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STRENGTHENING LOCAL INITIATIVES ON CLIMATE CHANGE ADAPTATION AND RISK REDUCTION IN THE NIGER DELTA: EXPERIENCE OF CPED PROJECT IN DELTA STATE

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About CPED

The *Centre for Population and Environmental Development (CPED) is* an independent, non-partisan, non-profit and non-governmental organization dedicated to promoting sustainable development and reducing poverty and inequality through policy oriented research and active engagement on development issues. CPED started as an action research group based in the University of Benin, Benin City, Nigeria in 1985. The action research group was concerned with applied research on sustainable development and poverty reduction challenges facing Nigeria. The research group also believed that communication, outreach and intervention programs, which can demonstrate the relevance and effectiveness of research findings and recommendations for policy and poverty reduction, especially at the grassroots level, must be key components of its action research. In order to translate its activities more widely, the Benin Social Science Research Group was transformed into an independent research and action Centre in 1998. It was formally registered in Nigeria as such by the *Corporate Affairs Commission* in 1999.

The establishment of CPED is influenced by three major developments. In the first place, the economic crisis of the 1980s that affected African countries including Nigeria led to poor funding of higher education, the emigration of academics to advanced countries which affected negatively, the quality of research on national development issues emanating from the universities which are the main institutions with the structures and capacity to carry out research and promote discourse on socio-economic development. Secondly, the critical linkage between an independent research or think tank organisation and an outreach program that translates the findings into policy and at the same time test the applicability and effectiveness of the recommendations emanating from research findings has been lacking. Finally, an independent institution that is focusing on a holistic approach to sustainable development and poverty reduction in terms of research, communications and outreach activities is needed in Nigeria. CPED recognises that the core functions of new knowledge creation (research) and the application of knowledge for development (communication and outreach) are key challenges facing sustainable development and poverty reduction in Nigeria where little attention has been paid to the use of knowledge generated in academic institutions. Thus, CPED was created as a way of widening national and regional policy and development debate, provide learning and research opportunities and give visibility to action programmes relating to sustainable development and poverty reduction in different parts of Nigeria and beyond.

The vision is to be a key non-state actor in the promotion of grassroots development in the areas of population and environment in Africa. The overall mission is to promote action-based research programs, carry out communication to policy makers and undertake outreach/intervention programmes on population and environmental development in Africa.

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CR4DN

CPED's Research for Development News (CR4DN) is the official publication of the *Centre for Population and Environmental Development (CPED)*. Through this medium, CPED seeks to reach out to relevant policy makers and other stakeholders on key issues concerning development in Nigeria in particular and other parts of Africa in general.

Vision: CR4DN seeks to inform, educate and report development issues and challenges as well as the progress in the research and outreach activities of the Centre for the consumption of policy makers, other stakeholders and the reading public in its quest to promote sustainable, holistic and grassroots development.

Mission Statement: To provide a medium for drawing the attention of policy makers, other key stakeholders and the general public to the issues and challenges of development and the policy response needed to promote equitable development.

Core Values: The two core values of CR4DN are derived from those of CPED. The first relates to the fact that the universal ideals of intellectual and academic freedom is promoted and respected by CR4DN. In this respect CR4DN will remain an independent, professional and development newsletter. Secondly, CR4DN is a non-partisan newsletter which is not associated with any political party or organization. However, when the need arises, CR4DN in its publication of CPED's research, advocacy and outreach activities will address key political issues that have considerable impact on development, especially at the local level.

Editorial Board: The Editorial Board of CR4DN shall be made up of CPED's Executive Director, two professional staff of CPED and two other members from outside CPED comprising mainly of CPED Fellows. At least 50 percent of the Editorial board must be women.

Editorial Policy: While CR4DN will report on any development issue and the various activities of CPED, CR4DN will, as much as possible, focus on a particular development theme in one edition. The theme to be addressed in a subsequent edition shall be announced for the benefit of contributors in advance.

Adverts: There shall be created in every issue, a space for advertisement. The cost of the advert placements shall be determined by the Editorial Board.

Manuscript submission: Persons interested in contributing to any edition of CR4DN are welcomed to do so. Manuscripts should be original with a maximum length of five pages typewritten with double-line spacing and accompanied with biographical sketch of the author which must not be more than fifty words. Each article should be typed on A4 paper with a margin of one inch round. Manuscripts already published elsewhere shall not be accepted.

Direct all correspondence and enquiries to:
The Editor,
CPED's Research for Development News,
54, Akenzua Street, Off Airport Road,
Benin City, Edo State, Nigeria.
Email address: enquiries@cped.org.ng
Website: www.cped.org.ng,
www.cped-ccp.org.ng

Editor's Note

Professor Emeritus Andrew G. Onokerhoraye, *Ph.D., OON, JP*
Chief Editor

CPED's Research for Development News (CR4DN) series is published twice a year in June and December. The series report on the research, communication and intervention activities of CPED with the major aim of informing policy makers and other key stakeholders on development issues as well as informing key stakeholders on CPED's activities on research and intervention. In this respect the editorial policy of *CPED's Research for Development News* is to focus on one major development issue in each number of CR4DN.

This December, 2020 edition of CR4DN is presenting key findings of the climate change research project being implemented in Delta State, Niger Delta region and progress of the intervention activities being implemented to strengthen the capacity of women to play key roles in climate change adaptation and disaster risk reduction in the Niger Delta.

Professor Emeritus Andrew G. Onokerhoraye
Chief Editor,
December, 2020

CPED RESEARCH ACTIVITIES

Findings of the Project on Climate Change Impacts, Adaptation and Risk Reduction Initiatives in the Niger Delta: The Case of Delta State

Introduction

Climate change hazards have become a global phenomenon. On Monday 27th September 2018, the National Emergency Management Agency (NEMA) reported[1] that about 441,251 people were affected by flood in about 50 Local Government Areas across Nigeria. According to the report, 192 people sustained injuries as a result of the flood with a total of 108 lives lost to the disaster. The Spokesman for NEMA, Sanni Datti, said, about 13,031 houses were either destroyed or damaged as a result of the flood while 122,653 hectares of farmland was damaged.

Although the impacts of climate change affects everyone and all states in Nigeria, the people of the Niger Delta who depend mostly on the environment for their livelihood are worst hit by the devastating effects of climate change. The region is highly vulnerable to the impacts of climate change, particularly as it relates to agriculture and rural livelihoods. The problems of coastal erosion caused by sea-level rise, leading to problems of flooding, intrusion of sea-water into fresh water sources affecting agriculture, fisheries, settlements and general livelihoods, have become recurrent challenges in the region. Although these impacts affect both men and women, however, women and girls in the rural communities of Niger Delta are most at risk.

Mainstreaming Climate change adaptation into development plans is an important strategic action at this stage of our development because emergency preparedness guarantees effective contingency plans to protect citizens, property and the environment. Hence, with support from International Development Research Centre (IDRC), Canada, the Centre for Population and Environmental Development (CPED) in collaboration with Intervention Council for Women in Africa (ICWA) and Delta State Government through the Ministry of Environment (DMoE) have embark on a three year project to build the capacity of women as key leaders in promoting community-based climate change adaptation and disaster risk reduction initiatives in the Niger Delta.

The three year action research project which commenced in October 2018 focused on generating new knowledge on climate variability, the vulnerability of women and girls, and local adaptation strategies that can be harnessed and adopted in order to strengthen household and family resilience to climate change impacts, among others. More specifically, the project is designed to strengthen the ability of women, girls and other stakeholders in rural communities in the Niger Delta to make informed decisions and manage likely climate change driven pressures on their livelihoods.

A key component of the project objectives is knowledge generation, communication and dissemination. This report, therefore, explores some key findings of the knowledge generated and actions taken so far to strengthen women capacity in the project location to play key roles in climate change adaptation and risk reduction initiative.

Research Methodology

Field surveys were carried out in ten LGAs sampled from the three ecological zones (Mangrove Swamp, Freshwater Swamp, Low land Rainforest) as follows: Warri South, Isoko South, Burutu and Patani, Ethiope East, Ughelli South, and Sapele, Ika South, Aniocha North and Ndokwa East. Quantitative data collection entailed the administration of between 400 and

[1] *https://www.tori.ng/news/107005/death-toll-hits-108-as-flood-displaces-441251-peop.html*

450 household questionnaires in each selected LGA. A total of about 4000 successfully completed household questionnaires were retrieved cleaned up and used for the quantitative data analysis. An average of between 1,250 and 1,500 household questionnaires were used in the analysis in each of the three ecological zones.

On the other hand, qualitative data collection entailed the conduct of key informant interviews and focused group discussions amongst mainly community-based stakeholders. A total of 107 key informants, with at least ten identified in each LGA were interviewed in the three ecological zones;

Also three categories of focus group discussions (FGD) were organised in each target LGA comprising "all males", "all females" and a mix of "males and females", respectively, making a total of 30 FGDs conducted in the three ecological zones.

Key Findings

Household Characteristics of Respondents

Results of the household survey show that the majority of the households have a membership of 7 and more members. The average household size is 7 for the communities studied (Table 1). This shows that the household size in the study areas of Delta State is slightly higher than the average for Nigeria as a whole, which is about 5 people (NBS, 2012). Table 1 further shows that there are some slight variations among the communities selected from the three ecological zones in the state. Household size is slightly higher in the lowland rainforest zone compared with the other two zones. This is obviously a reflection of the pressure on households living nearer the coast which are generally more vulnerable to climate change than those located in the upland areas.

Table 1: Percentage Distribution of Household according to their size

Ecological Zones	1 Member	2 Members	3-4 Members	5-6 Members	7 members and above
Mangrove Swamp	9.5	8.5	11.0	12.0	59.0
Freshwater Swamp	3.0	11.0	10.0	21.0	55.0
Lowland Rainforest	7.0	10.5	10.4	12.1	60.0

Table 2 shows that the vast majority (over 80 percent) of the respondents are below 61 years. Respondents of working age (18-40) are only about 35 per cent while those between age 41-60 percent constitute between 42 and 54 per cent. Respondents aged 61 and above constitute less than 20 percent. Table 2 shows that differences in age distribution are quite insignificant among the ecological zones in the Niger Delta region. Thus in terms of pressure on household resources, households in the Niger Delta region are more likely to be overburdened in terms of taking care of the young members of the population. Finally, it can be stated that with the proportion of the population that is over 40 years being quite high, a significant proportion of the community members are well positioned to recall notable changes in climatic conditions in the past 30 years and the way they have responded to these challenges.

Table 2: Percentage Distribution of Respondents according to age

Ecological Zones	18-40 years	41-60 years	61 years and above
Mangrove Swamp	38.8	42.6	18.6
Freshwater Swamp	29.8	54.9	15.3
Lowland Rainforest	36.1	49.1	14.8

The overall sex composition of the respondents as indicated in Table 3 shows that on the average there are more females than males in the rural communities of the Niger Delta region. However, there are some differences in terms of the sex composition of the respondents among the communities in the three ecological zones. The proportion of females is highest in the Freshwater Swamp with over 60 per cent compared with 54.2 per cent in the Mangrove Swamp and 48.9 per cent in the Lowland Rainforest ecological zone. This is a reflection of the fact that women are generally left behind in the more difficult and vulnerable communities nearer the coast by males that migrate to the upland areas. The sex selective nature of migration in Nigeria contributes to the pattern of sex ratios, which prevails in some localities in the Niger Delta which are negatively affected by climate change and other environmental factors.

Table 3: Percentage Distribution of Respondents according to sex

Ecological Zones	Male	Female
Mangrove Swamp	45.8	54.2
Freshwater Swamp	39.7	60.3
Lowland Rainforest	51.1	48.9

Table 4 shows the industry in which the respondents in the surveyed households are employed. Results of the survey indicate that, on the average, the highest proportions of persons employed are engaged in the Agriculture, Forestry and Fishing Industry. Employment in agricultural and other related activities is followed by those in trade or selling activities and general services. The other activities accounted for are between 5 and 15 per cent of the employees. However, significant differences exist among the three ecological zones in terms of the proportion of the population employed.

In the ecological regions, employment in agricultural and related activities is lower in the Mangrove Swamp zone compared with the Freshwater Swamp and Lowland. What emerges from the nature of employment in the communities is that mining and quarrying play an insignificant source of employment for the people of the state. This implies a high level of dependence on the rich biodiversity of the Niger Delta region. The implication of this for vulnerability to climate change is significant, as the changes in the climate variables will have direct impacts on households' income and livelihoods. In this regard men and women are likely to suffer differential impacts as the distribution of men and women in the various occupations differ somewhat.

