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# **A Report of the workshop on Adaptation Planning for Agriculture in Enugu State, Nigeria**

3-4 May 2018

University of Nigeria, Nsukka Campus

Report prepared for the project: Bridging Climate Information Gaps to Strengthen  
Capacities for Climate Informed Decision-Making (CDSF)

Project Component 2: Capacity enhancement and climate information dissemination

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## Table of Contents

<b>TABLE OF CONTENTS</b> .....	<b>2</b>
<b>INTRODUCTION</b> .....	<b>3</b>
BACKGROUND TO THE PROJECT .....	3
NIGERIA CASE STUDY.....	3
<b>STAKEHOLDER WORKSHOP</b> .....	<b>4</b>
DAY 1: CLIMATE CHANGE CHALLENGES AND OPPORTUNITIES FOR AGRICULTURE AND FOOD SECURITY IN ENUGU STATE .....	4
DAY 2: ADAPTATION PLANNING OPPORTUNITIES FOR STRENGTHENING POLICY COHERENCE ACROSS SECTORS AND INSTITUTIONAL COORDINATION ACROSS SCALE .....	8
<b>ANNEXES</b> .....	<b>11</b>
ANNEX I: WORKSHOP PROGRAMME .....	11
ANNEX II: PARTICIPANTS RESPONSES ON THE USE AND GAPS IN CLIMATE INFORMATION .....	13
ANNEX III: FACILITATORS’ PRESENTATIONS.....	16



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## Introduction

### Background to the project

The “Bridging Climate Information Gaps to Strengthen Capacities for Climate Informed Decision-making” is a two-year project with the overall goal to strengthen the capacities of relevant stakeholders in the five project countries - Cameroon, Kenya, Malawi, Nigeria, and Tunisia - to understand and deploy appropriate climate information and best practices to inform decision-making. Specifically, the project aims to:

1. Identify and analyse climate information needs, provide support for climate information production, synthesis, and use.
2. Build the capacities and knowledge of stakeholders (government agencies, research institutions, extension agents and contact farmers) to collect and utilize high quality, demand-driven climate information for adaptation planning and decision-making.
3. Facilitate the mainstreaming of climate change issues in regional policy dialogue aimed at raising awareness on climate change issues to strengthen understanding, use and mastery of climate information.

The project has two components, the first involves climate information synthesis, and the second involves capacity enhancement and climate information dissemination. This second component includes two pilot case studies in Kenya and Nigeria, and is led by the Stockholm Environment Institute (SEI). The overall purpose of this component is to develop a robust adaptation toolkit to support adaptation planning and policymaking.

### Nigeria Case Study

A case study was conducted in Enugu State, Nigeria between May 2nd and May 4th, 2018. The case study involved a one-day field visit, interviews and group discussions with farmers and extension agents at Edem community, and two-day workshop with key stakeholders in the agricultural sector. Together, these participatory community field work and stakeholder workshop was organized to generate information that can be used towards the preparation of a climate vulnerability assessment to inform adaptation choices (and implementation) at the community level, and to generate data that will provide inputs to the Robust Adaptation Toolkit (RAT) that SEI is developing and piloting for the CDSF project. The community field visit was conducted on Wednesday May 2nd, 2018, and involved interviews and discussions with farmers and extension agents from Edem community. A report of the community field work is has been prepared.

This report presents the proceedings of a stakeholder workshop conducted on Thursday 3rd and Friday 4th, May 2018. The workshop brought together government officials, researchers and adaptation practitioners in the agriculture sector (farmers, extension officers, university



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professors, and community development workers) to identify and prioritize adaptation strategies based on current community capacities. The participants at the workshop also included selected members of the Edem community that were involved in the community fieldwork the previous day.

