Incorporating Just Transition strategies in developing country NDCs and post COVID responses: Ghana

Kwabena Asomanin Anaman

Ruth Maku Quaye

Paul Anartey

(The Department of Agricultural Economics and Agribusiness, University of Ghana, Legon, Accra, Ghana)

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Abbreviations

CAP- Coronavirus Alleviation Programme

EPA- Environmental Protection Agency

GDP- Gross Domestic Product

GSS- Ghana Statistical Service

GSGDA- Ghana Shared Growth Development Agenda

GPRTU- Ghana Private Road Transport Union

MESTI- Ministry of Environment, Science, Technology and Innovation

MMDA- Metropolitan Municipal and District Assemblies (Councils)

MOFA- Ministry of Food and Agriculture

NBSSI- National Board for Small Scale Industries

NDPC- National Development Planning Commission

UNFCCC- United Nations Framework Convention on Climate Change

Definitions

Definition of the Term, Just Transition Strategies

Considering the range of individuals involved in the study, we adopted a used a definition of just transition of climate change adaptation and response strategies which could be understood by all irrespective of their academic backgrounds or involvement in climate change issues. Just transition climate change strategies were those policy initiatives and societal adaptation responses to combat climate change and its effects being implemented by the government and society, in general, which would ensure the protection of workers' rights, environmental sustainability, and the inclusive participation of all citizens towards the achievement of sustainable development through gradual steps and actions.

Harmattan Season

The harmattan season in the West African region is the period when the North Eastern Trade Winds blow over the region from the Sahara Desert. These winds which are cold, dry and dusty in nature are expected to blow between December to February each year. The season is marked by dryness and cracking of items including the human body (mouth and feet especially). The name Harmattan, is coined from the Ga-Dangme word, Harabata, which is the name of the season, and the month January (Harabata or Aharabata) when the season is usually at its peak. Ga-Dangme is one of the nine broad ethnic groups in Ghana. The Ga-Dangmes live mainly in the Greater Accra Region with a few of them in the Eastern Region of

Ghana. Ga-Dangmes originated from Nigeria arriving in present day Ghana around the 11th Century.

Executive Summary

Climate change is widely accepted as a global crisis that requires collective international efforts to address the threat that it poses to our planet. Although the contribution of developing countries to the phenomenon is relatively low compared to the heavily-industrialized nations, developing countries, especially those in Africa, face higher risks from the impacts of climate change as a result of their high dependence on climate-sensitive economic sectors, low adaptive capacities, and weak national economies. Ghana has accepted several commitments as part of responsibilities to the United Nations Framework Convention on Climate Change (UNFCCC) to address the issue of climate change. In light of the novel coronavirus (COVID-19) pandemic and its impacts on the economies of countries, the implementation of the various programmes under the Nationally Determined Contributions are severely constrained due to the new financial challenges as well as a general change in focus towards COVID-19 containment.

The main objective of the study reported in this paper was to assess the implementation of just transition climate strategies, as part of the Nationally Determined Contributions, in tandem with the COVID-19 response strategies, based on views from various actors in the informal sector workforce, Traditional Councils, and State agencies and private sector organizations (including worker unions and associations, and formal private sector businessmen) involved with climate change issues related to development and implementation of strategies.

The results of the study showed that the vast majority of informal sector workers interviewed had observed climate change signals, such as increases in temperatures, changes in the patterns and amounts of rainfall and increases in weather-related storms over the past ten to fifteen years. The majority of the informal sector workers also believed climate change had a significant impact on their work, ranging from decreased productivity, reduction in the supply of raw materials and decrease in power supply caused by the low volumes of water in the hydro-electric dams that are significant sources of power in Ghana. From the survey, majority of the respondents in the informal sector had little knowledge of the climate change policies and played minimal or no role in the various stages of the development of national climate change policies.

With regards to knowledge of just transition climate change strategies, only a few of the informal sector workers were familiar with just transition strategies and even fewer indicated their participation in the development and implementation stages of these strategies. On the impact of COVID-19 restrictions and the lockdown, most of the respondents indicated drastic decrease in sales and reduction in customers. Although the Government launched business stimulus packages for businesses, the majority of respondents indicated that they could not access the funds from the packages due to lack of awareness about the packages, inadequate documentation of their businesses, and lack of connections to the ruling political party patronage structures.

The in-depth interviews of two Paramount Chiefs and two Paramount Queen Mothers from the Amasaman and Agona Nsaba Traditional Areas were used to gauge the views of the selected traditional leaders on climate change issues, representing the patrilineal and matrilineal traditional cultures that equally existed in Ghana. Amasaman, part of the Ga

Traditional Council was a patrilinear society, while Agona Nsaba, the original Agona Traditional State, was part of the larger Akan-based matrilineal society in Ghana. The traditional leaders indicated that they had observed signs of climate change such as increases in temperatures, changes in rainfall patterns and amounts, increases in storms and clear changes in the times and incidences of the harmattan season. The traditional leaders also believed that climate change had direct impacts on agriculture and water bodies and affected the export-based and manufacturing industries in Ghana.

The traditional leaders were not aware of just transition strategies to climate change as formally announced or published by the government. However, they all suggested that climate change strategies needed to be introduced and implemented in a just and sustainable manner so as not to severely disrupt the lives of their citizens and were generally appreciative of the spirit underlying the just transition climate change strategies. On the impact of COVID-19 related restrictions on personal movements, they indicated that the measures introduced, although necessary, brought increased hunger and hardships to the inhabitants of Amasaman and Agona Nsaba. These hardships were alleviated by the efforts of government and some private philanthropists. The leaders suggested that adequate assistance should be provided by government to businesses.

The third component of the study involved in-depth interviews and discussions with top personnel and directors of agencies involved in the development and shaping of policies on climate change, and also private sector organizations, which act as umbrella structures for both formal and informal sector workers. It was observed that those officials working directly in the environment, climate change and policy sectors had keen knowledge about the existence of climate change policies in the country including just transition strategies and Nationally Determined Contributions. However, representatives from the private sector organizations did not have clear knowledge of climate change policies including just transition strategies.

The study recommends that the Government should educate the informal sector workers on Just Transition Climate Change Strategies and the roles they could play to ensure their full involvement in climate change programmes. Further, the Traditional Councils in Ghana need to be fully integrated into climate change programmes including just transition strategies given their important role as custodians of land, water bodies and the natural environment in Ghana.

Introduction

Background of the Study

Climate change, arising from human activities, has been widely documented. The impacts of climate change are being observed in many countries (Stocker et al., 2014). Although the contribution of developing countries to the phenomenon is relatively low, these countries, especially those from Africa, face higher risks from the impacts of climate change as a result of their high dependence on climate-sensitive economic sectors, low adaptive capacities, and weak national economies (Stocker et al., 2014).
Following the 2015 Paris Agreement, national governments pledged to ensure a just transition into a low-carbon economy by creating decent and quality jobs and a healthy workforce taking into account the development pathways of each country that seek to ensure resilience and improve institutional capacity through participation in climate change adaptation and response programmes (Glynn et al., 2020). Globally, between 2015 and 2020, several engagements at the various levels of governance led to the acceptance to reduce the

emissions of carbon dioxide (CO2) and other greenhouse gases while promoting sustainable and inclusive development (Abokyi et al., 2019; Cohen, 2019; Akenji et al., 2016).
As a member of the United Nations in good standing, Ghana has signed and ratified the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol and the Paris Agreements on climate change. In order to implement its nationally-determined contributions (NDC) towards reducing greenhouse gas emissions, as well as increasing its resilience, Ghana has come up with various policy responses in response to climate change, enshrined in various documents. These documents include the National Climate Change Policy, the Ghana Shared Growth Development Agenda (GSGDA) 2010-2013, GSGDA Phase 2 (2014-2017), as well as policies dealing with specific sectors of the economy to address climate change (Ministry of Environment, Science, Technology and Innovation (MESTI), 2013; 2015).

In the wake of the outbreak of the coronavirus COVID-19 disease in 2020, many countries including Ghana, undertook preventive measures such as partial or total lockdowns, closure of international borders, protocols involving social distancing measures, and working from remote sources, to contain the spread of the virus, and protect the lives of their citizens. Although the implementation of these human-restrictive measures globally has been identified as reducing energy consumption, and the emissions of CO2 and other greenhouse gases, it has also created challenges in the implementation of NDC strategies and programmes to deal with climate change. A challenge facing policy makers in Ghana and other developing countries is maintaining the low-carbon footprints that accompanied the implementation of COVID-19 prevention protocols without adversely affecting their economic growth.