Table 4: Percentage Distribution of Respondents according to Main Occupation

Ecological Zones	Farming and other agricultural activities	Trading	Public Sector	Private Sector including mining and quarrying
Mangrove Swamp	46.9	25.0	13.2	14.9
Freshwater Swamp	81.1	12.0	3.7	3.2
Lowland Rainforest	51.9	28.4	7.8	11.9

Table 5 presents, key indicators of housing quality in the surveyed communities and suggest two basic features. In the first place, housing for the vast majority of the respondents' households is poor in terms of the materials used in constructing houses which makes them vulnerable to any violent or extreme climate change events such as flooding, erosion, windstorm and thunderstorm. Secondly, a large proportion of the households still depend on the local ecosystem in terms of the materials for the construction of their dwellings. Consequently, climate change effects on the ecosystem constitute problems for many households. On the other hand dependence on the immediate environmental resources such as forest resources, which are depleted by frequent cutting down, negatively affects climate in the different parts of the Niger Delta region. A major characteristics of buildings in the study area is high foundations and the respondents revealed that it is an adaptive measure to frequent floods in the area

Table 5: Percentage Distribution of Respondents according to Types of Houses

Ecological Zones	Mud wall with thatch roof	Mud wall with zinc roof	Brick wall with zinc	Cement block with Zinc roof	Zinc Wall with Zinc roof
Mangrove Swamp	2.3	12.9	2.8	79.0	2.1
Freshwater Swamp	0.5	17.5	8.7	71.8	0.8
Lowland Rainforest	3.8	26.2	1.4	64.1	1.7

Awareness of Climate Change

Over 70% of the respondents were aware of changes in the climatic variables, but were unable to express their feelings about the unfolding events as the years rolled by. The majority of the respondents perceived that these changes in climatic variables affect their agricultural products as well as a decline in the availability of forest products. Some of these climate events and variables which the respondents revealed that has increased include shift in the start or end of rains, early rains that were not sustained, as well as the increase in occurrence of smothered crops by excessive heat. Table 6 indicates respondents identified causes of climate change to include burning fossil fuels, cutting down of trees, overgrazing and a combination of various factors.

Table 6: Percentage Distribution of Respondents according to their understanding of the main causes of climate change in their communities

Ecological Zones	Burning fossil fuels	Cutting down of trees (deforestation)	Incineration	Burning fuels and cutting down of trees	Overgrazing and cutting down of trees	Combination of all the causes enumerated
Mangrove Swamp	24.6	16.6	1.7	20.4	1.2	33.7
Freshwater Swamp	10.0	33.0	5.3	18.0	14.3	11.3
Lowland Rainforest	1.0	5.8	1.8	17.1	9.5	65.1

Figure 1: Percentage Distribution of Respondents according to knowledge/experience about increase in rainfall amount

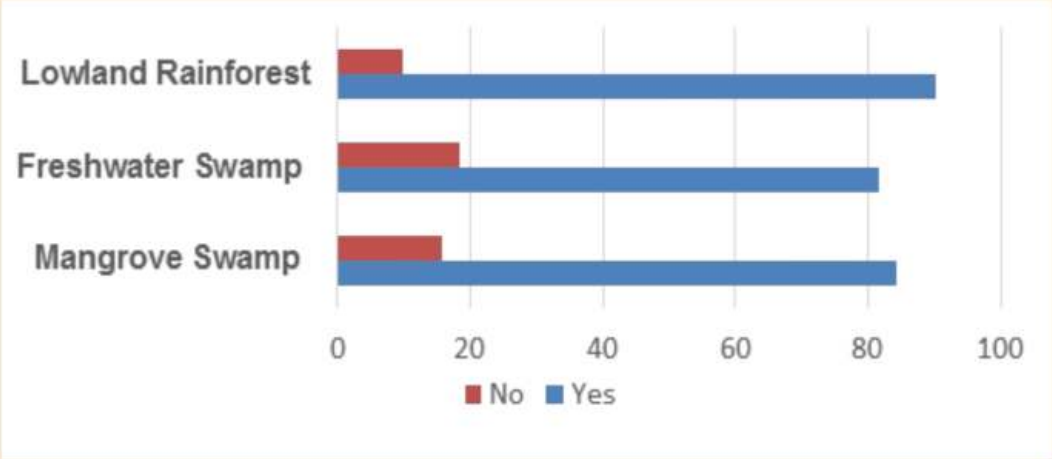


Figure 1 above indicates that over 92 per cent (45.6 % males and 54.4 % females) of the respondents in the three ecological zones reported that they had observed increased rainfall in their communities over the years. Figure 2 indicates that the vast proportion of the respondents indicated that they have observed increased hours of sunshine, although the proportion is lower in the Freshwater ecological zone. Furthermore, Figure 3 shows that the vast majority of the respondents reported increased sunshine intensity in their communities over the years.

Figure 2: Percentage Distribution of Respondents according to Knowledge/Experience about increase in hours of sunshine

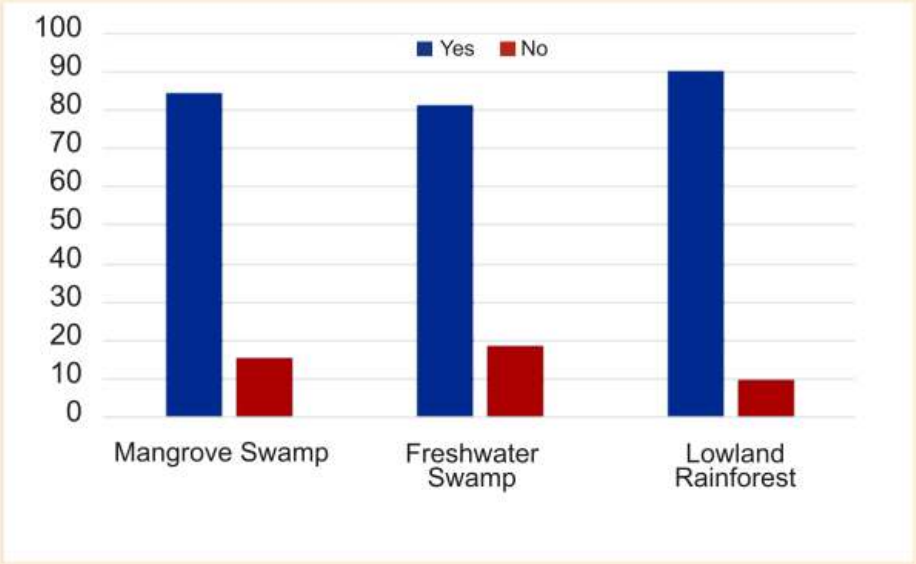
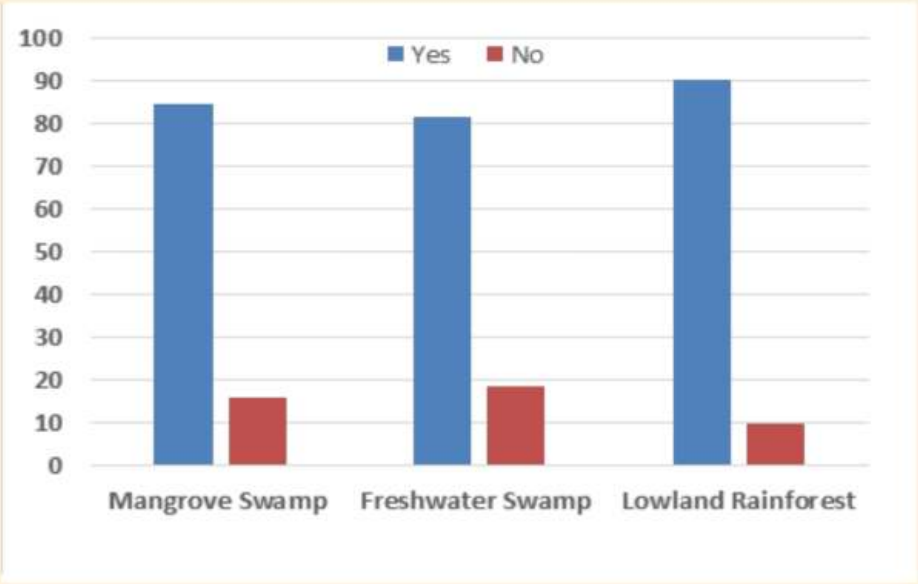


Figure 3: Percentage Distribution of Respondents according to Knowledge/Experience about increase in sunshine intensity



Testimonies of participants in the focus group discussions as well as the key informants point to the fact that there is an increase in temperature in their communities. Different opinions on the direction of variation in temperature simply show that climate variation and long-term climate change studies and discourses are in the early stages among the respondents. The farmers in particular may be yet unable to read meaning into variation in climatic elements taking place.

Vulnerability of Households to Climate Change

Geographical factors such as distance from coastline and population within 100km of the

coastline have been identified as capable of making households vulnerable to climate change impact (Heger and Julca, 2008). The assumption is that the nearer households and communities are to climate hazard-prone sites such as the coast, ravines and erosion sites, the more vulnerable they are to climate change impacts. The results of the research shows that in the Mangrove Swamp ecological zone over 61 per cent of the respondents are located in communities which are prone to flooding because of the extremely wetland in which they are situated. The Freshwater Swamp and Lowland Rainforest ecological zones have a greater proportion of the communities sited in upland areas in which case most of the inhabitants are not exposed to frequent flooding. Even then over 30 per cent of the inhabitants in these two ecological zones live in communities that are prone to flooding.

Other indicators of the vulnerability of households in the three ecological zones to climate change relate to the location of their communities near disaster risk prone areas. Table 7 reflects the fact that a considerable proportion of the respondents live in localities that are less than 1 kilometre away from erosion sites. It shows that 43.6 per cent of the respondents in the Mangrove Swamp and Lowland Rainforest ecological zones respectively live within one kilometre of erosion sites while the Freshwater Swamp zone has the lowest proportion (31.1 per cent) of its respondents living within one kilometre of an erosion site.

Table 7: Percentage Distribution of Respondents according to house distance to disaster risk (erosion)

Ecological Zones	Less than 1 km	1 km	More than 1 km
Mangrove Swamp	43.6	18.7	37.7
Freshwater Swamp	31.1	24.4	44.5
Lowland Rainforest	50.9	7.7	41.5

While rainfall is essential for agricultural production, excessive rainfall can be a major constraint to the activities of the farmers. Table 8 shows that the vast majority of the respondents (over 75 per cent) in the three ecological zones identified excessive rainfall as contributing remarkably to the vulnerability of their households. This indicates that excessive rainfall which has become a challenge associated with climate change is a major component of the economic vulnerability to the people of the Niger Delta region.

Table 8: Percentage Distribution of Respondents according to their assessment of excessive rainfall to the household vulnerability

Ecological Zones	None	Low	High
Mangrove Swamp	4.7	9.9	85.4
Freshwater Swamp	3.0	21.4	75.6
Lowland Rainforest	2.3	15.4	82.3

Sea level rise has been a major environmental challenge to people of the Niger Delta region particularly those who live in the coastal communities. Table 9 shows that respondents in the three ecological zones regard sea level rise as exposing their households to vulnerability. Indeed 65 per cent of the respondents in the Mangrove Swamp ecological zone which is nearer the ocean indicate that sea level rise has a major impact on their household vulnerability.

Table 9: Percentage Distribution of Respondents according to their assessment of the impact of sea level rise to the household vulnerability

Ecological Zones	None	Low	High
Mangrove Swamp	25.3	9.7	65.0
Freshwater Swamp	34.0	20.5	45.5
Lowland Rainforest	59.3	8.4	32.3

Water is an essential resource for good health and wellbeing. Unfortunately, there are countless communities throughout Niger Delta region that do not have access to safe, clean water for drinking, cooking, and hygiene. Moreover, viruses, bacteria, parasites, and pollution contaminate freshwater sources resulting in 'water scarcity.' Water scarcity, coupled with poor sanitation practices, has resulted in an abundance of illnesses, diseases, and deaths. A lack of clean water also affects the people of the Niger Delta region in other ways. Many families have to travel further to gain access to clean drinking water. The women and girls in the family often take on this responsibility of having to carry heavy buckets of water back to their homes.

The Impact of Climate Change

Non availability of agricultural lands, reduced quantity of fish produced, loss of plants and animal species and flooding were the most severe impacts in the freshwater swamp forest while in the mangrove swamp forests, the respondents identified sea level rise, sea surge, coastal erosion and inundation, and migration as the most severe impacts. Another outstanding result is that the severity of the impact increases from the lowland forest to the mangrove swamp forest. Moreover, the impact is more severe among the females than the males.