## Stakeholder Workshop

The two-day workshop with key stakeholders in the agricultural sector was organized to generate information that can be used towards the preparation of a climate vulnerability assessment to inform adaptation choices (and implementation) at the community level, and to generate data that will provide inputs to the Robust Adaptation Toolkit (RAT) that SEI is developing and piloting for the CDSF project. The objectives of the workshop are to;

1. Present to the participants to the CDSF project and the implementation partners
2. To share and discuss some of the climate change issues that emerged from focus group discussions with farmers in the Edem Community
3. To discuss the climate change challenges and opportunities for agriculture and food security in Enugu State and specifically Nsukka LGA and identify practical and actionable interventions and solutions across the related sectors of environment, land and water
4. To contribute to the Adaptation planning in the agriculture sector and identify opportunities for strengthening policy coherence and institutional coordination at local, state and federal level

### Day 1: Climate change challenges and opportunities for agriculture and food security in Enugu State

On Day 1, the workshop was called to order by Prof. Madukwe, who invited one of the participants to open the workshop with a word of prayer. After the prayers, Prof. Madukwe introduced to the project to the stakeholders, and invited Dr. Ozor – the Executive Director of ATPS – to give his opening remarks. Dr. Ozor explained to the participants the essence of CDSF project, and invited SEI team – represented by Dr. Philip Osano and Dr. Robert Ochieng – to facilitate the workshop process. After introducing SEI, and the objective of the workshop (see Annex III for their presentations), the facilitators posed the following questions to the participants.

- List One (1) example where you have used climate information in decision making (at preferably in work context).
- List One (1) major gap that would need to be filled to ensure effective use and application of climate information in your work



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The facilitators provided each of the participants with a green sticky note on which to record their responses. The participants provided varied responses as documented in Annex II below. Overall, it was noted that most of the participants used climate information to guide:

- Time for planting of different crops
- Application of fertilizers and herbicides
- Location of poultry houses (temperature and wind direction)
- Use of climate information during loan appraisal and disbursement

It was also noted that radio including FM stations, TV and technicians (extension agents) are the most common sources of climate information.

Next, the facilitators divided the participants into two groups. Asked the groups to debate the following issues.

1. Discuss and list five (5) challenges and corresponding opportunities of climate change and food security in Enugu State and in Nsukka particularly.
2. Identify and list at least 10 (but more if possible) of ongoing and planned practical interventions/solutions for addressing climate change for improved agriculture and food security

**Group 1: Agriculture/ Land**

Group 1 dealt with challenges and opportunities in the agriculture and land sectors, and ongoing and planned practical interventions/solutions in these sectors. During the discussions, the Group members identified the following challenges and opportunities.

A. Challenges of climate change	B. Opportunities of climate change
<ul style="list-style-type: none"> <li>• Rivers and streams are drying up. These resources initially provided water for agricultural and household use</li> <li>• Erosion</li> <li>• Drought</li> <li>• Irregular rainfall pattern and distribution</li> <li>• Acid rain</li> </ul>	<ul style="list-style-type: none"> <li>• Afforestation- using agroforestry</li> <li>• Controlled environmental agriculture, hydroponics and vertical farming</li> <li>• Increase in research and development</li> <li>• Increased area of land available for agriculture</li> </ul>



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<ul style="list-style-type: none"> <li>• Prevalence/increased population of pests and diseases e.g. army worm</li> <li>• Increase in temperature</li> <li>• Increase in evasive weed infestation</li> </ul>	<ul style="list-style-type: none"> <li>• Ease of drying up agricultural products because of abundance sunshine and dry winds</li> <li>• Water harvesting because of abundance run-off water via erosion/flooding</li> <li>• Use of climate information, meteorology, LandInfo technology</li> <li>• Use of drought resistant seeds</li> </ul>
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C. Ongoing and planned practical interventions/ solutions

- The group members identified the following on-going and planned interventions
- Drainage cleanser 2018 (Enugu State government’s initiative to curb flooding)
- New Map (World Bank initiative for erosion control)
- Green Belt restoration project (aimed at replanting of trees in communities)
- Water harvesting
- Promotion of vetiver grasses (also used to ward off snakes in farms and living areas)
- Increased use of organic manure by the locals
- Improved agricultural practices e.g. mulching, good tillage
- Use of LandInfo Technology
- Production/use of fodder banks or branches to prevent trans-humans and farmers conflict
- People have taken to use of greenhouses for production
- Use of local rain makers/rain making science

**Group 2**

Group 2 dealt with the challenges in water and environment, and their solutions. During the discussions, the group members identified the following challenges and solutions.

1. **Shortage of water for agricultural purposes:** water bodies are drying out and our activities are partly responsible. Logging along the sources of water is causing water yield to reduce. Excessive cutting of trees are major causes.