This research study was undertaken to investigate how just transition strategies are being incorporated into the NDC-related programmes and strategies and the COVID-19 responses by various groups in Ghana. The study is unique in terms of the inclusion of informal sector workers and Traditional Councils. About 88% of the labour force in Ghana is accounted for by informal sector workers. Traditional Councils in Ghana oversee the custody of lands, natural resources and water bodies. The inclusion of informal sector workers and Traditional Councils in the study allowed for a broader understanding of how just climate change strategies could be effectively implemented by the entire population.
Given the background information presented, this research study has the principal objective of investigating how just transition strategies are integrated into Ghana's NDCs and COVID-19 responses. The rest of the paper is structured as follows: the next section is devoted to the review of the literature. This is followed by a discussion of the methodology used for the study and the results. The conclusions and recommendations and a list of the cited references follow.

Literature Review

Country Situation

Ghana is located in West Africa between latitudes 4º45'N and 11º00'N and longitudes 1º15'E and 3º15'W and is estimated to have a population of about 31 million people (GSS, 2020). Ghana gained its political independence from Great Britain on 6 March 1957 after being a colony of Great Britain for 113 years, beginning on 6 March 1844 when 17 traditional states signed a security treaty with the Government of the United Kingdom. The country became a Republic on 1 July 1960. The first nine years of political independence was marked relatively moderate economic growth, large scale physical infrastructure and considerable educational investments, especially in the development of a large number of secondary schools. This period ended with the first military coup on 24 February 1966, which followed a period of low growth induced by the 1962-65 collapse of world cocoa prices for which Ghana was then the leading world producer accounting for 37.5% of world production, and the severe 1962/63 l Nino weather phenomenon (Anaman, 2018).

After a 17-year period of political instability from 1966 to 1983, marked by five successful coups, dozens of attempted coups, and low-to-negative growth rates, the economy grew continuously for 36 years from 1984 to 2019 based on annual increases in the gross domestic product (GDP). Economic growth is expected to be negative in 2020 due to the Covid-19 pandemic. The 36-year continuous economic growth in Ghana was linked to widening income inequality (GSS, 2008, 2014, 2018). The income Gini coefficient of Ghana increased from 41.9 in 2006 to 42.3 in 2013, and then to 43.0 in 2017 (GLSS, 2018, p. 23), above the international severe income inequality benchmark of 40.0. Further, the 36-year continuous growth was associated with large-scale environmentally-destructive activities which contributed to increased greenhouse gas (GHG) emissions (Anaman and Agyei-Sasu, 2014). Anaman and Bukari (2021) indicated that the economic growth in Ghana over the last three decades had also been poverty increasing for many relatively small tribes linked to the widening income inequality. This is also the result of the limited power held by the elites of these small tribes in State institutional and governance structures.

Ghana has been described to be highly vulnerable to climate change impacts due to its location within the tropics as well as the dependence of a majority of its population on climate-sensitive sectors such as agriculture, water resources, fisheries and forestry, and the increasingly high rate of destruction of its ecosystems including water bodies arising from human activities. Adom (2020) established that there had been significant climate variability in terms of increased average annual temperature and decreased annual rainfall in Ghana, over the period, 1961 to 2016.

Impact of Climate on the Economy of Ghana

The agricultural sector provides employment to about 42% of the population (Ghana Statistical Service (GSS), 2013). The sector contributed on average about 20% of the country's GDP over the more recently-documented period from 2015 to 2019 (GSS, 2020). Studies have indicated that continuously-increasing temperatures, decrease in rainfall and its unpredictability could jeopardize the employment of about 60% of the active Ghanaian population, the majority of who are small scale rural farmers (refer, for example to Adom, 2020). This would result in unsustainable livelihoods with negative consequences for food insecurity, poverty, health, education, gender equality and the environment. Consequently, the industrial and services sectors which are heavily dependent on the raw materials from the agricultural sector will be negatively affected.

The impact of climate change in the natural resource/ extractive sector in Ghana has gained much coverage by scholarship. For instance, in a study by Asiedu, Malcom and Iddrisu (2018) indicated that even on fish farms, where farmers could control water and temperature, impacts of climate change such as extreme temperatures, erratic rainfall, floods, droughts and storms affected the output of fish farms. Their analysis showed a decrease of 53.4% of revenues and a 6.9% reduction in small-scale aquaculture value. This particular case study highlighted the significant impacts on the livelihoods of fishermen and the economic viability of fish farming in Ghana resulting from increased climate variability. Warmer temperatures influence the fish stock, migratory patterns and mortality rates of wild fish stocks and also determine the types of fish species that can be sustainably farmed in certain regions.

In relation to gender, studies have shown that female and male farmers have varied perceptions of the impacts of climate change and tend to adopt different adaptive strategies. For instance, Ameyaw et al. (2018) indicate that male farmers are more likely to have experienced increasing temperature and rainfall events and years than females. Mensah and Ibrahim (2018) and Adzawla et al. (2019) argue that women also tend occupy distinct positions in Ghana largely as a result of a gendered division of labor within households and the society at large. The positions of women place them at higher risks of being affected more severely by negative climate change impacts. For example, in times of drought and water shortage, women would have to walk for many hours in search of water as they are the principal carriers of water from outside sources in households without residential pipe borne water supply system (Mensah-Kutin, 2008). Women also usually spend long hours carrying heavy loads of firewood every day under hot conditions for the majority of the households in Ghana who do not have access to gas or electricity as cooking fuel.

Aside the effects on agriculture, climate change also has debilitating effects on the health and energy sectors. Rising temperatures and declining rainfall patterns affect the water levels in the rivers that serve and provide hydrological power in the country. Ghana relies considerably on hydro-electricity dams since the first dam, the Volta dam was commissioned in January 1966. Boadi and Owusu (2019) showed that between 21% to 72.4% of the fluctuations in electricity supply in Ghana were directly associated with the variability in rainfall between 1970-1990 and 1991-2010 respectively. The country is consistently affected by the El Nino-linked droughts which have been regularly occurring at least once each decade with significant effects on hydro-electricity energy production. The worst El Nino-linked droughts occurred in 1976/77 and 1982/83 and brought about the highest rates of inflation in Ghana (Anaman, 2018). Severe El Nino-linked weather events occurred also in 2006/2007 and 2014/2015 (Anaman, 2018). Heat waves and increasing temperatures have also been observed to have serious threat to the lives of inhabitants in the warmer regions (Dovie, Dzodzomenyo and Ogunseitan, 2017).

Covid-19 Impacts and Responses

The outbreak of the novel coronavirus Covid-19 in Ghana in March 2020 led to the implementation safety protocols to ensure the management of the spread of the disease. The government responded first by putting in place restrictions of movements of people within the Greater Accra and Ashanti Regions, considered to be the economic hub of the country. The physical lock-down lasted for 21 days. Concurrent with the physical lockdown, bans were placed on social gatherings, people were encouraged to work remotely, were reminded to wear nose/face masks, wash their hands and use hand sanitizers frequently. While the physical lockdown was lifted after 21 days, the other concurrent measures remained in place for several months (except the use of nose masks, hand sanitizer and social distancing). Local

businesses were affected before, during and after the lockdown since travel restrictions affected the movement of goods and services and production. Many businesses lost a lot of money, laid off workers and closed down some production lines.

The government implemented steps to stimulate the economy which included waiving some taxes paid by domestic firms and establishing a Coronavirus Alleviation Programme (CAP) as an initiative to combat the economic impact of the COVID-19 by allocating financial resources to Ghanaian owned small businesses and industries (Ministry of Finance (MoF), 2020). The financial boost from the government would help businesses to recover through an increase in the rate of production of goods and services but would lead to increased energy use and increased greenhouse gas (GHG) emissions. Current efforts of the government have been primarily focused on the alleviation of the stress imposed by COVID-19 on the economy and human life (MoF, 2020). The inclusion of the climate change mitigation and adaptation actions outlined in the GH-NDC report in the government COVID-19 response strategy was minimal.

Gaps in the Ghanaian Climate Change Adaptation and Response Literature

Impacts of climate change and climate variability on human societies have been extensively researched and are widely reported in physical sciences and social sciences literature around the world. Outside of the agricultural sector, the literature driven by Western constructs of human settlements, have focused largely on formal economic units. Much of the developing world is populated by people living in informal settlements who are largely employed or work in the informal and unregistered sectors of the economy. In Ghana, based on the 2010 Population Census data (GSS, 2013), about 86.2% of the labour force is engaged in informal sector activities with 42% working in the agricultural sector. This implied that over 46% or close to half of the working population are in the non-agricultural informal sector. The current proportion of the workforce accounted for by the informal sector is thought to be about 88% in 2021 with non-agricultural informal sector workers accounting for about 47% of the workforce.

The Ghanaian literature is replete with many studies which deal with climate change impacts and scenarios for the agricultural sector and the formal sector of the economy such as energy production and distribution (for a review see Adom (2020). However, there have been very few studies on the impacts of climate change and climate variability on workers in the informal sector in Ghana. This big gap in the climate change literature in Ghana prompted our current study reported in this paper.