Flash floods, which can remove topsoil and reduce fertility, are particularly common in the three ecological zones of the Niger Delta region during the May-to-September rainy season. Among the effects of flooding in the Niger Delta are the destruction of crops, livestock, houses, farm building and equipment, a reduction in output, build-up of diseases and infections, contamination of water, death, sickness, increase in costs of farm activities, and psychological trauma. Table 10 further shows that the occurrence of flood is higher in the Mangrove Swamp ecological zone followed by the Freshwater Swamp ecological zone. Flood appears to be lower in the Lowland Rainforest zone that is further from the ocean and large river basins.

Table 10: Percentage Distribution of Respondents' assessment of the occurrence of flood in recent years

Ecological Zones	Yes	No
Mangrove Swamp	91.8	8.2
Freshwater Swamp	81.6	18.4
Lowland Rainforest	67.6	32.4

A key component of agricultural losses experienced by respondents in the three ecological zones is food shortage. The respondents in the three ecological zones attributed the food shortage which they experienced mainly to flooding but in the case of Lowland Rainforest a significant proportion of the respondents attribute the food shortage they experienced to a combination of a variety of other factors which include drought, bush burning and change in rainfall pattern (Table 11).

Table 11: Percentage Distribution of Respondents' assessment of the main causes of food shortage

Ecological Zones	Flooding	Drought	Strong wind	Bush burning	Indiscriminate grazing	Water pollution	Outbreak of pests and diseases	Change in rainfall pattern	Others
Mangrove Swamp	67.6	1.6	2.3	0.7	0.7	1.9	1.0	2.0	22.3
Freshwater Swamp	43.6	4.0	1.2	14.0	13.5	0.9	4.6	5.6	12.7
Lowland Rainforest	30.3	4.2	2.9	10.9	2.8	0.4	1.1	5.2	42.2

Focus group discussions, key informant interviews with respondents and participant observations across the three ecological zones provide some insight into the nature of the impact of climate change on households in the communities within them. The respondents indicated that they have observed changes in rainfall seasons and pattern, temperature are higher in some areas than they were before and incidences of extreme events such as floods and drought have increased. They also indicated that they have been experiencing frequent and severe floods for the past ten to fifteen years. The respondents also said that with the changes in the pattern of rainfall in the past decades, they have designed various adaptation methods among others including changing the planting time. Unlike in the past when the planting period was well known, currently the planting depends on when the rains come. For example farmers indicated changes in planting crops such as yam, cassava, and maize. According to them there are also delays in planting and harvesting maize, when

rains are late, it means they will plant late and harvest late.

Adaptation Practices and Strategies

A variety of adaptation measures have been adopted by households in the communities of the three ecological zones in Delta State to mitigate the impact of climate change. These adaptation measures are influenced by the geographical location of the communities and the common climate events. As an adaptive strategy respondents in the three ecological zones have diversified their economic activities; for instance they also altered their lifestyle and switched to other income generating activities such as: Establishing of commercial motorcycles driving business, selling of oil and petrol, saloon, petty shops and business, small scale poultry keeping, selling food items across the roads and shops as new income generating activities. Table 12 shows that respondents in the three ecological zones reported that they engage in various economic activities to cope with the impact of climate change on their households.

Table 12: Percentage Distribution of Respondents' report on livelihood/ income diversification used in response to climate change disasters

Ecological Zones	Livelihood diversification	Out migration	Share cropping	Obtain loans	Use of alternative strategy	Pre-mature harvest	Relocation of livestock	Combination of all the above
Mangrove Swamp	19.5	8.2	1.2	4.6	3.5	27.4	2.5	33.0
Freshwater Swamp	17.0	2.9	5.0	5.8	4.2	38.2	1.2	25.7
Lowland Rainforest	22.1	2.3	4.3	3.0	2.0	8.2	0.3	57.4

Respondents indicated that one of the strategies they adopted to increase agricultural production is to increase the size of cultivated land whenever available. When additional farmland is inadequate or unavailable respondents were not in a position to adopt this strategy.

Farming communities in Niger Delta region have survived a long series of climate fluctuations in the past by adapting to widely varying weather conditions. One of which has been planting of their crops at different times within the year. Table 13 indicates that the vast proportion of the respondents in the three ecological zones reported that have been adopting different planting times for their crops as response to the effects of climate change and most of the respondents also described this approach as effective in improving their agricultural productivity.

Table 13: Percentage Distribution of Respondents' experience on adopting different planting times as a strategy for adapting to climate change disasters and its effectiveness

Ecological Zones	Yes	No	Effective	Not effective	Not applicable
Mangrove Swamp	54.1	45.9	49.2	5.3	45.5
Freshwater Swamp	72.7	27.3	64.3	8.5	27.3
Lowland Rainforest	71.7	28.3	64.3	7.6	28.1

A few farmers have indicated that they use new type of maize seeds that produce maize within a short time (three months) and do not require a lot of rain. Therefore, farmers are trying to adapt to the changing climate by changing the type of seeds they use. This change has been noted by farmers in some communities indicating that there is a change in the type of bananas they plant now compared to what was obtainable some few decades ago.

In order to adapt to the effects of climate change at household level, some respondents in the three ecological zones of Delta State diversify their economic activities by doing both crop production and animal keeping. Table 14 shows that the vast majority of the respondents reported that they are not adopting early maturing livestock as a strategy for adapting to climate change largely because such varieties are not viable in the various ecological zones. The situation with regard to the adoption of different breeds of livestock is largely similar as the vast majority of the respondents do not adopt that strategy. This could be explained by the limited opportunities for doing so as different varieties of livestock are not readily available (Table 15).

Table 14: Percentage Distribution of Respondents' experience on adopting early maturing livestock as a strategy for adapting to climate change disasters and its effectiveness

Ecological Zones	Yes	No	Effective	Not effective	Not applicable
Mangrove Swamp	24.4	75.6	21.6	3.2	75.2
Freshwater Swamp	14.3	85.8	10.3	4.1	85.6
Lowland Rainforest	18.5	81.5	18.1	0.8	81.2

Table 15: Percentage Distribution of Respondents' experience on adopting rearing different breeds of livestock as a strategy for adapting to climate change disasters and its effectiveness

Ecological Zones	Yes	No	Effective	Not effective	Not applicable
Mangrove Swamp	24.4	75.6	20.9	4.1	75.0
Freshwater Swamp	13.7	86.3	10.3	3.6	86.2
Lowland Rainforest	20.9	79.1	18.6	2.5	78.9

In order to preserve soil fertility, farmers use various ways such as the use terraces, mulching, grass strips and other traditional methods. However, some farmers still do not use any methods to preserve soil fertility. Although the proportion of those who do not practice any conservation methods seems small, there is need to encourage this group to at least use one of any means to preserve their soil for its fertility.

Crop rotation was another method mentioned by farmers as one of the means they use to preserve soil fertility and ensure soil conservation. Some respondents indicated that, they use crop mixing as a method to ensure soil fertility. They mostly mix beans and maize or groundnut and yam or cassava.

In addition, farmers use different ways to manage their farms. Some of them use local manure from livestock. Apart from this, very few of the respondents use industrial fertilizer, pesticides, certified seeds and pesticides. Although the chemicals applied in these crops, are said to have

positive impact to crop production; the challenge is how to minimize their associated negative effects and cope with environmental management aspects. Most famers in the target communities rarely use modern farm management practices such as organic mature, pesticides, traditional and certified seeds, or chemical fertilizer. There is the need to find ways to assist famers to apply modern methods for agriculture inputs as this is a major way their adaptive capacity can be enhanced in the face of climate change.

Strengthening Economic Empowerment of Rural Women for Climate Change Adaptation

The survey attempted to gauge the opinions of respondents with respect to their support for women to play key roles in climate change adaptation strategies within their communities. There was a general agreement by both male and females that women can play key roles in climate change adaptation activities in their communities. Table 16 shows the respondents' identification of the various ways in which women can be involved in promoting community-based climate change adaptation activities. The respondents pointed out that women can play key roles such as women mobilisation, educating other women, acting as change agents in their communities, mentoring other women, awareness creation, climate change advocacy with policy makers and participating in climate change adaptation actions. The vast proportion of the respondents pointed out that the best results of women participation in climate change adaptation would be achieved if all the identified roles are carried out by women simultaneously.

Table 16: Percentage Distribution of Respondents' identification of the leadership roles women can play in promoting community-based climate change adaptation and disaster risks reduction

Ecological Zones	Women mobilisation	Educating other women	Act as change agents	Mentoring women	Awareness creation	Climate change advocacy	Getting involved in climate change actions	All the above
Mangrove Swamp	6.3	5.3	0.6	2.0	4.6	0.3	1.2	79.7
Freshwater Swamp	7.5	8.2	0.3	2.1	9.5	0.6	1.2	70.8
Lowland Rainforest	4.5	6.6	0.9	1.5	2.1	0.3	0.8	81.3

Table 17 indicates that respondents identified some benefits which could accrue to their communities if women are empowered to lead community-based climate change adaptation initiatives. Amongst the benefits identified by the respondents across the three ecological zones are improved household income, reduction of outmigration, disaster preparedness, Conservation of biodiversity, increased awareness of climate change and provision of care. Again, the vast majority of the respondents pointed out that a combination of all the identified benefits would be achieved if women are propelled to lead community-based climate change.

Table 17: Percentage Distribution of Respondents' identification of perceive benefits of women-led community-based initiatives in climate change adaptation and disaster risks reduction

Ecological Zones	Improved household income	Reduction of out migration	Disaster preparedness	Conservation of biodiversity	Increased awareness of climate change disaster	Provision of care to affected household members	Combination of some of the above
Mangrove Swamp	6.8	1.4	5.0	0.7	3.8	3.0	79.3
Freshwater Swamp	9.8	1.7	3.0	0.5	10.7	1.8	75.8
Lowland Rainforest	7.9	1.3	1.1	0.3	7.2	3.0	78.6

Perspectives[2] of the Project Team on the Findings of this Study and Some Actionable Recommendations

One important finding of this study was that a large percentage of Delta State population lack science-based knowledge of climate change, although they could finger its impacts. Therefore, rigorous awareness creation using science-based information is suggested as the starting point for policy aimed at effective adaptation by all stakeholders to climate variability. Due to the religious nature of the people, it is suggested that religious institutions be employed, alongside other outlets, to disseminate climate change information as is done with HIV/AIDS, Polio, Immunization and Roll Back Malaria Programmes.

The second policy-related finding of this study is that available weather information gathering institutions do not make weather/climate information available to the public. Climate information from the media is not addressed to the particular needs of the farmers and fisher folks. Therefore, policy is required to ensure that relevant climate-based information is available on time to the different end-users. It is recommended that the mandates of existing weather stations be modified to include dissemination of climate information to the farmers. Community-based weather/climate information stations should be established. School-based geographical gardens should be established with a qualified official, preferably a school teacher with background in Geography or a similar subject area.

Another finding of this study was that local people have limited capacity to adapt to the impacts of climate change. This poses immediate challenges to policy makers as well as development agencies. It is recommended that a climate change component be introduced into the various adaptation measures identified by the respondents. As part of this campaign, the planting of shade trees around homes as well avenues are normally carried out. Campaigns should include management of the shade trees so that they do not become a source of disaster in the communities from windfall. A Community Climate Change and Environmental Workers Programme should be established. Technical workers in this scheme are to work with the communities to establish and manage avenues and parks.

Implications for Policy

We suggest four potential areas for policymakers to pursue that could help to increase agricultural productivity and improve livelihoods in the short term. First, there is an urgent need to improve

[2]*Please note that the project team have made a lot of actionable recommendations on the basis of the findings of this climate change study. The recommendations used in this report are excerpt of the total recommendations of the research work*

farmer extension services to provide technical information and training on the best management practices for planting, harvesting and crop storage, to facilitate the adoption of new management practices and to encourage farmer-to-farmer learning. Strengthening extension services has been shown to be particularly effective at convincing farmers to change farming practices in response to climate change. Our results show that less than 10% of farmers currently have access to technical support on agriculture and that the adoption of management practices aimed at reducing vulnerability to climate risks is low, despite the prevalence of these risks. These results indicate that there is significant scope for relatively low-cost farmer extension services to improve the uptake of such practices and provide ongoing technical support. For example, changes in crop planting schedules, management practices and varieties used, as well as the diversification of crops planted, are all low-cost options for reducing agricultural risk, which could be widely promoted through extension services and communication campaigns. Careful screening of these strategies and participatory action-oriented research with farmers will be needed to jointly identify and implement adaptation options that are feasible and effective and to ensure that these strategies do not have any negative or unexpected impacts on farmer livelihoods.