**Solutions**

- a. Reduced logging of trees
- b. Remove of debris along flow lines
- c. Maintaining of trees along flows lines of water bodies



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## 2. Soil Erosion

### Solutions

- a. Sand bags on farms along the water course (sandy soils). Sand harvesting should be done sustainability.
- b. Government should engage in environmental impact assessment to channels water appropriately before executing projects such as road construction. There is a lot of erosion occurring in Obollo and Opi because of the topography of the area but for Onuiyi, the problem is mostly, the problem is mostly caused by road construction.
- c. Planting of trees along erosion prone areas e.g. bamboo
- d. Harvesting erosion water into a borough pit and later used for agricultural purposes.
- e. Planting cover cropping or intercropping
- f. Contour ploughing: laying the ridges across slopes

## 3. Flooding: blocking water ways e.g. building

### Solution

- a. Ponding of flood water into a basin and using the same for agriculture (water harvesting) e.g. in Ugwuoye water harvesting.
- b. Water can be pumped and used for irrigation and watering of animals. Crops that are adapted to floods such as some rice varieties like FARO 61, FARO 62, NERICA 9, banana and plantain could be cultivated in the area.
- c. Provision of early warning information for impending flooding. NiMET warning should be specific to localities and given in local languages.

## 4. Rising temperature

### Solution

- a. Reducing deforestation by reducing the use of fire wood and encouraging the use of renewable energy sources e.g. solar, enhanced use of kerosene, gas by reducing the cost and creating awareness on use of gas.
- b. Planting of trees
- c. There should be formulation and implementation of policy to reduce greenhouse gas emission by reducing gas flaring, use of commuters, trains instead of personal cars.
- d. Re-working of houses e.g. re-roofing, use of thatched roofs to reduce the impact of rising temperature. People now use double walls to create space in-between which traps and evacuates heat from the building.



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## 5. Deteriorating quality and quantity of underground and surface water

### **Solution**

- a. Avoid drilling of wells/boreholes close to latrine and soak-away (septic) pit
- b. Encourage use of non-residual pesticides and herbicides
- c. Use of integrated pest management (IPM)
- d. Cover shallow wells to avoid contamination
- e. Prevent oil spillage from road construction using by-laws
- f. Sensitize farmers to avoid the use of pesticide around water bodies
- g. Avoid messing up water bodies with fermenting cassava, washing of cloths and pots

## Day 2: Adaptation planning opportunities for strengthening policy coherence across sectors and institutional coordination across scale

Day 2 activities started with a recap of Day 1 outputs and emerging issues for action. These were presented by Dr. Osano and Dr. Ochieng. The next section was facilitated by Prof. Madukwe and focused on Adaptation planning opportunities for strengthening policy coherence across sectors and institutional coordination at local, state and federal level (parallel break-out groups). Prof. Michael Madukwe presented on Federal level policies (see Annex III) for climate and agriculture to provide a background the sessions activities. The participants were then divided into two groups:

Group1: Enugu State Level

Group 2: Nsukka Local Authority Level

### **Group 1**

Group 1 dealt with the question:

*How can we improve coordination between the state and the federal government to address climate change in agriculture?*

The group established that there exists coordination between the Federal and the State. However, it was noted that this coordination has been weak since 2012. Before 2012, there used to be Project Coordinating Unit (PCU) of the federal ministry of agriculture. Sadly today, the PCU has gone defunct.





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Currently, the PCU is replaced with State Directors appointed by the federal government to oversee, coordinate and report the activities at the state level. This State Directors coordination started under the Agricultural Transformation Agenda (ATA).

It was therefore established that there is coordination between the state and the federal government. However, this coordination is weak and inefficient. The following were identified as some factors responsible for the weakness and inefficiency in coordination between the two levels.

- a. Corruption, personal interest
- b. Politics/political inclination
- c. Bureaucracy
- d. Lack of authority and means of implementation

Proposed solutions included

- a. Improved monitoring and evaluation of the coordination unit along the coordination pathway both at the state and federal units
- b. Improved synergy between the units
- c. Federal Directors in the State should be given the means and authority to carry out the assigned duties
- d. Strict adherence to implementation plan.

## **Group 2**

Group 2 dealt with the question:

How can we improve coordination between the State government and the Local Government to *address climate change in agriculture?*

The group first discussed if there is existing coordination mechanism in place. It was established that there is an existing coordination mechanism. Specifically, it was noted that there are six Zonal agricultural units in the State. It was noted that each state has Zonal officers who report to the Director in the State Ministry of Agriculture.