Another prompter for our study was to understand the role of Traditional Councils in climate change adaptation strategies. The 190 Traditional Councils in Ghana represent the Traditional States that have existed for hundreds of years and existed before formal British colonial rule starting in 1844. For example, the Agona Nsaba Traditional State, a signatory of the 1844 British government joint security treaty with 17 African Traditional States, that established the Gold Coast State, was formally established in 1693 as a Paramountcy, exactly 300 years before the promulgation of the Fourth Republican era in Ghana in 1993.

Traditional States are widely recognized as the custodians of the land, natural resources and water bodies. However, they are largely marginalized in the development of climate change policies and strategies in Ghana. This marginalization is clearly evident by the relative lack of published papers and articles on the roles and work activities of Traditional Councils in the development and shaping of climate change policies and strategies in Ghana. What roles can Traditional Authorities play in the climate change policy debate including Just Transition

Strategies? We considered this question an important one to answer in the context of the implementation of Just Transition strategies in Ghana.

Methodology

Methodology Developed to Engage Stakeholders

The study adopted a range of methods to identify and engage stakeholders involved in the informal sector as well as formal sector institutions involved in climate change and implementation of just transition strategies. Adapting from the work of Henriques and Sadorsky (1999) which classifies stakeholders involved in environmental issues into several groups, we engaged four sets of stakeholders. These four stakeholders were (1) State regulatory stakeholders made up of governmental institutions involved in climate change policy development and implementation issues; these could be called the elites in political economy analysis; (2) the organizational stakeholders which comprised of both public and private formal and informal institutions and organizations involved in the protection of workers' rights and interests, (3) individual stakeholders which included men and women mainly employed in the informal sector, and (4) Traditional Councils, which represent the 190 Traditional States that have existed in Ghana over the last 400 years, before colonial rule, during colonial rule, and the post-political independence period (refer to Appendix One for the description of institutions which fall under the stakeholder groups one (1) and two (2).

The study engaged stakeholders at two levels: activities involved with eliciting data to find out their roles in the implementation of just transition strategies and a stakeholder meeting that shared the findings of the study and allowed stakeholders to actively discuss these findings. The data was collected in three stages. The first stage involved a random-sampling of workers engaged by the informal sector in two peri-urban districts in the Greater Accra Region, comprising of equal numbers of males and females. The informal sector currently accounts for about 88% of the total workforce of Ghana with about 46% of the entire workforce accounted for by non-agricultural informal sector workers who mainly reside in urban and peri-urban areas. Consequently, in order to get a good mixture of people in the informal sector, the study selected two districts in Ghana, which were peri-urban in nature and had many residents in the informal services sector.

The second stage of data collection involvement in the study involved both public and private formal and informal institutions involved in the protection of the rights of workers within their sectors as well as those involved in climate change issues (see Appendix 1). Owing to the importance of chiefs as custodians of natural resources in the country, the third stage of data collection involved four traditional leaders selected from two traditional areas in Ghana, the Amasaman and Agona Nsaba Traditional Areas. The traditional leaders were equally represented by both males and females (Paramount Chiefs and Paramount Queen Mothers), and also represented equally patrilineal and matrilineal cultures.

Challenges Encountered in Stakeholder Engagement

The first major challenge encountered was in the engagement process with targeted respondents, especially those representing government departments and State institutions. Due to the impact of COVID-19 and activities related to the holding of presidential elections and its problems, it was difficult to meet officials of most of the institutions contacted. Most of the institutions had to be visited more than twice before they could be engaged in the study.

In a few instances, the institutions were engaged by use of remote conferencing facilities such as Zoom and Duo. Further, the project being ad hoc in nature had no local Advisory Board which could have facilitated the involvement of officials of government departments and State institutions, which formulated and shaped climate change policies, including Parliamentary Committees such as the Parliamentary Select Committee on Climate Change.

Study Areas for the Informal Sector Worker Surveys

The Weija-Gbawe Municipality was carved out of the Ga South Municipal Assembly as one of the 44 newly-created districts in 2017 (Mensah and Ibrahim, 2018). The Weija-Gbawe Municipality lies between longitude 5048 North 5029 North and latitude 008 'West and 0030' West. The district is a hub for fishing due to the presence of two main rivers, Porpon and Densu, which supply water to more than half of the four million inhabitants of Accra, the capital city of Ghana. Aside from fishing activities, many of the inhabitants are engaged in crop farming, especially vegetables, due to availability of water for irrigation (Mensah and Ibrahim, 2018). The district is also host to a wide range of workers engaged in activities in the informal sector, such as carpenters, metal works(welders), tailors and barbers and construction works. The district is fast developing into a residential area with the increasing presence of many retirees.

The second location of the survey of the informal sector workers, the Ga West Municipality with Amasaman as capital, lies within latitudes 5° 42 N and 5° 43 N and longitude 0° 17 W and 0°19 W. The major sources of employment in the Municipality are peri-urban farming activities involving both crops and livestock, and commerce and trading (Boafoa, 2017). Amasaman was also the area where its Traditional Paramount Chief and Paramount Queen Mother were interviewed as part of the Traditional Councils component of the entire study.

Data and Sampling Techniques for the Informal Sector Worker Surveys

The two areas that the informal sector worker surveys were conducted were the Weija Area Council and the Amasaman Area Council. The Weija Area Council was the site of the survey that involved only male workers in the informal sector. The wide range of informal activities in the Weija Area Council provided the backdrop for the selection of 40 male workers who were interviewed using structured questionnaires.

The male respondents chosen were seven taxi drivers, seven tailors, seven barbers, seven construction workers, six carpenters and six welders. These male respondents were randomly selected from lists provided by six associations representing taxi drivers, tailors, barbers, construction workers, carpenters and welders. Seven members were randomly selected from each list based on the mobile phone numbers of the members of the associations. Altogether, 42 members were selected; however two people, one carpenter and one welder, could not be reached due their travelling commitments away from Weija Area Council. Data were collected over a period of one month from 10 December 2020 to 10 January 2021. A small pilot survey of five informal sector workers, two taxi drivers, two carpenters and one welder was undertaken during the first week of December 2020. The interviews were conducted by Mr. Paul Anartey, supervised by Professor Kwabena Anaman, based on weekly visits to the field sites.

The female informal sector workers were mainly in the commerce and trade sector given the nature of Amasaman Municipality as a major peri-urban cum semi-rural community with features of both agricultural and non-agricultural activities, and the large movements of

agricultural products and farm produce from adjacent farming areas to farmer market centres in the Amasaman Area Council. While other parts of the Amasaman Municipality were peri-urban and rural and had many farmers, the Amasaman Area Council was largely urban. The female informal sector workers consisted of hair dressers and sellers of vegetables and foodstuffs in the main market centres of Amasaman. Ten hairdressers were randomly selected using the list provided by their informal sector associations. For the foodstuffs sellers, six women were chosen from each of the five main farmer market centres in Amasaman, based on a systematic sampling technique, whereby every tenth stall owner was selected from each of the five market centres yielding a total of 30 sellers.
The interviews of the 40 female informal sector workers were undertaken over the one-month period from 10 December 2020 to 10 January 2021. A small pilot survey, involving five informal sector workers, two hairdressers, and five foodstuff sellers, was undertaken during the first week of December 2020. The interviews were conducted by Mrs. Marigold Amankwah Addo, supervised by Professor Kwabena Anaman, based on regular weekly visits to the field sites.

For the qualitative study of agencies, 15 institutions were purposively selected for the study using one or more of the following criteria: role in climate change and environment policy at the national and (or) international levels and their role in the protection of workers' rights and interests. Responses were obtained from 12 out of the 15 agencies and organizations from 10 December 2020 to 9 February 2021. This component of the study was conducted by Ms. Ruth Maku Quaye.

Interviews were also held with two Paramount Chiefs and two Paramount Queen Mothers from the Amasaman Traditional Area in the Greater Accra Region, and Agona Nsaba Traditional Area, in the Central Region. The Amasaman Traditional Area represented the patrilineal system while Agona Nsaba Traditional Area represented the matrilineal cultural system of Ghana. Roughly half of Ghana's Traditional Councils belong to either the matrilineal or the patrilineal cultural systems. The interviews of the Chiefs at Amasaman were conducted by Mrs. Marigold Amankwah Addo and Professor Kwabena Anaman on 29 January 2021. The interviews of the two Chiefs at Agona Nsaba were conducted solely Professor Anaman on 6 and 7 February 2021. Prior arrangements were also made with institutions for the interviews to be administered. In some cases, the interview guide was answered as a questionnaire by the officer responsible.