The second low-cost opportunity for policymakers is to invest in small-scale infrastructure, such as improved irrigation systems or crop storage facilities, which can help farmers to increase production and better protect their harvests. Smallholder farmers are very keen to build local infrastructure but rarely have the necessary capital to finance these activities. Governments and organizations working in remote areas should seek to further promote such small-scale infrastructure through the development of small-scale grants and credit to farmers or local farmer associations.

The third option for improving farmer livelihoods is to increase access to credit and safety nets during lean periods and following catastrophic events, such as extreme weather events or disease and pest outbreaks. In these extreme situations, many farmers currently depend on informal support from families and friends, as formal safety nets are lacking. There is a critical need to establish formal safety nets and also strengthen informal safety networks to ensure that farmers can access support when they need it. In addition, more innovative solutions are needed to facilitate access of farmers to financial services in terms of need. New services, such as mobile telephone payment systems that are now available even in remote areas, provide an important new, cheap and secure way for family and friends to exchange money even when they are not physically close to each other. Governments should work with the private sector mobile telephone companies to improve mobile coverage and low cost access to such services. Community savings and loans groups in which members pool resources and lend to members in need are also a low-cost solution that could help to reduce the worst impacts of the lean season or extreme weather events, while creating local funds that farmers can tap into for other development activities.

The final priority for policymakers is to safeguard the natural ecosystems that smallholder farmers use as safety nets. Forests, wetlands, rivers and other natural areas provide critical ecosystem services to the people of the Niger Delta region, including the provision of firewood and charcoal, water, wild yams and materials for housing construction, among others. These services are important year-round, but particularly following catastrophic events when farmers turn to the forests for food and materials to rebuild their damaged homes. Efforts that conserve, restore or sustainably manage these natural ecosystems are therefore crucial for sustaining farmer livelihoods.

Mobilization of Local Stakeholders for Action

Mobilization visits were carried out to raise the awareness of the stakeholders on the project so as to ensure their active collaboration and participation considering the sensitive nature of the Niger Delta environment.

A Group Photo taken with Staff of Department of Environment, Warri South LGA.

A Cross-section of Women Group in Meeting with Project Staff during Mobilization Visit

The mobilization exercise which started in January 2019 was quite successful as virtually all the local government areas and selected communities within them were enthusiastic about the implementation of the project. In order to sustain the cooperation of the key stakeholders in the project particularly those involved in responding to the survey instruments, there were continuous regular visits by team members and mentees to different part of the ten target LGAs to intimate them on the progress in the project. These visits were designed to raise the awareness of the stakeholders on the project so as to ensure their active collaboration and participation considering the sensitive nature of the Niger Delta environment.

Feedback Meetings with Local Stakeholders in Target Location

Following the completion of the key aspects of the data collection, entry and preliminary analysis, consultation with key stakeholders was carried out in the target LGAs and the input of the stakeholders and beneficiaries were integrated into the final report of the research component of the project. The feedback meetings were organised in conducive places in the three ecological zones. Although male stakeholders were invited to participate in the discussion during the feedback meetings, most of the participants, about 65% of those in attendance, were women.

The feedback meetings provided opportunity for key stakeholders to validate the data collected, thereby enhancing the evidence generated from the field survey. The preliminary findings of the research were presented to the respondents of the surveys and key stakeholders including local policy makers for their possible inputs into the final research report.

A Group Photograph of Female Participants during one of Community Feedback Meetings Lead by Professor Mrs. Ogisi

CPED CAPACITY BUILDING ACTIVITIES

INCEPTION WORKSHOP OF THE CLIMATE CHANGE PROJECT

This report[3] captures the proceedings of a three-day inception workshop of the research project titled "*Empowering Women as Key Leaders in Promoting Community-based Climate Change Adaptation and Disaster Risks Reduction Initiatives in Niger Delta Region*". The forum which was organised by *CPED* in collaboration with *ICWA* and DMoE focused on building the capacity of the research team members and junior researchers on the strategies for implementation of the climate change adaptation and disaster risk reduction project in Delta state.

The three-day capacity building workshop held in Precious Palm Royal Hotel, 3-4-5, December 2018, brought out timely, relevant and new knowledge among the project researchers and other key stakeholders in the implementation of the project with a view to increasing understanding of the varied impacts of, responses to, and adaptations to climate change in rural communities to enable identification of effective and affordable community-based approaches.It was organized to further identify and consolidate the reference points for tracking progress, validating targets and gathering more information that will inform implementation of the research project.

This report highlights some key messages and lessons from the different thematic discussions during the workshop.

Opening Plenary and Presentation of Project Proposal to Stakeholders

In his opening remarks, the session chairman **Prof. Akpochafo** emphasized the need to arm women with the right kind of knowledge to enable them play active roles in combating the environmental challenges faced by their respective communities. The need to integrate women in decision making especially on issues that bother around climate change was well stressed by the panelists. The keynote speaker **Prof. Omuta** made it clear that although climate change is gender neutral, the project team must recognize the power dynamics that exist in the region and therefore must make deliberate efforts to ensure that women **avail** themselves to be empowered by the project. In her opening remarks **Dr. Melanie Robertson**, spoke on the long standing relationship and collaboration between IDRC and CPED for the past decades on different projects, including peace building, global health and climate change. She enjoined the project team to think beyond just generating data but rather to seek to close the gap that still exist in influencing policy with research evidence.

During the project proposal presentation, the principal investigator **Prof. Emeritus Onokerhoraye** gave insight into the objectives, focus and the methodology of the project. During his presentation the following points came out very strongly, which demonstrate the readiness of the project team and the collaborating partners to successfully implement the community-based action research project in Delta state:

- Women's unique capacities and contributions to adaptation have not been well recognized and documented in the Niger Delta region.
- Adequate capacity-building measures need to be taken to empower women for preparedness to respond to post-disaster situations in the Niger Delta region.
- The general objective of the project is to contribute to socially-equitable development in Niger Delta region by promoting women-led, community-based initiatives on climate change adaptation and disaster risk reduction

[3]*This report was prepared by Job ImharobereEronmhonsele with support of junior researchers and mentees of the climate change project who worked as rapporteurs during the workshop (R.O. John-Abebe, Verere S. Balogun, Boris Odalonu, EgberaseChukwuemeka, Patience Aika, Osagie J. Aitokhuehi, Ernest Imorgan, IroroturiIyamba, Mercy Omuero, DenyinyeHitlar, Andrew Momoh& Edith Oseghale).*

- The four key components of the action research project include: **Knowledge development, Pilot activities, Capacity building and Knowledge translation**
- Community members will be empowered to play key roles in the delivery of services in the communities on climate change adaptation.
- Considerable attention will be devoted to working with policy makers both at the local, state and national levels as a way of influencing the adoption of the recommendations emanating from the program
- The project recognises the dominant position of men in rural society due to the prevailing unequal norms, roles, and dynamics that hamper women and girls' participation in decision making. The project will examine men's multiple roles and how they can be part of the solutions to climate change adaptation so as to put the expected leadership role of women in proper perspective.
- The project is being implemented in 10 out of the 25 Local Government Areas of Delta state as follows: Warri South, Isoko South, Burutu, Patani, Ethiope East,Ughelli South, Sapele, Ika South, Aniocha North and Ndokwa East.
- A combination of quantitative and qualitative data collection techniques will be employed to generate relevant knowledge on existing public response to climate change and identification of community-driven adaptation strategies and disaster risks reduction in the Niger Delta region.
- Appropriate and specific adaptation activities to be carried out in pilot intervention communities will be identified after the baseline research in each target LGA.
- The project will facilitate the establishment of sustainable platforms of interaction between policy makers, researchers, women leaders and other stakeholders through the establishment of Project Steering Committees and Project Management Committees both at the state and local levels.
- The project has been designed to promote social and gender equity in that the most vulnerable group (women and girls) are the key targets in project location. The project seeks to ensure participation of persons with disability in all activities – both as agents of change and beneficiaries.

Vulnerability and Adaptation - Session

This session was designed to elicit new knowledge and empirical observation on vulnerability to climate change especially with respect to the farming population and community-based adaptation approaches and risk reduction initiatives being deployed by the local community members over the years.

The first speaker in this session **Dr. Atedhor** stated that it was important to bear in mind socio-economic stressors such as access to weather forecasts, improved crop varieties, and credit facilities when considering vulnerability to climate change in addition to climatic stimuli such as heat waves, change in rainfall pattern, flooding and drought. He further stressed that Niger Delta region is Africa's largest wetland and the third largest in the world. He, however said that the region elevation is averagely lower than 100m above sea level which predisposed the people in the region to perennial flooding due to changing rainfall patterns and rise in sea level, thereby threatening livelihood of the people in the region. Although the region is rich in crude oil and natural gas reserve, a large proportion of the people are poor and depend on environment-based income activities such as farming, fishing and hunting. The second

speaker **Prof. (Mrs.) Ikelegbe,** opined in her presentation that rural farmers in the communities of Niger Delta region are still finding ways to grapple with the changing climate. In her view most farmers in the region are yet to know, understand and adapt to the changing weather conditions. According to her, there is need to build their capacity to be able to respond to these needs, especially the women folks. **Prof. Odjugo** presentation captured various adaptation measures and risk reduction initiatives currently being adopted by rural communities in responding to climate change impact, to include both planned and autonomous techniques. According to him, the autonomous adaptation measures which are very visible varies from one locality to another.

Key Emerging Issues Highlighted

- Women and the girl children are vulnerable to water-borne diseases (e.g. Schistosomiasis or Bilharzias is) as they are more exposed to contaminated water in the rural areas.
- Delay in the onset of rains cause huge losses to the farmers, as crops planted are scorched by the sun. This lead to remarkable decline in total yield from farms.
- The decline in farm yields exacerbate the poverty challenges of the region as continued supplies of agricultural products from farms cannot be assured.
- Women are veritable agents for the promotion of climate change adaptation because of their active role and engagement in environment-based livelihood activities.

Some of the adaptation mechanisms identified for addressing hazards and mitigating climate change impact include:

- Early planting and early harvest using improved varieties
- Fast maturing species of crops such as cassava are now being planted in early January/February to mature before the peak of the rainy season
- Mixed cropping is now being practiced and should be encouraged
- Use of sandbags as embankment on the river banks
- Use of bamboo stakes to divert excess water/ runoff to prevent damage to crops.
- Use of mocking bridge (popularly known as Monkey Bridge)
- Digging and netting of earthen ponds to prevent fish escape
- Construction of shoreline protection and drainage systems
- Piling and construction of market stalls etc.
- Construction of coastal/shore protection and sand filling
- Construction of concrete flood barriers

Key Actionable Recommendations

- Women need to be equipped and given the right climate change information in order to enhance their adaptive capacity given the level of magnitude of climate change impact.
- The project should seek to influence policy/decision makers to revamp and strengthen agricultural extension services in order to bridge the gap that exist between research and the farming population especially at the rural levels.
- The project should consider sustainable climate change adaptation model that can be managed and deployed in the short term of the project period in order to create impact.

Women, Climate Change and Leadership - Session

Prof. (Mrs.) Okoro who chaired this session reiterates the session's objectives to include identifying women's potentials in responding to climate change adaptation strategies and the role women can play in reducing disasters and risks induced by changes in climatic conditions. The first speaker in this session, **Prof. (Mrs.) Nwoye** recognized women to be better managers of natural resources, caretakers of their communities and

champions in the promotion of community-based initiatives, including working to reduce poverty and protecting the environment.

"Women shape behaviour and transmit culture and knowledge through social networks, which are critical to risk prevention and response efforts. If women of the Niger Delta region are empowered to play bigger roles in climate change adaptation and disaster risk reduction initiatives, more people will benefit from improved livelihoods and disaster reduction preparedness" ..... ***Prof. Nwoye***

The second speaker in this session Prof. (Mrs.) Ogisi asserted that in the rural areas where occupations and sources of livelihoods are agriculture and agro related, women are the main players. Women and girls have the mind set and in line with expectation from society to ensure food is available for the family. Despite these potentials, the work of women remains unseen, unrecognized and undervalued. Women have become victims of work overload, gender disparity, discrimination and are exposed to all kinds of sexual abuses. They are neither involved in policy making nor implementation,the speakers noted.

