisis management. Hence the need for COCOBOD to make a significant effort to set up a climate change communication team to keep farmers regularly and clearly informed on the impact of climate change on cocoa production in Ghana and the measures to be taken to reduce or mitigate the impact of climate change. The climate communication team will work via the newly channels and IC tools like WhatsApp (WhatsApp groups), Facebook and SMS. The climate communication team can also create a telephone helpline, to provide an effective and quality direct interactions

with the farmers and also pave way for the team to effectively monitor farmers' feedbacks, direct access to advice and support, records taking and signpost to other initiatives. Again COCOBOD's IT office in a collaborative work with the climate change communication team can create a Climate Change Application, which contains information on the impact of climate change on cocoa production in Ghana, the policies to mitigate the impact for the farmers to upload and use it as a guide in sustaining their activities on the farm, this will employ the use of the various local languages in Ghana and will be update as and when it is needed. This will end up creating employment to reduce the rate of unemployment in the society and also keep the farmers updated at different times with the same information. Also in time of covid-19, it will help the staff of COCOBOD not to get in touch with any individual in order to reduce the spread of the virus.

COCOBOD also in a collaborative effort, can work hand in hand with the various telecommunications in Ghana for them to send SMS on the impact of climate change and the various policies put in place to mitigate the impact across once a week or thrice every month like how information on covid-19 is always sent to the various public through the various telecommunications companies in Ghana. SMS commonly paves way for direct communication and mass messaging to members of a community or a group of people at a speed and a low -cost avenue for distribution and accessing of information, motivating compliance, and keeping truck of outcome.

However, mobile network coverage in Ghana is not consistent typically in small communities which economically cannot aid the base station installation. Based on this many people within these deprived communities find it difficult to access new channels and tools like WhatsApp, Facebook and more making them opt for normal phones which can only be used to make and accept calls. The cost of internet bandwidth and connectivity in Ghana is very high compared to

other countries making it very difficult for most Ghanaians to use media platforms like Facebook, WhatsApp etc.

West Sussex per a survey conducted highlighted the role of television in communicating messages, (West Sussex case study, 2006). Thus television is the key aspect of a successful promotion and a productive channel of communication to get to the audience targeted. Hence COCOBOD must organize a television advertisement which will educate farmers on climate change and inform them on the policies which are effective to reduce or mitigate the impact of climate change on cocoa production, by representing them in a play form, in their local languages. This should align with the values and foresight of the target audience or the action which COCOBOD intends to instil in the farmers. Traditional awareness campaign raising depends massively on advertising. Thus repetition, videos and sound cling on the emotions and the minds of the audience, making it easy to recall and understand what is being communicated. Television advertisement is very powerful influencer on the audience specifically when the benefits are in line with the interest and needs of the consumer. Television advertisement although has no focus on specific target group, it has massive ability to impact and reach wide number of people at different times. However, the cost of engaging in television advertisement can be restrictive and very expensive.

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