Data Analysis and Presentation

Data from the survey of the informal sector workers transcribed on paper were checked, cleaned, coded and processed using Microsoft Excel software. The statistical analysis of these data was analysed using Statistical Package for Social Science (SPSS) Version 22.0. The findings of the analysis of the survey data were summarized in the form of descriptive statistics such as pie charts, bar charts and frequency tables. The results of advanced statistical analysis, using logistic regression procedure, related to whether the respondents had heard of Just Transition climate change strategies, was presented in the form of a table.

The data from the qualitative study dealing with the 12 responding agencies and organizations, and the two Traditional Councils (involving four Chiefs) were collected using paper-based recording and also transcribed and thematically analyzed using the Nvivo software.

Results and Discussion

Socio-economic Characteristics of the Informal Sector Workers

For this study, a sample of 80 respondents consisting of 40 females and 40 male workers drawn from the informal sector were interviewed. These workers included barbers, carpenters, construction workers, drivers, tailors and those working in selling activities at farmers' markets. The minimum age of the study group was 21 years while the maximum age was 66 years with the average age being 41 years. The respondents were modestly educated as shown in Table 1 below. About 86.4% of the respondents had formal educational attainment between basic to tertiary education while just about one in eight of the respondents (12.5%) had no formal education. The average numbers of years of work experience was eleven, ranging from six months to 30 years. The majority (72.5%) of the respondents were married at the time of the survey. The proportion of the respondents who were single was 17.5%. The remaining 10% of the respondents were divorced or widowed.

Ghana has nine broad ethnic groups (GSS, 2013). The Guans are considered the First Ghanaians or the original settlers of the country having arrived in the country at least 30,000 years ago. The other eight broad ethnic groups are Akan, Ga/Dangme, Ewe, Grusi, Gurma, Mole-Dagbani, Mande and All Others, mainly more recent immigrants such as Hausas, Europeans and Asians. Members of the eight other ethnic groups started to settle in Ghana around the 11th Century AD, 1,000 years ago. The largest proportion of the respondents belonged to the (matrilineal) Akan broad ethnic group making up 38.75% of the total. The proportion of Akans in the Ghanaian citizen population was 47.5% in 2010 (GSS, 2013). Ewes were second largest broad ethnic group, accounting for one in five of the respondents (20%). The third largest group was Dangme/Gas, the indigenes of the area of study. Respondents belonging to Mole-Dagbani and Guan ethnic groups constituted 8.75% and 7.5% of the respondents, respectively.

Table 1: Summary of socioeconomic characteristics of the informal sector workers

Indicator	Frequency	Percentage
Sex		
Male	40	50.0
Female	40	50.0
Total	**80**	**100.0**
Marital status		
Single	14	17.5
Married	58	72.5
Divorced	5	6.3
Widowed	3	3.8

Total	**80**	**100.0**
Formal educational attainment		
No formal education	10	12.5
Primary school	17	21.3
Junior High School/Middle school	29	36.3
Senior High School	15	18.8
Tertiary education	8	10.0
Post graduate	1	1.3
Total	**80**	**100.0**
Age		
Minimum	21	
Maximum	66	
Mean	41	
Work experience		
Minimum	6 months	
Maximum	30 years	
Average	11 years	
Broad Ethnic Group		
Akan	31	38.75
Ga/Dangme	15	18.75
Ewe	16	20.0
Mole Dagbani	7	8.75
Guan	6	7.50
All Other Groups	5	6.25
Total	**75**	**100.0**

Climate Change Awareness of the Informal Sector Workers

All the 80 respondents of the survey of informal sector workers indicated that they had observed changes in the climate in Ghana over the last 10 to 20 years. Similarly, all respondents involved in the institutional interviews indicated that, they have observed changes in the country's climate.

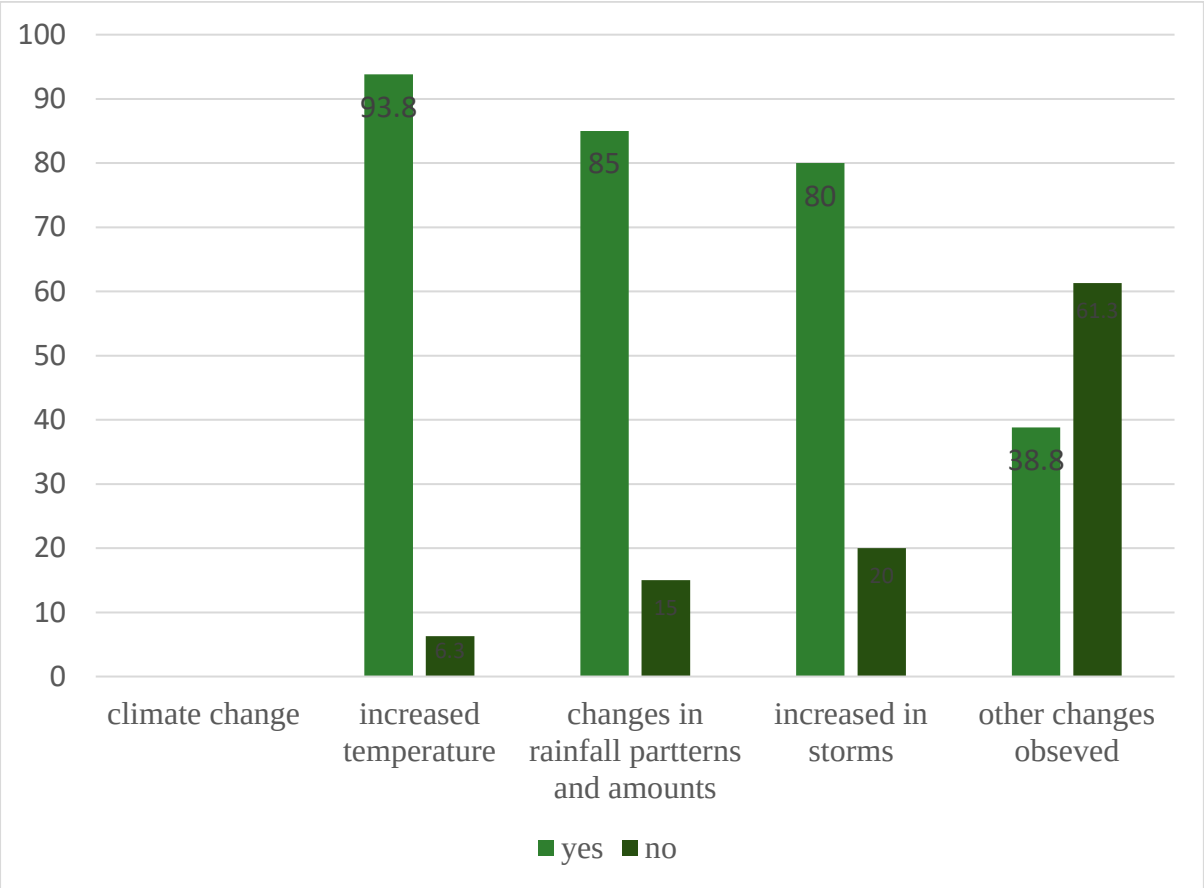
About 93.8% of the respondents said that they had observed increases in temperatures, 85% said they had observed changes in the patterns and amounts of rainfall, and 80% reported that there had been increases in the frequencies of weather-related storms. These

perceptions confirmed the findings of Ameyaw et al. (2018) and Adom (2020) who separate studies found that temperatures in the country had significantly increased over the past three decades.

Figure 1 illustrates the perceptions of climate change characteristics as indicated by the 80 respondents. All 80 respondents indicated that they had observed changes that could be considered to be climate change. However, there were clear minorities who had not observed any changes in the variables concerned. For example, with regards to changes in the frequency of storms, 20% of the respondents had not observed any changes. The proportions of the respondents who had not observed any changes in temperatures, and rainfall patterns and amounts, were 6.3% and 15% respectively.

Using grouped-based data chi square analysis, it was established that there was a significant association between the observation of changes in rainfall patterns and amounts, and the level of work experience and sex of the respondent. There was also significant association between the observation of changes in temperatures and the level of work experience of the respondents. The sex of the informal sector worker was also significantly associated with the observations and perceptions of increases in storms over the last ten to 15 years. These results suggested that the work experience and sex of the informal sector worker were significant factors to his/her observations and perceptions of climate change patterns, but not his/her formal educational attainment level, nor ethnic background; the latter two factors were not statistically significant in any of the Chi square tests of association conducted. While ethnicity could be important in poverty alleviation strategies, this study suggested it was not important in terms of observations and perceptions of climate change patterns suggesting that climate change impacts did not divide human beings into artificially constructed and social cultural camps.