The speakers identified some discriminating factors that inhibit women from playing key roles as leaders and promoters of change initiatives in their various communities, to include:

- Discrimination in family & tradition-all power rests with men
- Male-child Bias-son keeps assets in the family and girls left with nothing
- Resources Control-misallocation in the distribution of resources & talents
- Leadership/Political Rights- non-participation in public policy making/reforms

Identified Needs for Successful Project Implementation

- Capacity building and empowerment for women in the rural communities
- Clear, efficient and target oriented methodologies for transforming women into decision makers need to be developed
- Strengthen women's rights and bridge the equality gap between women and men
- Build the women's capacity on how the agricultural land could be used differently
- Re-position women to become agents of change in their communities rather than helpless victims
- Strengthen the women's capacities to access and utilize agricultural technologies and practices to mitigate the potential effect of climate change on their harvest.

Stakeholders Participation in Action Research- Session

This session focused on the different strategies for engaging grassroots population in action research to get their buy-in and support. The first speaker in this session **Engr. Eronmhonsele** emphasized the benefits of effectively engaging and involving grassroots population in research projects to include:

- Allows for the joint identification of needs
- It makes the target population to understand the relevance and promote acceptance
- Encourages public input and feedback mechanism and proof that stakeholders viewpoints and preferences are being considered
- Build trust between implementers and the community groups which can possibly lead to long-term collaborative relationships.
- Create a sense of ownership of project in local people so that it is likely to continue in the long run
- Promote sustainability of the community-based research initiative

Dr. Dudu, the second speaker in this session stressed the need to effectively mobilized women, and the key steps that can be adopted in rallying them for action of this nature. He highlighted these strategies to include:

- Inclusion of men during mobilization (*Total Mobilization*)
- Being culturally and religiously sensitive to the needs and believes of the people
- Establishment of grand rules with community leaders before involving women

Engaging Policy Makers in Research- Session

This session was designed to explore effective strategies for engaging policy/decision makers at various level of governance in order to facilitate uptake of research recommendations and evidence use. **Prof. Omuta** who made the first presentation in this session considered two important concepts in knowledge translation efforts: Knowledge exchange and Knowledge brokerage. According to the speaker organizations involved in generating knowledge to informed policymaking must adopt an inclusiveness approach from the inception of any project. He emphasizes the need to widen the net of inclusiveness to all vulnerable groups that are often left out in the policy influencing processes. The speaker also shared his experience of the various strategies used in other research projects of CPED that helped to facilitate uptake and utilization of research recommendations, to include, setting up steering committees and management committees at the state level which created space where citizens are invited not only as recipients of knowledge but producers as well. **Dr. Onojeta,** a policy maker in Delta state in his presentation, shared his experience of government use of research recommendations and uptake. He emphasized inclusion of various policy actors in the research process as a veritable strategy to get government and those who decide and implement policies to consider and use any evidence emanating from research. According to the speaker, actionable policy recommendations from research evidence that are in consonant with government manifestos are those that are more likely to be considered. He noted that change in government is likely to further slow the process of knowledge transfer and therefore recommends building the capacity of policy makers in the project so that they are able to manage, adopt and replicate recommendations.

Key Factors to Bear in Mind

- **Timing of engagement**- engage key stakeholders outside the period of their normal daily economic activities if possible
- **Selection of Communities**- Select from communities that were friendly and receptive during mobilization
- **Gender Balance**- ensure different relevant groups are involved
- **Ethical Issues**- Be polite and firm when enforcing ethical orders

Most Promising Practices

- Develop research questions in partnership with decision-makers/key stakeholders
- Involve policy/decision makers from inception of the project
- Develop relationships that make researchers, policy makers and other stakeholder co-producers and co-owners of research results
- Co-create policy briefs and occasion papers and other communication and evidence dissemination materials
- Strengthen the capacities of policy/decision makers for evidence use.

Strategies for Women Empowerment-Session

It has been said that when women are empowered they are better positioned to play key roles in climate change risk reduction and adaptation initiatives. To this end, **Dr. Dudu** who made presentation in this session re-echoed the need to include men in the empowerment process for the success of the project. He noted that cultural barriers and traditional norms preclude women from exclusively undertaking functions and actions in their respective communities. But when the men and community leadership are involved in the process, it will encourage the women to openly volunteer to become champions and change agents rather than be seen as assuming positions which traditions see as men's job, he added. **Mrs. John-Abebe** supports the assertion that rural women in the communities of Nigeria's Niger Delta region, to a large extent, depend on their men for decision making, even on their behalf. She examined some strategies that have worked well in empowering women in rural communities and to promote gender equality, to include:

- Building their capacity on income generation activities
- Prioritize women, especially girl child education
- Training for women on modern farming skills

Some Reflections and key Factors to Consider

- Understand community dynamics and hierarchy
- Respect the culture of the community
- Identify local institution and Allies that can help drive the process

Research Communication and Dissemination-Session

This session focused on best practices that can be adopted in communicating project findings for the purpose of influencing policy. **Dr. Akpomera** who presented in this session noted that disconnection still exist between research and the public, whereas, the degree of success in research depends on how well its findings are communicated to key stakeholders, **Engr. Eronmhonsele** noted. He further mentioned that as each project is unique, so are its target audience.The speakers, therefore, emphasized that deliberate efforts must be made to design and adopt appropriate communication strategies in reaching these key stakeholders. The key questions to ask would be:

- Who are the target audience?
- What do the audience need to know?
- How are they involved in the implementation process?
- What are the specific interests/practices to be addressed?

The presenters also showcased sections from the CPED policy engagement and communication strategy document where it emphasized methods of capturing key target audience to influence with research outcomes and recommendations (*Actors Analysis Framework*). This framework which has been used in many other CPED research projects will be modified to be used in the current climate change project. Other strategies identified for engaging stakeholders with research outcome include:

- Policy briefing meetings
- Policy workshops/seminars
- Community meetings/dialog
- Feedback meetings, e. t. c.
- Website/Social media platforms

The guiding principle in the development of various policy documents for communicating the research results (Newsletter, policy briefs, policy paper, monograph, research article, media briefs, e. t. c.) would be:

- Keep the message simple
- Keep the message brief
- Identify the right people (target audience)
- Use the right channel that is appropriate for a specific audience
- Get the right support
- Make the recommendations actionable
- Follow-up interest shown

Prof. Oladipupo who also made a presentation in this session emphasized the need to align the design of the questionnaires with the objectives of the research. According him, this will help to facilitate coding and analysis.

General Reflections- Session

This session organised in fish bowl setting provided opportunity for the participants to reflect on the emerging issues that surfaced during the three-day event. The key points noted during the discussion are highlighted below:

- Early engagement of stakeholders and insistence on "I CAN" mentality for women will lead to a successful implementation
- Both women and men should be engaged even though the target population is the women.
- Strengthening collaboration between research and policy makers will facilitate uptake of the research recommendations
- Inter-ministerial collaboration in the implementation of the project should be encouraged
- Inclusiveness of women in all stages of the implementation would help to build their capacity
- Nigeria Meteorological Agency should be involved in the project execution as they have climatic data in various regions that can be utilized in the implementation of the project
- Women should be seen as agents of change rather than victims of circumstances
- There is need to make the programme understandable by policy makers and research assistants should be well trained in data collection
- The project should consider sustainable climate change adaptation model that can be managed and deployed in the short term of the project period
- There is need to strengthen women's capacities to access and utilize agricultural technologies and practices to mitigate the potential effect of climate change.

Conclusion

At the end of the three-day workshop on building the capacity of the research team to implement the climate change project, it was apparent that the team's interest has been galvanized and are well ready to move to action in the implementation of the process. The presentations and interactions during the sessions further demonstrated that the communities in the Niger Delta region are highly vulnerable to impacts of climate change. However, the people in the region have practiced some community-based adaptation and risk reduction strategies over the years which can be improved upon and replicated. These strategies are often initiated and led by women who play crucial roles in building the social fabric that make such adaptation possible. The workshop recommends considering building the capacity of the target population on sustainable climate change adaptation model that can be managed and deployed in the short term of the project period in order to create impact. It also recommends strengthening collaboration between research and policy makers which will in turn facilitate acceptance of the research recommendations and a sense of ownership of the project by the local people as it becomes sustainable.

Workshop Photographs

Project PO Dr. Melanie Commenting on a Presentation

Project PO Dr. Melanie Making a Profound Remarks during Opening

Project PI Commenting on a Presentation made by Prof. Ogisi

Project Team Members and PO in Group Photograph after 1st Plenary

CLIMATE CHANGE PROJECT TEAM MEETING WITH GENDER AT WORKS, JULY 2, 2019

By Job Eronmhonsele

On July 2, 2019 CPED climate change project research team members and other junior researchers held a meeting with gender at work (G@W) facilitator, Nkechi Odinukwe. This inception meeting with G@W was held to consolidate on the process and procedure for a collaborative program of supporting CPED research team to implement community based climate change adaptation and disaster risks reduction initiative project within Nigeria's Niger Delta Region in a gender-transformative way.

The specific objectives of the meeting included:

(i) Research team and G@W get an overview of each other's experiences and approaches
(ii) Research Team and G@W work together to identify ground truths and insights on integrating gender concerns into climate change research
(iii) Research team and G@W reach an understanding of the possibilities and priorities for strengthening gender integration in the IDRC climate change project
(iv) Both teams agree on how G@W can support the research team in achieving their change objectives
(v) Research team and G@W agree on action plan that has clear change goals and indicators

To achieve these objectives, the G@W facilitator adopted different approaches of learning such as group discussions, role play, individual and group exercises, amongst others. The event began with a physical exercise called taichi *(mind/body)* exercise which was done in the open space outside of CPED main office. According to the facilitator *"the exercise was used to highlight how the patriarchal nature of our society often value the use of head and mind over the heart and feelings thereby ignoring aspects of care and wellness"*.

The first session after the taichi exercise was presentations by Nkechi, Job and Prof. Ogisi. Using the *five in five* slides approach, Nkechi and Job Eronmhonsele took turns to introduce G@W and CPED respectively, highlighting organization's strengths and history. Thereafter, Prof. Ogisi made a brief presentation of her participation in the *2019 Vancouver Women Deliver Conference*

To gain insights on organizational approach to gender, women's rights and climate change, participants were asked to brainstorm briefly in group on their understanding of some key gender concepts. Thereafter, individual members of the team took few minutes to reflect on how their past work has impacted lives of men and women and were allowed to free write on two key results achieved by any of their identified projects.

The facilitator introduced all participants to the G@W framework, highlighting how useful the tool is at helping users assess what they are trying to change in the world and the changes they would like to see as a result of actions being taken. Participants were later split into group to work on each objective and list of targeted changes' identified in quadrant session to reflect further on the question "What do we need to learn/know to make this change happen?"

As part of the concluding activities during the meeting the research team were asked to draft a short term action plan in working with G@W. This was achieved as shown in the table below.

Those who attended the one-day meeting were members of the research team, project mentees, and junior researchers-both CPED staff and from other institutions, amongst others.

The project team are enthusiastic in working with G@W in the implementation of the climate change project and indeed all other projects being executed by CPED to be more gender transformative.

The project team sincerely thank the IDRC Program Officer, Dr. Melanie Robertson for this initiative and for ensuring CPED team became part of this capacity building process.

GENDER AT WORK FIRST PEER-LEARNING WORKSHOP HELD AT BOMA INN, NAIROBI, KENYA, NOVEMBER 26-28, 2019.

By Ms. Mercy Omuero Edejeghwro

Introduction

The three-day workshop was organized by IDRC in conjunction with Gender at work as part of the project "Accelerating Climate Action: Social Equity and Empowerment of Women and Girls" currently being implemented in six countries namely, Argentina, Benin, Bangladesh, DRC, Nepal and Nigeria through collaborating organizations.

Participants

At least, three representatives from each Research team were in attendance. Also in attendance were IDRC Project officers Heidi Brawn, Edith Ofwana and Melanie Robertson as well as 3 Gender at work facilitators. In all, 25 persons were in attendance.

Objectives

The objectives of the workshop are:

- Participants come to a common understanding of action-learning and feminist methodologies and collectively explore their relevance for the IDRC CC research projects.
- A safe space is created for country teams to interact, share and learn from each other.
- Research Teams identify potential gender transformative experiments and design preliminary action plans.
- G@W, research teams and IDRC agree on parameters, modalities and next steps for collaboration and learning.

Methodology

World Café, an emergent learning tool that involves participants dialoguing about critical issues in a relaxed manner as though participants were in a Café with friends was used in the workshop. Such discussions were done in groups with each group having a representative from each research team and moderated by IDRC Programme officers or Gender at work facilitators.