The following were suggested as some of the ways to improve coordination.

- a. Building institutional and individual capacities
- b. Zonal officers should be equipped with means and authority, autonomy, freedom to implement issue.
- c. Relationship between the State and LGA should be strengthened. There should be a clear separation of roles, team building and synergy.



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- d. Improved monitoring and evaluation
- e. The normal communication channel should be strengthened and properly adhered to.



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## Annexes

### Annex I: Workshop programme

#### Day 1 (3rd May 2018)

Time	Activity	
08: 30-09: 00	<ul style="list-style-type: none"> <li>Arrival and registration</li> </ul>	
09: 00-10: 30	<p><b>SESSION 1: Introduction and Scene setting</b></p> <ul style="list-style-type: none"> <li>Welcome address. <b>Prof. Michael Madukwe</b>, University of Nigeria, Nsukka</li> <li>Welcome speech from the Government representative (TBD)</li> <li>Introduction of participants, Facilitator</li> <li>Presentation of CSDF project, <b>Dr. Nicholas Ozor</b>, Executive Director, ATPS (African Technology Policy Studies Network)</li> <li>Workshop objectives and expected outcomes, <b>Dr. Philip Osano</b> and <b>Dr. Robert Ochieng</b>, Stockholm Environment Institute</li> <li>Presentation on climate change issues and needs in the Edem community, <b>Dr. Cynthia Nnaji</b> and <b>Dr. Ozioko Remigius</b> (incl. short discussions)</li> </ul>	
10:30-11:00	NETWORKING BREAK	
11:00-13:00	<p><b>SESSION 2: climate change challenges and opportunities for agriculture and food security in Enugu State and specifically Nsukka LGA and identify practical and actionable interventions and solutions across the related sectors (parallel break-out groups)</b></p>	
	<table border="1"> <tr> <td>           Break out group 1           <ul style="list-style-type: none"> <li>Agriculture</li> <li>Land</li> </ul> </td> <td>           Break out group 2           <ul style="list-style-type: none"> <li>Water</li> <li>Environment (including meteorology)</li> </ul> </td> </tr> </table>	Break out group 1 <ul style="list-style-type: none"> <li>Agriculture</li> <li>Land</li> </ul>
Break out group 1 <ul style="list-style-type: none"> <li>Agriculture</li> <li>Land</li> </ul>	Break out group 2 <ul style="list-style-type: none"> <li>Water</li> <li>Environment (including meteorology)</li> </ul>	
13:00-14:00	LUNCH BREAK	
14:00-15:00	<p><b>SESSION 2 (continued)</b></p> <ul style="list-style-type: none"> <li>Group presentations and discussions (30 min per group)</li> </ul>	
15:00 – 15:30	<p><b>SESSION 2 (continued)</b></p> <ul style="list-style-type: none"> <li>Technological application for enhancing climate services to farmers – the Landinfo App, Dr. Nicholas Ozor, Executive Director, ATPS</li> </ul>	
15:30-16:00	<p><b>SESSION 2 (continued):</b></p> <ul style="list-style-type: none"> <li>Climate information needs for Adaptation planning in Enugu State (Table buzz groups)</li> </ul>	
16:00	<b>Workshop Adjournment</b>	



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## Programme for Day 2 (4th May 2018)

Time	Activity
09:00-09:30	<b>RECAP OF DAY 1</b> <ul style="list-style-type: none"><li>• Review of day one activities/outputs</li><li>• Emerging issues for action</li></ul>
09:30-10:30	<b>SESSION 3: Adaptation planning opportunities for strengthening policy coherence across sectors and institutional coordination at local, state and federal level (parallel break-out groups)</b> <ul style="list-style-type: none"><li>• Presentation on Federal level policies for climate and agriculture. <b>Prof. Michael Madukwe</b>, University of Nigeria, Nsukka</li><li>• Group break –outs<ul style="list-style-type: none"><li>➤ Group1: Enugu State Level</li><li>➤ Group 2: Nsukka Local Authority Level</li></ul></li></ul>
10:30 – 11:30	<b>SESSION 3 (continued)</b> <ul style="list-style-type: none"><li>• Group presentations and discussions (30 min per group)</li></ul>
11:30-12:00	<b>CLOSING SESSION</b> <ul style="list-style-type: none"><li>• Workshop evaluation</li><li>• Closing Remarks</li></ul>
12:00	LUNCH BREAK AND DEPARTURE