Figure 1: Observed changes in the climate of the country over the past 10-15 years by the responding informal sector workers



Source: Field Survey, 2020

Impacts of Climate Change on Livelihood Activities of Informal Sector Workers

The respondents highlighted different opinions on the impacts of climate change on their jobs in the informal sector, and also on livelihood activities in other sectors of the economy. About one in five of the respondents indicated that climate change had no impact on their jobs, while 31 percent of the respondents indicated that they faced difficulty in working during the rainy season due to changing patterns of rainfall that they thought to be due to climate change. The other effects of climate change on the work of the informal sector workers included decreased agricultural production, intermittent power outages, inadequate amounts of raw materials for businesses arising from severe droughts and extensive amounts of rainfall at certain times.

The responses indicated by the informal sector workers gathered from this study were similar to those established from some other studies in Ghana. For example, Knox et al. (2011) suggested that climate change would cause variations in the production of crop production, predicting that across West Africa climate change could decrease the volume of production of rice by 8% by the year 2030.

During the survey, several informal sector workers provided verbal and physical illustrations to indicate the impacts of climate change. A welder, pointing to the front of his wooden shop, said:

"during the rainy season it is usually difficult to operate my welding machines due to the risk of getting electrocuted; this risk would obviously increase with more intense climate change…."

According one trader who was a plantain seller, climate change had negatively affected their supply of raw materials causing increases in the prices of the foodstuff. She said the following:

"The price of fresh bunch of plantains keeps increasing in recent years even during major season due to low yields and other factors which appear be related to the changing climate and weather……..".
Source: Field Survey, 2020.

Table 2: Impact of climate change on activities as indicated by the informal sector workers

Response		Frequency	Percentage
Sector of the economy currently employing the informal sector worker	No Impact	16	20.0
	Reduced Productivity	14	17.5
	Difficulty Working During Raining Season	25	31.3
	Power Outages During Season	1	1.3
	Reduced Working Hours	1	1.3
	Affects Availability of Raw Materials	23	28.7
	Total	**80**	**100.0**
Others sectors of the economy where the informal sector worker does not participate in			
	1. Decreased Agricultural Production	73	100.0
	2. No Impact	5	6.9
	3. Reduce Productivity	6	8.2
	4. Difficult Working Conditions for Open Market Traders	56	77.8
	Affects Construction Work Negatively	6	8.2
	Total	**73**	**100.0**

Source: Field Survey, 2020

Knowledge of Climate Change Policies

A minority of the sampled informal workers (26.3%) were aware of the climate change policies in Ghana. However, over nine out of ten respondents (92.5%) indicated that they played no role in the development of climate change policies and strategies in the country. They suggested that the development of these policies and strategies was largely done in an elitist manner without inputs from the "common person". Only 3.8% of the respondents suggested that they played some role in the development of climate change policies and strategies.

The vast majority of the respondents (93.3%) also indicated that there were no policies to protect them and their businesses from the effects of climate change. Not surprisingly, as shown in Figure 2, the respondents overwhelmingly declared that it was important for government institutions to involve them in the development of climate change policies and strategies for the development of a sustainable economy in Ghana.

Table 3: Knowledge of climate change policies by the informal sector workers

Knowledge of climate change policies in Ghana			
	Response	Frequency	Percentages
Knowledge of policies			
	No	22	27.5
	Yes	21	26.3
	Do not Know	37	46.3
	Total	**80**	**100.0**
Consulted in the development of policies	Yes	6	7.5
	No	74	92.5
	Total	**80**	**100.0**
Roles played by the respondents	No role	74	92.5
	Implementation	3	3.8
	Monitoring and evaluation	3	3.8
	Total	**80**	**100.0**
Policies to protect the sector of the respondents	No	75	93.8
	Implementing Planting for Food and Jobs	4	6.2
	Total	**80**	**100.0**

Source: Field Survey, 2020

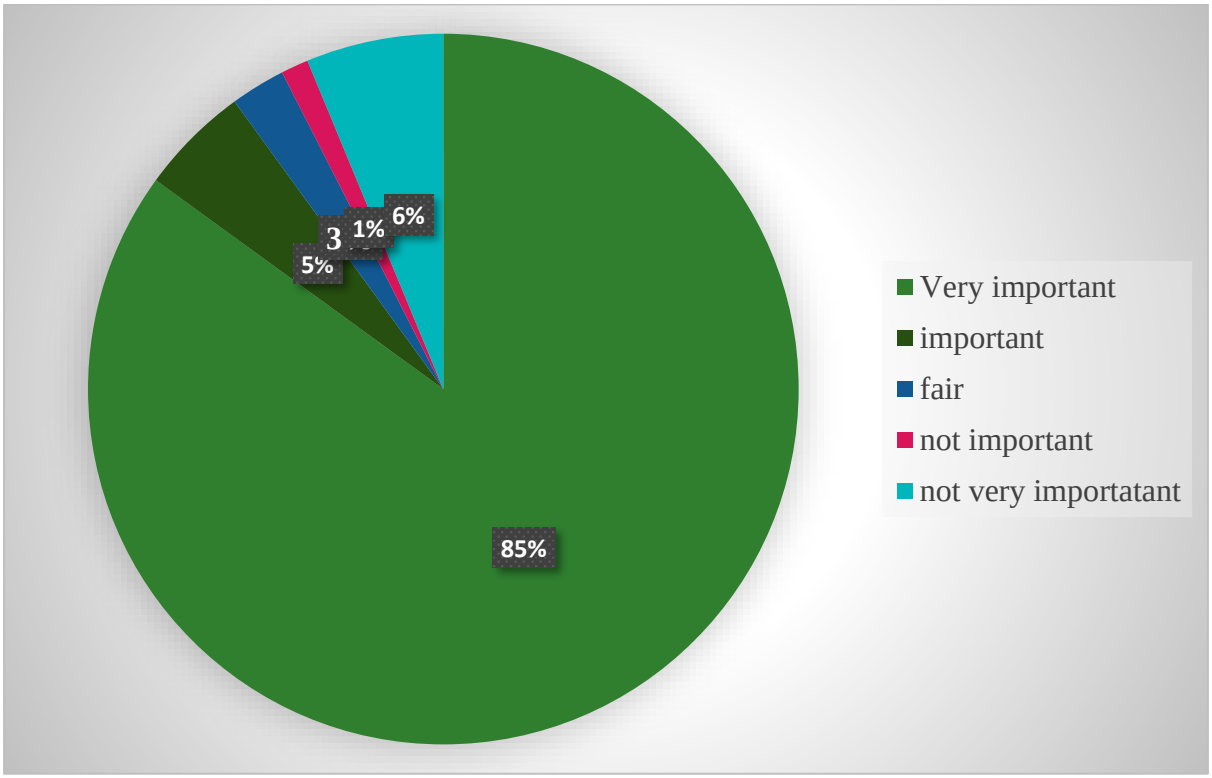
Source: Field Survey, 2020

"The government does not involve us when it comes to climate change issues, they usually concentrate on farmers and while we are being neglected. I have a metal container as my workshop, and in recent years it usually gets very hot inside due to too much sunshine. I am thinking of buying an air conditioner to cool down my barber shop" said a barber (shown above: Photo 1) during the interview.

A tailor indicated a similar sentiment during interview about the neglect of informal sector workers by government by the following statement:

"The government has been organising programmes and providing support to farmers to deal with the climate change; yet we in the informal sector are not invited to any programmes on climate change even though we also experience some challenges due to climate change"

Figure 2: The proportions of the responding informal sector workers indicating the degree of importance of government involving representatives of the various sectors in the development of climate change policies and strategies in Ghana.



Source: Field Survey, 2020

Knowledge of Just Transition Climate Change Policies and Strategies

Koehler (1998) suggested that the concept of a just transition to low-carbon economy by governments was first indicated by a Canadian labour union publication as a means of ensuring that workers get decent work opportunities while consistent efforts were made by society to protect the natural environment. The international labour movement has been at the forefront of efforts related to just transition strategies (International Labour Organization, 2018). In Ghana, the Trade Unions Congress (TUC) and its affiliate organizations such as the Ghana Private Road Transport Union have made some efforts in just transition strategies related to climate change.

An important component of our study was the emphasis on informal sector workers who make up almost half of Ghana's labour force. About 75% of the responding informal sector workers had no knowledge of just transition climate change policies and strategies. Nine out of 20 of the respondents who had heard of just transition strategies identified new agricultural technologies available under the government's Planting for Food and Jobs project, which started in 2017, as a just transition strategy. Lack of information was a major challenge facing the implementation of just transition strategies as many respondents were not aware of the existence of such policies and strategies.

A binary logit regression analysis was undertaken to ascertain the significant socio-economic characteristics that influenced access to information on Just Transition Climate Change Strategies. The result of this analysis is reported in Table 5. The fraction of correct classifications of the model, essentially the explanatory power of the model, was 81%, which was high given that the number of independent variables was only four. Out of the four independent variables, only the formal educational attainment level was statistically significant. Increasing formal educational attainment was responsible for increased likelihood of a respondent having access to information on just transition climate change strategies.