Features of World Café

- A way to break tyranny of consensus
- An open and informal space
- A way to explore an issue from multiple perspective
- A chance to explore new ideas and insights
- A route to broadening and deepening ones' understanding

Day I: Building A Learning Community On Gender and Climate Change

The workshop Kick- started with welcome addresses by IDRC Project Officers. This was shortly followed by introduction of participants. Thereafter, participants were divided into six groups with each group having a member from the research teams for the **linkage between gender and climate change session,** in a world café format. This session climaxed by consolidation of insights by each participant.

Insights by Participants on the Linkage Between Gender and Climate Change

- Research from around the world shows that gender inequality exacerbates the impact of climate change for women and communities, yet policy responses in most countries focus on addressing differentiated risks and vulnerabilities rather than on transformative actions to eradicate inequality and exclusion.
- Women are not just victims – they are on the frontlines of climate action, yet their experiences and insights are not taken into account by policy-makers. Women's exclusion from decision-making and policy-making spaces is a prime cause of gender-blind or gender unresponsive policy-making.
- Climate action and economic policies occupy different spaces within governments and are driven by very different priorities. National governments continue to promote resource intensive growth despite a stated commitment to action on climate change.
- Connections between issues - such as climate change and violence - are clearly perceived by the women for whom this is a daily reality, but a

coordinated policy response is still lacking.

- A major concern is the failure to recognize the role of women's unpaid work in sustaining families, communities and ecosystems. This is a gap at both theoretical and policy levels.
- Change is difficult and requires action at multiple levels. We need to also change ourselves and our ways of working – we can't separate ourselves from the systems we are trying to change.

The Show and Tell Session

Each Project team presented their project, stating their national context and challenges, research questions, objectives of their project, what has been done so far in the project and what each of the team members brings to the project in a "5 in 10" formats.

Team Bangladesh (Bangladesh Centre for Advanced Studies (BCAS)

Project Title: Scaling up Climate Change Adaptation Knowledge and Technology for Women's Empowerment, and Enhancing Social Equity and Disaster Resilience in Bangladesh.

Team Nigeria(Center for Population and Environmental Development(CPED)

Project Title: Empowering women as key leaders in promoting community-based climate change adaptation and disaster risk reduction initiatives in the Niger Delta region.

Team Benin(Centre de Recherche et d Expertise Pour Le Development Local (CREDEL)

Project Title: Developing Inclusive Climate and Disaster Resilience in Benin

Team Democratic Republic of Congo(Congo River Water Resources Research Centre (CRREBAC)

Project Title: Addressing climate and water driven migration and conflict interlinkages to build Community Resilience in the Congo Basin

Team Nepal(National Water Conservation Foundation)

Project Title: From Vulnerability to Resilience of the Disenfranchised: Empowering women, children and the elderly in the Mid-Hills and Tarai regions of Nepal to cope with water-related disasters

Team Argentina(Universidad Nacional de San Martin(UNSAM)

Project Title: Socio-environmental strategies to strengthen the resilience of women migrant workers in the Reconquista River Basin, Buenos Aires, Argentina.

Upon presentation of projects by all project teams, participants highlighted the similarities and differences between the various projects, and identified some conceptual and methodological issues that call for critical reflection.

Questions for Reflection

- What is the connection between the process and content of research? For instance, how does the composition of the research team impact the findings? Can a research team that does not have adequate representation of women carry out gender-responsive research?
- Do we need to revisit and re-define concepts like "resilience" and "adaptation" through a gender lens? What would it take to bring a gender-responsive climate analysis into national policy dialogues?
- Do our research designs adequately reflect the dual intentions of policy change as well as change on the ground? How can we strengthen the intersection between these two elements of the project?
- How effective is the focus on gender-differentiated roles and vulnerabilities in terms of promoting gender equality on the ground? For instance, to what extent does vulnerability analysis make visible and capture intersectional gender and power hierarchies?

Deepen Understanding of Gender and Climate Change with Kenya Guest Speakers

Dr. Jemimah Njuki , an IDRC Programme specialist and gender expert working in the field of agriculture and food systems, one of the guest speakers, in her Gender Transformative Programming in research stated that for gender transformation to be achieved, the underlying causes of gender inequalities and not just the effects of such inequalities needs to be addressed. She shared her experience of integrating

gender transformative processes into the curricula of Farmer Field Schools through "gender dialogues" at the community level. She added that these dialogues used feminist methods and tools to create a safe space for women and men to critically examine inequalities issues such as care work, land ownership and decision-making using a series of questions: Is this practice fair? Where did it come from? Who does it benefit? Who does it harm? What can we do to change it? Furthermore, she pointed out three steps in gender transformative research namely:

- Formative research to identify the root causes of inequality
- Action-research to address root causes
- Evaluative research to assess the impacts of actions.

Edna Odiambo, a climate change lawyer with experience in climate policy, climate finance, and clean energy, also one of the guest speakers presented a case-study of the urban transport sector, revealing the hidden issues that a gender analysis can reveal, and demonstrating how gender-responsive transport systems are also more climate-responsive.

Agnes Leina, a feminist activist working with women from Samburu pastoral communities in Northern Kenya narrated her experience of protecting teenage girls from Female genital mutilation and child marriage that has been exacerbated by climate change induced livelihood disruption spoke about her own life to highlight how climate change is threatening not just the livelihood but the culture and way of life of pastoralist groups. She further stated that Women pastoralists are bearing the brunt of climate change as they trek long distances to get water for their households while combining that to other reproductive roles assigned to women.

Day 2: Understanding Gender Transformative Approaches and Their Application to Research Project

Gender Action Learning Process

The GAL is based on the recognition of learning as a process that involves both cognition and emotion, leading to new ways of seeing, relating and doing things.

Gender Action Learning Cycles

The action learning cycles involves

- Review of change action plans
- Hearing and sharing change stories
- Experiment and implement change actions
- Reflect on our practice and learn new knowledge

The Gender Transformatory Potential of IDRC Climate Change Project

IDRC shared the results of an assessment of the transformative potential of the six research projects by an independent expert (Dr Sophia Huyer). All projects were found to have some gender-transformative elements. However, the assessment reveals that more could be done by some teams to better achieve transformation. Thus, ways to further strengthen the gender transformative potentials were suggested. Suggestions included:

- Moving from gender analysis to action for empowerment of women and girls;
- Supporting women's leadership for climate actions;
- Engaging with and influencing policy-makers
- Mainstreaming gender perspectives into policy-making.

As a result of the expert analysis, participants revisited re-evaluated their proposals and expressed their visions of transformation.

Visions of Transformation

DRC Vision: Women get control of resources, become financial managers, become empowered, gain capacity and participate fully in development. Strategy: Support collaboration between women's organisations, build networks and strengthen capacities to identify and address barriers to transformation.

Nepal Vision: Women-led policy change for greater resilience. Strategy: Identify and support women champions and women researchers; support women to articulate their own vision of transformation; build on women's presence in panchayats to ensure that policy intentions are realised on the ground.

Nigeria Vision: Women get in touch with "power within" and work for total well-being of family and community. Strategy: Support to community

leaders and networks for peer learning; mobilisation of girls and youth; engaging with men and policy-makers to change mindsets; public outreach and up-scaling through social media.

Bangladesh Vision: Women farmers take the lead in action for adaptation, gender equity and resilience. Strategy: Transformation of mindsets for equal sharing of care work and freeing up women's creative capacities and productive power; expanding women's access to information, services, credit; supporting women to gain formal recognition as farmers in their own right; leverage existing institutional capacities and access to policy spaces.

Benin Vision: Women are empowered to negotiate directly with policy makers at various levels.

Day 3: Planning For Gender Transformative Action Learning Experiment

Transformation for Gender Equality
Kalyani Menon, a Gender at work facilitator who gave the presentation revealed a frame work for understanding gender transformation. She pointed out that for transformation to truly take place, all quadrants of transformation must be meant.

The Four Quadrant of Transformation
- There must be changes in the mindset and attitudes of individuals.
- Changes in behavior and actions.
- Changes in culture and social norms.
- Changes in laws, rules, and institutional systems.

She added that the "change in social culture and social norms" is the most crucial of all the quadrants yet the most difficult to achieve. She buttressed her point with the example of maternal and paternal leave introduced in India, simply a change in policy which however did not achieve expected results because the culture and social norms on parenting remained the same.

Gender Transformative Indicators for Cc Projects

NEPAL: Change of culture of research team
DRC: Women actively participate on adaptation measure
BANGLADESH: Government ownership of knowledge products from programme
NIGERIA: Percentage change of women holding leadership positions in CC-related committees and Government ownership of process and scale up
BENIN: Reduction of workloads for women
ARGENTINA: Quantity of organisations linked to project through women

Feminist Research Practice
The feminist research practice acts as a critique of dominant paradigms

Benefit of Feminist Research Practice
- Analytical attention to one's own roles as the researcher.
- Exploring how one's own social and political location influences research practice.
- Dissolving patriarchal binaries such as mind/body, personal/private/ subjective/objective.
- Challenging and rethinking assumptions and paradigms.

Feminist Research Approaches
- Dialogic methods which involves use of both quantitative and qualitative survey as well asking research subjects questions that are meant to achieve goals
- Data disaggregation including gender, caste, class and sexual Identity.
- Impact mapping through individual and collective change stories.
- Feminist Ethnographies: Experiences of women as door into larger social relations.

CPED INTERVENTION ACTIVITIES

Identification and Selection of the Ten Pilot Communities for Intervention Activities on Climate Change

After a thorough review of the climate change situation in Delta State based on the research report, the project team in collaboration with project steering and management committees identified three communities each in the ten (10) LGAs for mobilization and selection of the specific pilot community for intervention. Thereafter, one (1) community each was selected based on the challenging impact of climate change situation in them and the willingness of the key stakeholders particularly the women to participate in the implementation of the project. The selected pilot communities for the implementation of adaptation and disaster risk reduction activities are as follows: **Otorho Agbon** in Ethiope East LGA, **Uzere** in Isoko South LGA, **Aboh** in Ndokwa East LGA, **OnichaUgbo** in Aniocha North LGA, **Alifekede** in Ika South LGA, **Agoloma** in Patani LGA, **Ekamkpamre** in Ughelli South LGA, **Ayakoromo** in Burutu LGA, **Amajomata** in Sapele LGA and **Igbudu** in Warri South LGA.

Project team in a briefing meeting with Ayakoromo community, Burutu LGA after selection of Pilot Communities

The selection of the project communities was followed by thorough and intensive mobilization of women, girls and men through a series of consultative meetings to engage them and brief the local stakeholders about the climate change project and their roles in the implementation of the intervention activities in their communities.

Members of Uzere Community, Isoko South LGA during Mobilization of Pilot Communities

Setting up Community-based Implementation Committees (CPIC) On the Climate Change Project

The project has been designed to allow for beneficiaries to be part of the implementation process. In order to effectively engage the local stakeholders, particularly women in the implementation of the project, the project team mobilized existing social groups in the communities and the leadership of the various groups were brought together to form a coalition for social change referred to in this project as *Community Project Implementation Committee (CPIC)*. About 2-3 members who are leaders of the functional social groups were nominated to form the CPICs made up of 25 members.

Group photograph of women groups and senior project staff after a meeting to identify intervention activities

The concern that women may not freely open up while in the mist of men was addressed during trainings, skill building and subsequent meetings. Effort was made to ensure that 65% to 70% of the members of the CPIC were women and girls.

The CPICs, have become the structure through which the capacity of the local groups is being built to respond to climate change adaptation and risk reduction efforts.

Several meetings were held with the various committees to establish a road-map for effective participation and implementation of the project. Since members were drawn from different social groups in the community, it is expected that the CPIC members will further step-down training and skills acquired for the benefit of the other members of the social groups who did not have the opportunity to be selected as members of the CPICs.

CPIC Members in a group photograph with project staff after engagement meeting during covid-19 period

Strengthening the Capacity of the CPICs and Empowerment of Women and Girls through the Promotion of Gender Equality

Empowerment of the Community Project Implementation Committees (CPIC) was a major activity carried out during the second year period. To achieve the needed impact, a guide for the training of CPIC was developed by project team members with support of Gender at Work through Nkechi Odinukwe. The training guide presents a mix of interactive activities and presentations used to improving the individual-level knowledge, skills and behaviours needed of local women and men based in these communities to foster gender-responsive agriculture adaptation activities.