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## Annex II: Participants Responses on the Use and Gaps in Climate Information

Participant	Example of use of climate information	Gap in climate information
<b>Iduke</b>	I heard over the radio about drought three years ago. In farming season in Nsukka I instructed farmers from Ibagwahqu and Opanda to lay their farms along hilly zones and they should use agrochemicals only in the hilly zones	Rain restriction in some parts of Nsukka made some insects, fungicides affect the farms in Nsukka. Some insects have formed resistance to some agrochemicals
<b>Ugwu B</b>	As a maize / rice farmer I used climate information I got from technicians on weather for maize and rice on April/ May in every year. This has helped me a lot in the production of high yields	The major gap for the effective use and application of climate information is variance in government policy in the supply of information to farmers because the weather situation is not the same in regions between the North and South
<b>Ezema</b>	I am a farmer in my local area in Edem, information decision making on climate change was on NTA, which helped in growing of my crops early last year because of the short rainfall which started in May ending last year	
<b>Okowor Joseph</b>	Temperature high – information from meteorological station Humidity moderate – information from radio Rainfall low – direct observation	Planting seeds of/at a very high temperature is not necessary. At a poor rainfall, it is a risk
<b>Anyiam</b>	I use climate information during loan appraisal and disbursement	There is need for public education concerning the interpretation of climate information



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<b>Victor</b>	In supporting farmers in agricultural production	Making climate information available to the farmers to guide farmers in their farm work – timely and in their own language
<b>Ugwuoke</b>	In deciding the time of planting at the beginning of every planting every season e.g. early planting of particular crops	Record keeping of weather changes to plan future farming activities
<b>Celestine</b>	As a farmer I do get my information through radio sometimes in July we do have heavy rain and is not too good in our crops like maize, tomatoes, etc.	Extension guide that targets not only farmers, but also input suppliers and dealers
<b>Walter</b>	I used climate information on the time rain will fall through meteorology centre in FM radio to make decision on the right time to plant	The gap I envisage is lack of information on the quality / volume of rain with the period in view
<b>Nwonye</b>	I use the climate information to educate the farmers when to start planting a particular crop	The major gap that should be filled to ensure effective use and application of climate information in my work is the reduction in crop failure due to proper management of the climate information
<b>Abor</b>	Climate information has helped me to determine when to plant crops	The needed to be filled include among others knowing when the variation in climate occurs
<b>Okoro</b>	Decision on time/ month to plant/ harvest crops. Melon is planted between March and April because if it is planted in May/June it will be affected negatively by intensive rainfall of June/July	We need updated/ annual outlook/ forecast of rain because the rainfall pattern is changing and it is no longer certain that rains start every March/ April



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<b>Ibegbulam</b>	Well we do not have enough information. I will want more information to be passed for example through churches	
<b>Ugwoke Justina</b>	I will like to know it because when I started to plant my peppe I hear and hope that the rain will continue to fall by March	If there will be a hindrance for not use the climate information it will abind the farmers to further especially vegetable planting
<b>Bala</b>	I use climate information from TV to spray herbicides that kills weed seed for it needs rain after spraying	Information on good use of climate should be made available through local radio stations to guide people especially on severe rainfall to avoid casualty
<b>Chimaka</b>	The climate information enables farmers in determining when to plant or crop and also when to harvest their crops. The sources of information are through radio, television, newspaper and meteorological centre	The major gap is lack of adequate information and vagaries of weather information
<b>Patrick</b>	Pre-season to training for farmers, extension agents and enumerators. Determining market price trends	Non-availability of meteorological equipment in all agriculture zones of the state. Non-existence of soil map
<b>Ezugwu</b>	Information on monthly technology review meeting (MTRM) on how to plant trees in poultry houses to reduce stress	Location of poultry houses and farm houses towards East West direction to reduce the intensity of sun rays into the farm
<b>Ezema</b>	Where we have information on climate in decision issues is (a) temperature, b) lack of rainfall. Lack of rainfall affects our crops. High temperatures also affect our crops	There will be a change in rainfall and temperature. So, we need this information



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## Annex III: Facilitators' presentations



SEI

Presentation\_Enugu Si



Prof. Madukwe

Presentation\_Enugu Si