However, as indicated in the earlier section, formal educational attainment was not significantly associated with observations and perceptions of climate change. Rather it was the length of work experience and the sex of the respondent that were associated with such climate change observations. Yet, the logistic regression analysis results reported in this section showed that the work experience and sex of the respondent were not influential in the likelihood of a worker getting access to information on just transition climate strategies (refer to Table 5).

Table 4: Knowledge and information concerning just transition strategies (JTS)

	Response	Frequency	Percentage
Knowledge of JTS	Yes	20	25.0
	No	60	75.0
	Total	**80**	**100**
JTS in your sector	No	4	20.0
	National Youth Employement	1	5.0
	New Agricultural Technology	8	45.0
	Training Women In Entrepreneuship	4	20.0
	Green Recovery	2	10.0
	Total	**20**	**100.0**
JTS which has been implemented	No	2	18.2
	New improved varieties of crops	8	81.8
	Farmers unwilling to adopt the new technology	1	4.0
Challenges encountered in the implementation	Lack of education	13	52.0
	Funds to educate people	11	44.0
	Total	**25**	**100.0**

Source: Field Survey, 2020

Table 5: Results of the binary logit regression analysis of the factors influencing access to information about Just Climate Transition Strategies.

Dependent Variable is HEARD OFJUST TRANSITION (1 for the informal sector who has heard of just transition climate change adaptation strategies, and zero otherwise).

Explanatory Variable	Regression Parameter Estimate	T Value	Probability Level of Significance
CONSTANT	0.188	0.261	0.609
AGEGROUP	0.188	0.261	0.609
EDUCATION	0.120	3.168	0.075*
SEX	-20.768	0.000	0.997
WORKEXPERIENCE	-0.021	0.044	0.833

Source: Field Survey, 2020

Notes

Number of observations for regression analysis	80
Percentage of observations classified as correct	81.0

*** denotes statistical significance of the parameter at the 1% level

** denotes statistical significance of the parameter at the 5% level

* denotes statistical significance of the parameter at the 10% level

Impact of Coronavirus Covid-19 and Adaptative Response Strategies of the Informal Sector Workers and Their Firms

The results from the survey revealed that the vast majority of the respondents were heavily impacted by the imposed restrictions on free movement and the subsequent cancellations of social events due to the spread of the coronavirus Covid-19 epidemic. About 88% of the sampled informal workers indicated that they recorded a drastic drop in their sales and customers during the lockdown and the post-the-lock down period. Only 1.3 percent said their businesses were not seriously affected by the restrictions related to Covid-19.

Our results corroborate the findings by Danquah and Schotte (2020) who suggested that low-income earners, especially those in the informal sector were at higher risk of more serious impacts of Covid-19. The impacts on the informal sector were more severe for businesses such as small restaurants and small retail shops due to the reduced demand of customers arising from the restricted movements and reduced spending by customers.

With regards to government policies to provide assistance to businesses to deal with the Covid-19 pandemic, 65% of the informal sector workers had heard of stimulus packages provided by the government. However, only 1.25% of the respondents indicated that they had received assistance from government stimulus programme. Reasons cited for the non-receipt of assistance included the heavy bias in distribution of government assistance with emphasis placed on supporters and members of the ruling party, New Patriotic Party (NPP), related to the year 2020 being an election years. Other factors included lack of a tax identification number and logistical problems related to transportation and movement of government workers and service providers. The assistance required by the informal sector workers was mainly in the form of financial support such as grants and loans (declared by 93.5% of respondents) and business training (indicated by 73.5%).

A tailor from the Weija Area Council made the following statement on the impact of the Covid-19 restrictions on his business in December 2020 (tailor shown in Photo 2):

"It was very difficult for us. I could not make any sales during the lock-down period because the Government banned all social gatherings, which are the primary source of our customers. We heard the government was planning on helping businesses but I have not received any assistance from anyone……".

Table 6: Impact of Covid 19 restrictions on the businesses of the informal sector workers

Impact Of Covid-19 Restrictions on Business			
	Response	Frequency	Percentage
Impact Of Covid-19 Restriction	No	1	1.3
	Our Shops Were Closed	5	6.3
	Low Sales	71	88.8
	Reduced Customers	3	3.8
	Total	**80**	**100.0**
National Policies To Assist The Vulnerable?	No	15	21.4
	Yes	9	12.9
	Covid-19 Alleviation Fund	46	65.7
	Total	**70**	**100.0**
What support is needed			
	1.Financial Assistance	77	97.5
	Food Items Assistance	2	2.5
	Total	**79**	**100.0**
	2.No	2	2.8
	Business Training	52	73.2

	Working equipment	17	23.9
	Total	71	100.0

Source: Field Survey, 2020

Discussion with Traditional Leaders

In-depth interviews were held with Paramount Chief and Queen Mother of the Amasaman Traditional Area in the Greater Accra Region on 29 January 2021 and the Paramount Chief and the Paramount Queen Mother of the Agona Nsaba Traditional Area in the Central Region on 6 and 7 February 2021, respectively. Each interview lasted at least 30 minutes. All four traditional leaders indicated that they had observed signs of climate change over the last 10 to 15 years, such as increases in the temperature, changes in rainfall patterns and amounts, increase in storms, as well as changes in the times of occurence of the harmattan season. These observations were similar to those expressed by the 80 informal sector workers. The traditional leaders also believed that climate change was real and had direct impacts on the performance of the agriculture, and the quality of the natural environments, including water bodies. Climate change also affected the exportation and manufacturing subsectors and imposed substantial health costs to individuals related to increased heat stress and diseases arising from heavier amounts of rainfall.

The traditional leaders were not aware of just transition climate change strategies as formally announced or published by the government and/or international organizations (Appendix 2). However, after the explanation of just climate strategies to them, they all indicated that several just transition strategies were being implemented by their Traditional Councils such as the encouragement of climate-smart agricultural practices through water conservation practices and irrigated vegetable farms that improved on agricultural-related livelihood activities. The traditional leaders suggested that climate change strategies needed to be introduced and implemented in a just and sustainable manner so as not to disrupt severely the lives of their citizens.

On the impact of COVID-19 restrictions and the lockdown, they indicated the measures, although necessary, brought hunger and hardships to the inhabitants of Amasaman and Agona Nsaba. They added that food items were given to them by some philanthropists which helped to alleviate the stress imposed by the lockdown. The leaders suggested that increased financial assistance should be provided by the government to help businesses recover from COVID-19. Mass education campaigns were suggested as useful mechanisms to engage stakeholders on climate change issues including government programmes dealing with just transition climate changes.

The Paramount Queen Mothers particularly used the interview sessions to appeal for funding from local and international sources for their youth programmes, including local and overseas sources. The youth programmes involved activities for empowering single mothers and school dropouts in areas such as climate-smart agriculture including irrigated agriculture and vocational education and training skills. They noted that the Ghanaian government assistance in these areas was quite limited and they would welcome financial and material assistance from overseas organizations.

The Formal Sector Survey (Agencies and Organizations)

The general observations and perceptions from the formal sector about climate change were similar to that of the informal sector workers with general consensus on the rise in temperatures and change in rainfall patterns and amounts. All the respondents involved in the qualitative study could mention indicators of climate change such as increase in temperature, changes in rainfall patterns and quantities. In addition to these, some respondents also mentioned increased incidence of sea erosion, salt water intrusion along the coast as well as increased incidence of dry spells and droughts in northern Ghana as impacts of climate change in Ghana.

The results from the qualitative study further showed that climate change had direct and indirect effects on all economic sectors. Sectors which faced direct impacts of climate change included agriculture, transport and energy. With the chunk of those engaged in these sectors belonging to the private sector. The other sectors (service providers mostly formal public institutions) indicated that though they were not severely affected by climate change, they tended to feel its impacts as a result of some losses and damages they experienced resulting in increased overhead costs (see Box 1).

Box 1: Respondents' views on the impacts of climate change

Direct Impacts

"The whole agricultural system is affected with implications on food security in general as cropping cycles are affects as well as livestock production". (Ministry of Food and Agriculture).

"Unreliable rainfall affects the water level in the Akosombo Dam and results in unreliable energy supply which affects the outputs of industries". (Environmental Protection Agency)

"Excessive rains affect road conditions which directly affect the movements of farm products to the major market centres. Our vehicles are also affected by the high temperatures". (Ghana Private Road Transport Union: organization of owners of commercial vehicles)

Indirect Impacts

"Affecting sales of some of our products especially those that are deemed to affect the weather system". (Shop Owners Association)

"Increased cost of operations of businesses and affecting the output of casual labourers".