The training sessions provided an opportunity for participants to reflect on, discuss and challenge their own perceptions, values, beliefs and behaviours through sharing ideas with other participants. The training guide was divided into flexible modules that allow participants to review the concepts of climate change, climate change adaptation and disaster risks reduction as well as gender. A combination of traditional learning methods such as presentations and discussions, along with more participatory and experiential learning approaches, e.g. group work, role play, and reflections on personal experience were used during the training of CPICs in the various communities. The trainings took about three (3) days at different times during the second year period to ensure each member of the committees was carried along in the capacity building program. The Covid-19 pandemic disrupted the training activities for some time. However, the project team ensured that more times were devoted to capacity building when bans on gathering and restriction of movement were relaxed and it was safe to bring together members of the CPICs for training in the last quarter of the second year period. During these trainings, NCDC Covid-19 protocols were observed, such as wearing of face mask, keeping of social distance and provision of hand sanitizers for all participants. It must be pointed out that the trainings and capacity strengthening of the established CPICs will continue in the third year of the project.

CPIC Members in one of the Gender Training sessions following Covid-19 guidelines

Female CPIC Members in group photograph after training session on gender and climate change following Covid-19 guidelines and protocols

CPED KNOWLEDGE TRANSLATION ACTIVITIES

Policy Briefing Meeting with Key stakeholders in Benin City, February 18th, 2020 @ Constantia Hotel, Airport Road, Benin City

A Summary Report[4]

The policy briefing meeting was organised to present to stakeholders a report of research on climate change project being implemented in Delta state by ***Centre for Population and Environmental Development (CPED)*** in collaboration with ***Intervention Council for Women in Africa (ICWA)*** and the ***Delta state Ministry of Environment (DMoE).*** The overall objective of the project is to contribute to socially-equitable development in Niger Delta region by promoting women-led, community-based initiatives on climate change adaptation and disaster risk reduction. A key component of the climate change project is knowledge generation-entailing awareness, perception of climate change, and adaptation and risk reduction initiatives being practiced by community members.

The meeting was attended by different stakeholders in Delta State, especially from the various LGAs were the intervention component of the project is being implemented as well as Edo state. The meeting afforded participant to learn new knowledge of climate change impact in three ecological zones Delta state and some adaptation strategies currently being practiced and led by women in the Niger Delta communities.

Those in attendance include the commissioner for Environmental, Delta State, Honourable Chris Onogba, represented by the Director of the Department of Climate Change, Mr. Victor Efeturi, IDRC Senior Program Specialist, Dr. Melanie Robertson, Chairman, CPED board of Trustees, Professor Gideon E. D. Omuta who is also a member of the project research team, Prof. Emeritus Andrew G. Onokerhoraye, the project Principal Investigator, members of the research team, members of the project steering and management committee, members of the community project implementation committees (CPIC) of selected pilot communities and members representing local government authorities where the project is being implemented. Others include junior researchers being trained on the project, representatives of Civil Society Organisation, Media practitioners, amongst others.

The programme kicked off with an opening prayer by Prof. Mrs. Ikelegbe, while Prof. Omuta who is the Chairman of the Board gave the opening remarks. Prof. Onokerhoraye (Principal Investigator) gave the welcome address while Prof. May Nwoye gave a brief address welcoming everyone. She expressed excitement at the work done so far. She stressed that International Council for Women in Africa (ICWA) were interested in the areas which affect women because such matters equally affects the family. She mentioned the importance of women integration/ participation in decisions regarding Climate Change (CC) which will go a long way in solving a lot of problems associated with climate change. She mentioned that she would be attending a conference at the United Nations in which Climate Change is one of the topical issues and that she would emphasize the project being carried out by CPED in conjunction with IDRC. She emphasized the potential impact of women in curbing Climate Change issues in the Niger Delta.

Dr. Melanie (IDRC Program Specialist, 3rd from left) making a remark During the Opening Panel

[4]*This report was prepared by Job ImharobereEronmhonsele (Climate Change Project Team Member) and Dr. Mrs. Oghale John-Abebe (Mentee on the Climate Change Project)*

The Honorable Commissioner of Environment, Delta State ably represented by Mr. Victor Efeturi gave a brief address assuring CPED of the support of the Delta State Government and the commissioner, and that they are looking forward to more collaboration on reducing carbon emissions and reducing vulnerability to Climate Change in the State. Dr. Melanie Robertson gave a brief address on the goals of the IDRC and their eagerness to support CPED on the ongoing project and beyond this project. She mentioned that they now had a regional office in Dakar, Senegal, which will bring closer support to countries in West Africa, including Nigeria.

Mr. Efeturi, Director Climate Change Department Ministry of Environment Delta State, gave a brief presentation on Climate Change. He talked about the Territorial Approach to Climate Change (TACC) programme, which was adopted to reach the grass roots using biosand filters for clean water, biogas cookers and stoves, solar powered bore holes, etc. He also mentioned some short/long term targets planned by the government in each community, one of which was to reduce gas flaring and reduce climate change impact on the state and to partner with private NGOs and agencies with the target of increasing environmental consciousness groups in secondary schools, etc. He concluded by saying the Delta State Government look forward to a greater collaboration with CPED in reducing carbon emission and climate change effects in Niger Delta.

Comments and Discussion: Prof. Odjugo commented that he was pleased with the presentation and mentioned some ways in which the Federal government plans to and is in fact already supporting this goal in various states. That the Delta State Government can take advantage of this collaboration like other states in the country especially on the farm development project. He reiterated that Nimet is setting up weather stations at universities/ institutions by donating free meteorological instruments in order to have a closer monitoring of climatic conditions.

A group Photograph of the Policy Briefing Meeting

Prof. Dicta Ogisi also commented that CPED is happy that there is more awareness on the importance of both short/long term intervention programmes and encouraged sustainability and she also suggest that to add value to the State, there is need to know who the State partners with in each of these intervention programmes. Dr. Dudu aligned with what Prof. Dicta said and encouraged partnerships with other sub-sectors like CPED, the education sector, agricultural sector, etc. Prof Nwoye says there is need for strategic plan on intervention/implementation to ensure program continuity even if future Administrators is not involved. Prof. Oladipupo asked a question on the response from the people on some of the adaptation strategies to Climate Change challenges. The commissioner replied that the response has been positive from the pilot programmes and that the Ministry is trying to replicate the short/long term strategies in all the Local Government Areas. The ministry is also in partnership with the Ministry of Education, NGOs on Schools Climate Club.

Prof. Mrs. Okoro expressed her fears of the use of the stove which depends on few firewood and asked if that doesn't end up displacing the real aim of the project through deforestation. Ministry of Environment staff Mr. Dibia, responded that fire wood cutting cannot be completely eradicated in the rural areas but that the special stoves use fewer fire wood sticks compared to the conventional tripod fire wood stand, and that they have trained personnel in planting of a special kind of tree which grows rapidly for firewood usage and that most of the wood used are old dead wood.

After tea-break, a short documentary of CPED in partnership with IDRC was played showing the

various impacts CPED has made at community level through various projects e.g. maternal and child health programme, which took research to policy makers to implement the action plan in Delta State.

Comments and Discussion: One of the participants from Isoko South commented that what impressed her after seeing the video was that development plan cannot be carried out without research, and that CPED is doing just that. While Dr. Dudu said intervention programmes cannot be carried out without the needed financial support from IDRC which has made CPED to aim higher.
Prof. Emeritus Onokerhoraye gave a presentation on the **Climate Change Project Report**, which he broke down into Background of the Study, Role of Women in Climate Change, Study Area, Findings and Conclusion. The analysis of the report was according to ecological zones and based on the Focus Group Discussions. The findings span from respondents demographic characteristics, marital status, educational level, employment characteristics, and housing characteristics. Awareness of climate change, effect of climate change on communities, vulnerability of household to climate change, impact of climate change, adaptation practices and strategies, and implication for promotion of women led adaptation strategies.

Comments and Discussion: Mr. Emmanuel, a participant from Patani L.G.A. commented that an expert in the agricultural sector ought to be involved to curb the impact of climate change on farmers' crops. Prof. Odjugo mentioned that for intervention purposes to climate vulnerability, buildings can be fortified through the use of bricks since mud housing materials may not be aesthetic enough although it serves psychological comfort of houses. Bricks according to him is more durable. He also said there is need to create 100 percent awareness on climate change impact and that there should be a downscaling of weather information so as to reach farmers who are more affected. He also encouraged the use of hybrid yam and maize seedlings and early yield of cassava which has already been put into the plan at the Federal level as a way of reducing climate change impact.

Flora Ose, a Journalist from Edo Broadcasting Service (EBS) who anchors a radio programme called climate change for peace mentioned that the media will be interested in reaching out to CPED in order to discuss issues on climate change in their radio presentation. Through social media, climate change information can be disseminated. Prof. Ikelegbe also commended Prof. Onokorhoraye (Principal investigator) on his presentation.

Dr. Dudu took over as the master of ceremony from Dr. Akpomera. A project brief by the management project committee representative agrees that CPED with IDRC is efficient and effective in action research. He remarked that from the briefing and results of the report, it is clear that the set targets for the project were met. A member of the community project implementation committee (CPIC) from Warri South appreciated CPED and Partners. She assured all present that the knowledge gained from the report of the project will be passed on to other CPIC members and her community. The media representative, Flora Ose from EBS also gave her commendation and promised to transmit the knowledge gained to the public through the media and said she had already sent a brief report to the newsroom while the session was on going to her colleagues to already broadcast.

Victoria Igbako from Isoko South, representing Head of Department of Environment in L.G.A expressed her appreciation for all she has learnt. Comrade Abiola was invited to speak on behalf of NGOs and she asked for the project to be extended to Edo State, and that they were ready to partner with CPED if the opportunity arose. Engr. Job Eronmhonsele thanked all participants on the project briefing meeting. He stated that Thursday 20th February, 2020 was scheduled for the Gender at Work training programme for team members and mentees which will hold in CPED office.

The closing remark was said by Prof. Felicia Okoro. She described the programme as rich, learning as a continuous process and encouraged everyone to continue to ponder on climate change because it is very evident it affects everyone. She expressed hope that health and safety education would form a part of the training required by women in the rural areas. Closing prayer was led by Prof. Omuta and the program ended at 2.10 p.m.

The meeting was indeed interactive and provided opportunity for networking and to strengthen collaboration.

Africa Security Conference, Rabat, Morocco, December 1- 3, 2019

A Brief Report[5]

The impact of climate change on security in Africa" was the theme of the 2019 edition of the Africa Security forum held in Rabat, Morocco, December 1-3, 2019. The meeting was attended by over 400 participants from 66 countries, including 35 Africans, with varied profession including researchers, civil society specialists, ministerial authorities, representatives of companies concerned, amongst others. The forum was organized by the Atlantis Centre for Research and Geostrategic Studies, a think tank in partnership with the International Security Technology Forum (ISTF) and under the high patronage of King Mohammed IV of Morocco.

Job Eronmhonsele (Left) and Kabiru Mohammed Right during the 2019 ASF in Rabat, Morocco

The event highlighted the link between climate change and security issues in Africa. The organizers of the Africa Security forum have decided to place the 2019 edition under the banner of security to develop strategies to preserve peace in Africa, based on climate preservation. The three-day event provided opportunity for participants to explore the issue to highlight the impact of climate change on ecosystems, biodiversity and human societies, and also provided a framework for developing solutions to limit these impacts on both sides of the African continent.

Key Discussions

Among the main themes discussed were food security and water management. And in this context, exchanges took place on improved water management, climate change and food security, as well as crop yields and livestock productivity. The other two main areas covered were population growth and agricultural development on the one hand, and tomorrow's solutions on the other. In addition to the plenary sessions, business meetings between companies were also on the agenda, as well as the launch of the Africa Security Network, a network that will work to implement the resolutions adopted during the forum and to enable Africa to propose African solutions to security and climate change issues on the continent.

7th International Climate Change and Population Conference on Africa, Held in Accra Metropolitan Assembly Conference Centre, Accra, 12 – 14th November, 2019

A Brief Report[6]

The 7th International Climate Change and Population Conference on Africa which held at the Accra Metropolitan Assembly Conference Centre on 12 – 14th November, 2019 offered me the opportunity to present a paper I coauthored with Professor Peter A.O. Odjugo. Our paper was titled intensifying warming in selected urban settlements in Nigeria. Our presentation highlighted intensifying warming in urban settlements across the major ecological zones in Nigeria with varied seasonal pattern. We therefore argued that global warming could accentuate the existing urban heat island phenomenon and that this could, among others, aggravate respiratory disorders, heat rashes, heat

[5]*This report was written by Job Eronmhonsele, Member of the Climate Change Research Team*

exhaustion, dehydration, reduced immunity. Therefore, attempts at building effective adaptation against intensifying urban heat, especially in urbanized areas must be anchored on understanding of the trends and seasonality of warming on the basis of ecological zones.

The conference also provided platform for knowledge sharing and networking. My profound

A Cross Section of Participants at the 7th ICCPCA, Ghana

At the Centre: Dr. G. Atedhor at the 7th ICCPC Ghana

[6]*This report was preparedby Dr. Godwin Atedhor, Member, CPED Climate Change Project Research Team*

REFLECTION CORNER

Reflections by Mercy Omuero Edejeghrwo on the Climate Change Project

Before the project, I thought that climate change affects all people equally. However, since the project commenced, I have come to know that it has disproportionate effect on people and that the susceptibility of people to climate change is determined by their sex, social economic class, as well as their location. Now, I understand that it affects women more than men. People who are poor are also more susceptible to climate change impacts. Also, People in low-lying areas like Niger Delta are more prone to the impact of climate change than people in places like uplands.

On gender, before this project I had little or no knowledge about gender. The concept was new to me. However, during the course of implementing the project, I have been able to get a clear understanding of the concept of sex and gender, how socialization plays a very important role in gender inequality issues. I now know that all what is referred to as gender today is determined by people. It means that if people determine these ideologies, these same people can bring about the needed change. If the mindsets of people are changed, then things can change in a particular location. Before now, I used to see gender as something meant to favor only the women but I now see it as something that seeks to correct the inequalities between men and women. It brings about development and is helpful. Due to the stereotypes around, women see themselves as people that do not fit into so many roles. From learning about gender, I have come to know that anything I can do, I should strive to do it regardless of the perception that it can only be done by men. Some of the knowledge I have about gender and climate change is as a result of personal reading and research. What has however been most helpful is the training facilitated by G@W particularly as it involves the use of real-life experiences, illustrations, diagrams, and stories. The research work has also helped me in that I now know the difference between upland and lowland of Niger Delta and how climate change impacts these areas differently. I have learnt a lot from the project.

Some of the new things I have learnt about the links between gender and climate change is that (i) climate change and gender are 2 things that are interwoven. For example, climate change could lead to scarcity of water or firewood in communities and when this happens, women are the ones who go to the bushes to fetch either the water or firewood, trekking longer distances. Women become more stressed. Women have reproductive roles (cook, wash, feed the children and other income generating activities – farm) when climate change impact hits on them. It increases their stress. It further compounds their problems and makes the work more difficult. Most times women in rural communities have their source of livelihood tied to nature so when climate change impact occurs, it's easier for men whose source of livelihood is not tied to nature to look for alternative but for the women it is not so.

In my opinion I feel that a project on climate change adaptation can lead to more equality between men and women because climate change is trying to widen the gap of inequality. As a result of climate change, women may have to invest more time and energy to carry out their reproductive roles but when adaptation measures like eco-stoves and boreholes are provided it will go a long way in reducing the stress they pass through and it will reduce the inequality they face in trekking longer distances. So, adaptation measures reduces inequality. One of the reasons why women are not equal to their male counterparts is because they do not have access to land. So if women are empowered as a way of adapting to climate change, it will go a long way to reduce inequality.

The Nairobi Training was beneficial to me and the team. In developing the project, gender sensitivity, responsiveness as well as transformation was given much consideration. The workshop thus reminded

the team of the need to carry out all project activities in this manner. It has made me to more mindful of mainstreaming gender in all aspects of the project.

The approaches remain relevant and useful to our work. I understand them to extent. I know that when talking about gender sensitivity it is just about having awareness that a particular thing may affect men and women differently. Gender responsive approach is about taking action to ensure needs of men and women are addressed in project. Transformation has to do with changing the norms and practices. It is deeper but I would like to have more understanding.

Since the Nairobi Meeting, the team has been implementing the project in a gender responsive and transformative manner. For example, male participants of the project have now agreed to create opportunities for women to take part in decision making.

On the way I facilitate trainings, I think a lot has changed since this project started in terms of my learning and the process or methodology I now use to facilitate in community meetings. As a result of my new learning I now make better use of illustrations like drawing on cardboard paper, stories and experiences. I have noticed that it sinks into the mind than just talking or other forms of learning. Regarding the learning space, I create a circular space so that all participants have equal opportunities to express themselves. I am now also conscious not to allow any participant feel that what they say is irrelevant or out of place. I always commend participants when they answer questions and I have noticed that it encourages them to participate more fully. I try to get to know the participants more through various forms of exercises. The Zoom reflection with G@W facilitator were very helpful because most of the modules that was used during the gender training were learnt through the zoom conversation. The conversation sounded so real and practical to me that when I went to field for training it was as if I had done it before. G @ W's written comments on CPED climate change training manual were very helpful because it actually made the manual better. The suggestions were relevant. It made it easier to facilitate.

G@W has been trying it's best to support us even amidst the COVID pandemic. I cannot think of anything that can be done differently because even with the pandemic, we have been having meetings online that has helped move the work forward. I would like to continue working with G@W. I have learned so many things through the trainings facilitated by them and I would like to learn more – I have learned about the basic concepts of gender and sex, gender stereotypes, how to achieve gender equality and gender equity. I recommend involvement of people who analyze our project data in gender meetings so they can analyze in such a way that data gotten should be disaggregated by sex and not lumped. I would also love to have more training on gender and resource materials on gender.

During the virtual meeting in December with the other research teams, one of the learnings I would like to share is a discovery I made in one of the communities which seems contrary to what I knew about climate change impact. During the course of training in one of the communities, a participant claimed that climate change has beneficial effect. This was really surprising to be. He said that due to climate change they now have high fish catch. I was surprised and tried to research on it. I found it could be true. This led me to actually understand the clear link between gender and climate change issues. I have recently learned that gender is dynamic, context specific and changes over time. This example shows that climate change is dynamic, context specific too and likely to change with time. I would not be surprised if several years to come, the same community shares a negative story on climate change. Also in another community (Patani), after the training, I could see how empowered the women were. They started expressing themselves that the men have been oppressing them. A particular woman stood up and said from training received she now knows she can play active role in community and that was what she was going to do henceforth. She is now a member of the community project implementation committee.

Commentary: The Impact of Covid-19 and food Security in Nigeria

By Ernest Imongan

The covid-19 pandemic has had devastating effects in many countries across the World, which has affected every sphere of life. With its first discovery in Wuhan Eastern China later spread to other parts of the World including Africa. According to the World Health Organization (WHO), the virus was declared a global pandemic on March 11, 2020.

Consequently, Nigeria recorded its first confirmed case of COVID-19 in Ogun state, then later in Lagos state, then the Federal Capital Territory (FCT) area in Abuja in february 28, 2020. With the increase in Covid-19 outbreak, it later spread to other parts of the country like Kwara, Osun, Ondo, Edo, Delta, Akwa Ibom, Rivers, Katsina, Anambra, Ekiti, Enugu, Imo, Delta, Cross River and other states of Nigeria.

The Nigerian Centre for Disease Control (NCDC) a government agency in charge of covid-19 preparedness and response activities was established at the end of January 2020 by the Nigerian Government following the development of the epidemic. Since Mid-March 2020, the Nigeria Federal and State Governments put several measures in place to prevent, mitigate and respond to the spread of covid-19 across the country through the NCDC(Guidelines) in curbing the outbreak. These measures include; closing all borders and non-essential business, social distancing, closure of schools, lockdown/restriction of movements, ban on social gatherings, hand washing, use of sanitizer and face mask, all these measures were imposed by government to curb the spread of Covid-19 (CPED Research Report, 2021).

According to NCDC, in January 4, 2021, Nigeria recorded 1,204 new cases of Covid-19 and a total of 91,351 confirmed cases with 75,699 Discharged and 1,318 deaths (*Guardian, newspaper)*. With this, Lagos the epicenter of Covid-19 had the highest number of cases with 654 while Abuja has 200. Other states include Plataeu 60, Kaduna 54, Kano 40, Rivers 30, Edo 28, Nassarawa 25,Kebbi 19, Bauchi 18, Oyo 13 Akwa Ibom 12, Balyesa 11, Ogun 11, Delta 9, Abia 8, Benue 5, Imo 3, Bornu 2, Sokoto 1, Osun 1.

The NCDC also revealed on January 11, 2021 that 1,024 new case were recorded from 17 states which includes Lagos 653, Plataeu 63, Benue 48 Zamfara 45, FCT 42, Rivers 27, Ondo 26, Adamawa 26, Kaduna 22, Edo 18, Ogun 16, Imo 12, Kano 9, Yobe 6, Ekiti 5, Jigawa 4 and Osun 2. Since then, there have been more than 100,087 confirmed new cases of coronavirus while about 80,030 were discharged and 1,358 deaths recorded in the country(*Punch newspaper, 2021)*. Globally, till date the number of confirmed cases of Covid-19 pandemic has exceeded 70,829,885 with 1,605,091 deaths with about 2.3 per cent fatality.

As a result of the increasing cases of covid-19 infection, in March 30, 2020, the presidency first announced two weeks' lockdown in FCT and Lagos leading to most states government keying into the Federal Government lockdown guidelines. The first phase lockdown lasted for about two weeks from May 4-17 with a further extension for another two weeks from May 18-1 June 2020. The second phase lasted from June 2-29 for two weeks with a ban on social gathering not more ban 20 persons. This was done in order to mitigate and flatten the curve of covid-19. During the period of government lockdowns and restrictions, there were fears, anxiety, uncertainty and displeasure from different sections of the country. Due to the imposed lockdowns nearly all sectors of the economy were affected as widespread disruption to livelihoods has already translated into loss of jobs or income.

Many people who make a living and access markets are being impacted by covid-19 across the country. These disruptions were driven primarily by

restrictions put in place to curb the spread of the virus that had impact on food security including local food production and the informal economy's food marketing system (CPED Research Report,2021).Therefore, a major issue in Nigeria during this period is the ability to have access to markets for the purchase of essential items particularly food. At this time, a vast majority of Nigerians across the country could not access the markets to purchase food items in their houses because of the closure and movement restrictions. The covid-19 pandemic had considerable impact on the supply of fresh food items due to the restrictions in the movement of food items between rural communities and urban areas. (CPED Research Report, 2021).

Additionally, the availability of basic food items such as rice, bread, garri, yam, etc. was equally affected by covid-19 pandemic precautions. A major hindrance to food security is limited distribution options. The covid-19 pandemic has interrupted all aspects of the food supply chain, including the logistics related to food handling and distribution. For example, some people experience the incidence of skipping a meal, running out of food and going without eating for some days. Even when food supplies are available, there are barriers for it reaching consumers, most especially due to movement restrictions imposed to reduce the spread of the virus(CPED Research Report, 2021).

Conclusively, the covid-19 outbreak has had impact on the economy and in the disruption of local food production. As a result, it was difficult for people to access major food items due to government restrictions/lockdowns which had effects on livelihoods and increase in food insecurity. It is therefore recommended that there should be need for the availability of food commodities and a supply chain for the vulnerable and those affected by lockdown. Also, to put an end to disruption and market supply chain, government at all tiers should educate and inform the people to prepare for any possible shortage at home in order to stockpile and preserve food in case of future occurrence.

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CENTRE FOR POPULATION AND ENVIRONMENTAL DEVELOPMENT (CPED)

Under the current five-year programme of work, CPED activities focus on four broad areas reflecting the objectives set for the five-year strategic plan period as follows:

(i) Research;
(ii) Communications and outreach;
(iii) Intervention programmes; and
(iv) Capacity Building of CPED and partners.

RESEARCH

Four research thematic areas will be targeted by CPED during the five year period as follows:

1. *Growth with Equity in Nigeria*
2. *Conflict and Development in Nigeria 's Niger Delta Region*
3. *Education and Development in Nigeria*
4. *Health including HI V/A IDS and Development in Nigeria.*

COMMUNICATIONS AND OUTREACH

Partnership development with public and private sector/civil society organisations

INTERVENTION PROGRAMMES ON SOCIO-ECONOMIC DEVELOPMENT

Beyond action and policy oriented research and its communications activities, our mandate entails implementing intervention activities in our identified areas of policy research during the five-year strategic plan period. In this context intervention programmes that benefit largely deprived grassroots communities and other disadvantaged people are being carried out.

CAPACITY BUILDING OF CPED AND PARTNERS

CPED believes that the strengthening partner organisations including community based organisations must be a key mechanism for the achievement of its mandate during the next five years. This also includes the strengthening of CPED to be able to fulfil its mandate during the strategic plan period.

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