"Increase in energy demands due to high temperatures". (Ghana Statistical Service)

From the interviews with the institutions and agencies, it was observed that officials government organizations that worked directly in the environment, climate change policy had keen knowledge about the existence of climate change policies in the country and could mention them. These included national and sector specific climate change policies (See Box 2). On the other hand, apart from the GPRTU, all the representatives of the private sector

trade groups stated they had not heard of any policy on climate change. One policy instrument that was widely mentioned by these respondents is the National Climate Change Policy. This policy instrument was introduced in 2013 with the aim of addressing climate change impacts through adaptation and mitigation in all economic sectors of the country as well as increasing the resilience of people and infrastructure of society. The second most cited policy is the National Climate Change Strategy which was announced in 2012 to drive the national agenda to mainstream climate change into all development plans from the local to national levels with the objective of participation at all levels. There are some sector specific policies directed at reducing the impacts of climate change within specific sectors (see Box 2). Sectors which had specific policies included agriculture, energy and natural resources.

Box 2: Policies mentioned by the respondents.

National level Policies

The National Climate Change Policy, was launched in 2014. Even before then, the country was actively involved in the global climate change agenda by participating in COPs since joining the UNFCCC in 1992. Additionally, the implementation of the commitments in the NDCs, throughout the country serve as a form of national policy for climate change

(Environmental Protection Agency)

We have the National Climate Change Policy and Strategy as national level policies. At the international level, we have the UNFCCC being a binding international law as well as the NDCs which are are being implemented (National Development Planning Commission)

Sectoral Policies

Almost all sectors have policies to address specific issues of climate change affecting them. For instance, the agricultural sector has the Climate Change and Food Security Policy, the Energy Sector has the Draft Energy Master Plan and then the Transport sector also has a policy (Environmental Protection Agency)

I think there is policy for the transport sector on climate chage related issues. For instance, about three years ago, the Ministry of Roads and Transport tried to implement a policy which sought to impound old vehicles and ban the importation of vehicles which were older than ten years. The policy included schemes to assist drivers to acquire new cars to reduce the emissions coming from relatively old cars and vehicles……. (Ghana Private Road Transport Union)

The Ministry of Agriculture has developed the Climate Change Adaptation and Food Security Action Plan to build the resilience of farmers towards the impacts of climate change.

(Ministry of Food and Agriculture)

Additionally, it was observed from the interviews that respondents in sectors that were not directly related to climate change as well as those in informal sector groupings had little to no knowledge of the term 'Just Transition' climate strategies. However, those involved in climate change and climate policy were aware of just transition and its strategies.

Box 3: Respondents' knowledge of Just Transition

"I have never heard of the term 'Just Transition'. However, from your explanation, I will say that just transitions strategies are already embedded in the development process as policy development involves engagements and activities which are also just." (Ministry of Food and Agriculture).

"Yes, I have heard of 'Just Transition'. It is one of the issues being pushed forward by the ILO and Labour Unions i.e.. Technologies must be clean, e.g. Low carbon economies in transitioning from polluting economies to green economies which considers the protection of all in an inclusive development." (Environmental Protection Agency).

"Yes, I have heard of the term. It involves Fair and equitable distribution of resources, involving all person in changes and minimizing the impacts of climate change by providing opportunities that all will take advantage of opportunities." (National Development Planning Commission)

"I have not heard of that term, but from the explanation, I think we have started to put things in place to implement Just transition strategies. For example, the Ghana Private Road Transport Union together with the Ministry of Transport, and other stakeholders, are planning to procure new vehicles to be purchased by our members on a hire-purchase agreement. It is based on the South African experience and we hope to succeed. What we need now is government commitment towards this policy." (Ghana Private Road Transport Union)

Source: Field Survey, 2020/2021

The results from the formal institutions and organizations showed that the outbreak of COVID-19 had a negative effect on their establishments. All the officials responding on behalf of the institutions indicated that their institutions could not meet their planned targets for 2020. In the case of the formal State institutions, although their plans and and targets were affected, no employee lost their job as a result of the outbreak of COVID-19. These notwithstanding, some positive impacts were observed in some businesses such as the increased exploration of people into alternative livelihood activities, especially those that could be undertaken based from the homes of the workers. Further, the reduction of work-related stress, as a result of the use of the shift-work and flexible work arrangements, was considered to be a positive aspect of the COVID-19-based restrictions.

Box 4: Respondents' views on the effect of COVID-19 on their economic activities

COVID disrupted our scheduled programmes to the effect of moving programmes to the following year (2021). Our costs of operation have increased as a result of the introduction of virtual trainings and the observance of the COVID-19 protocols'. (Ghana Statistical Service)

'Urban food production was severely affected in Accra and Kumasi. Closure of the ports also affected the movement of fertilizers and other inputs'. (Ministry of Food and Agriculture).

'We were put off the road for about two months and when we were recalled, we were asked to implement the policy of social distancing in our vehicles which led many vehicle operations to operate with financial losses'. (Ghana Private Road Transport Union)

'Financially, the co-operatives were severely affected. The lockdown resulted in the loss of harvested and perishable produce. Most farmers were not supported by the governments' interventions as well'. (Ghana Co-operative Council).

'COVID-19 more than affected us. It killed our industry since international travel restrictions means less tourists to buy our products. So many shops have closed down'. (Shop Owners Association)

Source: Field Survey, 2020/2021

Views Expressed by Participants at the 10 February 2021 Stakeholder Workshop

The workshop was organized to share the findings of the surveys with the stakeholders and to provide a common platform for contributions and suggestions from stakeholders on the report. Although some of the respondents could not honor the invitation, we had representation from most the sampled population in attendance. All the representatives agreed with the findings presented as the true reflection of their sentiments and knowledge on climate change and COVID-19 related issue. Also, there was a general consensus on the need to educate the public on climate change and the impacts it had on the informal sector. They further suggested that that climate change programmes should be localized and spread to many parts of the country in order to ensure the participation of the informal sector workers in those programmes.

Several participants suggested that the Government, through its Ministries and Departments, should liaise with informal sector worker associations to involve informal sector workers in the implementation of climate change strategies. Some pointed out that the informal sector workers were always being urged by government representatives and bureaucrats to pay taxes to support the development efforts. This appeal could be seen to be meaningful when informal sector worker associations were involved with shaping and implementation of government policies including those related to climate change.

Conclusions and Recommendations

Conclusions

The results of the study showed that the majority of informal sector workers interviewed had observed climate change signals such as increases in temperature, changes in the patterns and amounts of rainfall, and increases in weather-related storms over the past ten to fifteen years. The majority of the informal sector workers also believed climate change had a significant impact on their work, ranging from decreasing productivity, reduction in raw materials, decrease in power supply and decreasing agricultural production. From the survey, majority of the respondents in the informal sector had little knowledge of the climate change policies and played minimal or no role in the various stages of the development of climate change policies enacted by the government.

With regards to knowledge of just transition climate change strategies, just a few of the informal sector workers were familiar with the just transition strategies. On the impact of COVID-19 restrictions and the lockdown, most of the respondent recorded a drastic decrease in sales, reduction in customers, and used much of their savings during that period. Although the government launched several business stimuli packages, the majority of the respondents indicated that they could not access the packages due to lack of awareness about the packages; they also lacked proper documentation of their businesses to access the government packages. Further, several informal sector workers indicated that the government stimulus programmes, especially financial assistance, were directed mainly at the supporters of the ruling political party, NPP with many opposition parties' supported neglected in these programmes.

The in-depth interviews of two Paramount Chiefs and two Paramount Queen Mothers from the Amasaman and Agona Nsaba Traditional Areas were used to gauge the views of the selected traditional leaders on climate change issues. Consensually, these traditional leaders indicated that they had observed signs of climate change such as increases in temperatures, changes in rainfall patterns and amounts, increases in storms and clear changes in the times and incidence of the harmattan season. The traditional leaders also believed that climate change had direct impacts agriculture and water bodies and also affected the export-based and manufacturing industries.

The traditional leaders were not aware of just transition climate change strategies as formally announced or published by the government. However, based on their new understanding of just transition strategies, arising from the interviews, they could indicate that their Traditional Councils were involved with various just transition strategies to deal with climate change that ensured the maintenance of livelihood activities and jobs of workers and enivronmental sustainability.

The traditional leaders suggested that government strategies needed to be introduced and implemented in a just and sustainable manner so as not to disrupt severely the lives of their citizens, in line with spirit of just transition strategies. On the impact of COVID-19 restrictions and the lockdown, they indicated the measures brought hunger and hardships to the inhabitants of Amasaman and Agona Nsaba. These hardships were alleviated by the efforts of government and some private philanthropists. The leaders suggested that more assistance should be provided by government to businesses to help them to recover quickly from the COVID-19 pandemic.

The third component of the study involved in-depth interviews and discussions with top personnel and directors of agencies involved with the development and shaping of policies on climate change, and private sector organizations. It was observed that those officials working

directly in the environment, climate change and policy sectors had keen knowledge about the existence of climate change policies in the country including Just Transition strategies and National Determined Contributions. However, representatives from private sector organizations not directly involved with shaping climate change policies did not have specific knowledge of climate change policies including just transition strategies. Nevertheless, these officials were generally aware of climate change issues, especially its signals, such as increased temperatures and erratic rainfall.

Based on the information from officials from government departments and institutions, a summary of current policy instruments on climate change, just transition climate change response strategies, and government COVID-19 ameliorating measures, is presented in Appendix 3.

Recommendations

We recommend that the Government through the Ministry of Environment, Science and Technology should educate the informal sector workers and Traditional Councils on Just Transition Climate Change Strategies and the roles they could play to ensure their full involvement in the climate change programmes. The inclusion of the Traditional Councils in this issue is of great importance as they control most of the land and other natural resources. Again, apart from raising awareness about the country's just transition strategies, it will also help the government in gaining an understanding of the informal sector and incorporate the needs and ideas of its workers in the delivery of the just transition strategies. This will not only lead to the creation of achievable targets but also targets that will be equally accepted by workers in the informal sector.

The inclusion of Traditional Councils could be formalized by the Government instituting a Memorandum of Agreement with the National House of Chiefs on the implementation of climate change adaptation strategies including just transition strategies. The National House of Chiefs is the recognized Assembly of Paramount Chiefs in Ghana representing all the 190 traditional states of the country. It has its headquarters in Kumasi and has representatives of five Paramount Chiefs representing each of the 16 regions, constituting an Assembly of 80 members which meets regularly to discuss issues of national interest.

Additionally, while addressing climate change, the government through the Ministry of Employment and Labour Relations (MELR) can meet with the leaders of registered worker unions, groups and associations in the informal sector, to acquaint them with issues on the labour and protection. Such meetings can be done according to governance levels. Hence, at the national level, the worker groups will be made aware of these issues and transcend it down to their members. At the district level, the MELR can through the NCCE departments, engage informal sector workers in these issues.

Further the alleviation of the impacts of the COVID-19 pandemic could be substantially improved through the disbursement of funds using cooperative unions and systems of workers, rather than the current central system which appears to favour members of the ruling political party based on political patronage. The Environmental Protection Agency should engage and involve trade associations and workers in the informal sector in climate change issues and adaptation programmes through appropriate workshops and fora.

The inclusion of informal sector workers in the formulation and implementation of climate change adaptation policies in Ghana can be effected more easily through the invitation of associations of workers to regular town hall meeting organized by District Chief Executives for each district. These regular meetings are supposed to be held at least twice a year and are

attended by invited members of the public. With the widespread availability of FM radio stations which are present in every district of Ghana, programmes involving public issues attract calls from the general public. As such climate change adaptation programmes including just transition strategies could be the focus of public programmes at local community radio and private FM stations.

Finally, the Government of Ghana has already incorporated just transition strategies and other climate change strategies in its intended National Determined Contributions towards climate change programmes based on its commitments under the Paris Agreement. What is now required is the continuous revision and modifications of the specific activities under these commitments given the enhanced information generated from research activities and the specific programmes that need to be undertaken to deal effectively with the current coronavirus Covid-19 pandemic.

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Annex

Appendix 1: Institutions and Agencies Visited During the Study Period

Institutions visited	Type of Institution	Sector	Type of Stakeholder	Role in Climate Change Policy
1. The Environmental Protection Agency (EPA)	State Institution	Formal	Regulatory	Leader in the development of State environmental issues including climate change and adaptation activities. It plays an active role in policy formulation, implementation and monitoring and evaluation
2. The National Development Planning Commission (NDPC)	State Institution	Formal	Regulatory	Play key roles in all aspects of climate change policies
3. Ghana Statistical Service	State Institution	Formal	Regulatory	Collect data which informs policies
4. Ministry of Agriculture	State Institution	Formal	Regulatory	Play key roles in all aspects of climate change policies
5. Ghana Private Road Transport Union	Private Institution (Worker Union)	Informal	Organizational	Their views are sought at the implemetation stage of policies which will affect their productivity.
6. The Civil Service and Local Government Service Workers' Union	Worker Union (comprised of pulic sector workers)	Formal	Organizational	Play no active role
7. Heath Service Workers' Union	Worker Union (comprised of both public and private sector health workers)	Formal	Organizational	Play no active role
8. Public Services Workers Union	Quasi Institution	Formal	Organizational	Play no active role
9. Farmer Based Organisations	State Institution (Farmer rights and welfare protection and management	Formal	Organizational	Play no active role

	of farmer groups)			
10. The Wood Carvers Association (Artisans' Assocaition)	Private Sector Workers' Group	Informal	Organizational	Play no active role
11. Ghana Co-Operatives Council	State Institution (Worker Union)	Formal	Organizational	Play no active role
12. Shop Owners Association	Private Sector Workers' Group	Informal	Organizational	Play no active role
13. Accra Metropolitan Assembly	State Institution	Formal	Regulatory	Play active roles in the development of climate policies at the local level of governance.
14. Ministry of Employment	State Institution	Formal	Organizational	Play no active role
15. Ghana Trades Union Congress	Worker/Trades Union (comprised mainly of private sector organisations)	Formal	Organizational	Spearhead in the promotion of the adoption of just trasition strategies aimed at protecting workers' rights in the country

Appendix 2: Promotion of Just Transition in Ghana

a. Ghana holds National dialogue on decent work and a 'Just Transition' to a green economy.

Available at Ghana Holds National Dialogue on Decent Work and a 'Just Transition' to a Green Economy | PAGE Available at: un-page.org

b. The ILO Constituents in Ghana Call for Mainstreaming of the principle of "a Just Transition towards Environmental Sustainability…" into schools' curriculum.

Available at https://www.ilo.org/africa/about-us/offices/abuja/WCMS_617876/lang--en/index.htm

c. Measuring what is relevant: Progress so far of the Just Transition Framework in Ghana Written By: Angelina Ama Tutuah Mensah (Mrs.).

Available at https://unfccc.int/sites/default/files/resource/Angelina_KAMPALA%20INPUT%20AND%20OUTPUTS.pdf

Appendix 3: Current Policy Instruments on Climate Change, Just Transition Climate Response Strategies, and Covid-19 Alleviation Programme Activities

a. Policy Instruments on Climate Change and Just Transitions

- ✔ National Climate Change Policy
- ✔ The Ghana Climate Change Adaptation Strategy
- ✔ District Development Plans
- ✔ Ghana REDD+ Developmet Strategy
- ✔ Ghaa's First, Second aad Third Communications to the UNFCCC
- ✔ Ghana Low Carbon Development Strategy
- ✔ Ghana National 40-Year Development Plan
- ✔ Medium Term Development Framework
- ✔ Ghana National Employment Policy
- ✔ National Transport Policy
- ✔ Environmetal Fiscal Reforms
- ✔ National Job Agenda
- ✔ The Ghana National Social Protection Policy
- ✔ Sustainable Land Management Policy
- ✔ Food and Agricultural Sector Development Policy I and II
- ✔ Environmental and Sanitation Policy

b. Examples of projects/programmes

- ➢ REDD+ Projects all over the country
- ➢ Ghana Cocoa REDD+ Programme
- ➢ In corporation of climate smart techniques into agricultural activities in both the food crop and cocoa production sub-sectors, with supoprt from international institutions such as the World Bank, GCF; INGs including CARE, GIZ, OXFAM as well as national level institutions like the Ministry of Agriculture, Ministry of Finance, COCOBOD, Forestry Commission among others.
- ➢ Government of Ghana and the German Government Project on E-Waste Management in Ghana. This is a project that aims to strenthen the capacities of small scale recyclers and also provide them with tools and facilities that will protect their lives as well as safe-guard the enviromnent.

- Increased Resiliece to Climate Change in Northern Ghana (RING) Project. This project is being undertaken by the UNDP and the Ministry of Environment, Sciece and Techology to protect water bodies as well as livelihoods from the impacts of climate change.
- Ghana Urban Transport Project
- The Ghana Renewable Energy Master Plan (2019-2030)
- The Ghana Climate Innovation Centre
- The Sustainable Land and Water Management Project

c. Policy Instruments on COVID-19 Alleviation Programme Activities

- The Coronavirus Alleviation Programme (CAP)
- Government of Ghana and the NBSSI Small Scale Industries loan scheme
- Government absorbing water bills of all residents in the country from April to December 2020
- Provision of special insurance packages for frontline health workers and allied proffessionals
- Reduction of the Bank of Ghana policy rate and reduction in reserve requirment from 10 percent to 8 percent in order to to protect businesses as well as the fianacial sector.