7th Climate Change and Development in Africa Conference (CCDA VII)======

Policies and actions for effective implementation of the Paris Agreement for resilient economies in Africa

Theme: Sustainable Development Goals and NDCs Nexus
" Climate Change, Agricultural and Food Security Nexus"

PRESENTED BY NASSIROU BA

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United Nations
Economic Commission for Africa

Outline of the Presentation

1. Introduction: Climate Economics
2. Challenges
3. How Climate Change can affect Food Security and Agriculture
4. The Paris Agreement and Food Security
5. Policy Recommendations

Introduction

INTRODUCTION:

➔CC seriously threatens SDGs, poverty reduction and food security.

➔ we are experiencing extreme events such as flood, droughts , heat waves, etc

FACTS:

➔The major concerns for Africa's key economic sectors with disastrous consequences include a heightened threat to food security, inadequate water resources availability , diminished biodiversity, increased land degradation, , increasing desertification and coastal zone recession.

➔IPCC AR6 shows that economic costs of CC in Africa are likely to be significantly high in relative terms than in other regions

➔Until 2030, the estimated costs of CC are around 3% of the continent GDP or US$40 Billion /year.

➔Today, Africa is at around $200 Million/year

➔Africa contribute only 4% to Global Emission

➔CC is a new development imperative which threatens economic growth and development

How should we go about it?

Challenges

- The nexus of CC, agriculture and food security is a great challenge of SD
- Rapid Population growth and increase economic growth ,call for increase demand for food, energy, fiber, water and land.
- These new created needs are transforming the global environment and increase the vulnerability of communities, and undermining the food and livehood security of billions of people.
- Agriculture is a major driver of CC: the two are interconnected in ways that have implication for food and livelihood security of people around the world.
- It seems that most research on CC and FS have been one sided, stating that CC is identified as the cause of food insecurity and NOT how the systems in place to ensure food security , have eacerbated the issue of CC

How Climate Change can Affect Food Security and Agriculture

- ✓ **Food security is when all peolle at all time have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary and food preferences for an active life**

- ✓ **FAO reported in 2016 that GHG emissions from agriculture, forestry and fishery have almost doubled over the past 50 years and will increase 30% more by 2050 if appropriate measures are not taken**

- ✓ **GHG emission➔ rise of global means temperatures cause adverse impact on both ecosystems and human societies as it increases the incidence s of extreme events.**

- ✓ **Three factors are crucial in understanding the effects that Climate change has on food Security as essential component of food production: Soil, Water and Crop**

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Source: ECA calculations based on FAO-Food Security Indicators

How Climate Change can Affect Food Security and Agriculture

Soil:

- Soil properties and fertility are affected by CC.
- Change in CO2 concentration in soil affect organic matter content of soils and soils quality, resulting in soil degradation
- The impoverished soil affects food security as it causes reduction in quality and quantity of crops
- Research show that damage to soil is irreversible when it reaches a certain level
- Depleted soils also affect the quality and quantity of water
- The 3 systems i.e. Land, Water and Atmosphere condition are interconnected and integrated

Water:

- UNDESA reported in 2014 that because of CC effects, half of world population will find themselves in high water-stress areas by 2030

- Water availability is being threatens by CC creating potential decrease, causing fluctuation in temperature and precipitations, fluctuations in rainfalls and eventually causing crop failure

How Climate Change can Affect Food Security and Agriculture

- Technically speaking, CC affects the drying/rewetting cycle of the land. Thereby changing the nitrogen content in soils. This in turn affects water resources. The increase in N concentration in water leads to the process of eutrophication.
- CC➔ desertification➔ reduction of agricultural outputs. This, couple with the increase worls population, food demandes is recipe for detrimental impacts on Food Security

CC, Food Sec & Agr nexus

Fertiliser use & GHG emission

- **Agricultural Sciences, 2016, 7, 457-468**
- Published Online July 2016 in SciRes. http://www.scirp.org/journal/as
- http://dx.doi.org/10.4236/as.2016.77047
- **How to cite this paper:** Ba, M.N. (2016) Analysis of Agricultural Commodities Value Chains and Greenhouse Gas Emission in
- Rice and Maize in West Africa: Impact on Food Security. *Agricultural Sciences*, **7**, 457-468.
- http://dx.doi.org/10.4236/as.2016.77047

- ***Analysis of Agricultural Commodities Value Chains and Greenhouse Gas Emission in Rice and Maize in West Africa: Impact on Food Security***

- **Mahamadou Nassirou Ba**
- Food Security, Agriculture and Land Section in the Regional Integration and Trade Division, United Nations
- Economic Commission for Africa, Addis Ababa, Ethiopia

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Fertilizer Use and GHG Emission

Emission sources					
Rain fed	**CO_2 (t CO2e/ha)**	**CH_4 (t CO2e/ha)**	**N_2O (t CO2e/ha)**	**Total (t CO2e/ha)**	**Total (%)**
Anaerobic decomposition	**0**	**1.03**	**0**	**1.03**	**53.1**
Fertilizing (all stages)	**0.05**		**0.45**	**0.49**	**25.4**
Residue burning		**0**	**0**	**0**	**0**
Fuel consumption	**0.42**		**0**	**0.42**	**21.6**
Total	**0.46**	**1.03**	**0.45**	**1.94**	**100**
Total (%)	**24**	**53.1**	**23.1**		
Irrigated (MultipleAeration)					
Anaerobic decomposition	**0**	**1.81**	**0**	**1.81**	**45.1**
Fertilizing (all stages)	**0.2**		**1.55**	**1.75**	**43.5**
Residue burning		**0**	**0**	**0**	**0**
Fuel consumption	**0.45**		**0**	**0.45**	**11.3**
Total	**0.65**	**1.81**	**1.55**	**4.02**	**100**
Total (%)	**16.2**	**45.1**	**38.6**		

Paris Agreement & Food Security and Agriculture

- **Paris Agreement opens the door for more adaptation and mitigation in agricultural sector.**
- **Countries must take urgent action to reduce emission from agriculture sector in order to keep global warning below 2oC .**
- **Funding and political will are needed to support developing countries to implement their plans to combat and adapt to climate change in the agricultural sector.**
- **The mitigation contributions outlined in INDCs currently fall short of what is needed to deliver on Paris Agreement.**
- **Agriculture est discussed in 80% of the NDcs**
- **The PA has no binding requirement for countries to implement the NDCs but much emphasis on cooperation and public investment**

Key Policy Recommendations:

At Macro Level:

- Harnessing Africa agriculture potential to benefit the smallholders starts by addressing Climate change.
- Implementation of the NDCs
- Agriculture needs to be seen as a double edge sword (feeder and Poultter)
- promoting **increased productivity** and yield-enhancing techniques while protecting the environment**.**
- Development of clean and green Infrastructure is key in developing agribusiness and agri-trade.
- ECA, a member of the Governing Council of the Africa Fertilizer Financing Mechanism **(AFFM),** an AU organ, is advocating for the increase-use of fertilizer in an environmental friendly way in African agriculture, aiming at approaching the 50kg/ha and help Africa to feed itself.

At Micro Level:

- Unpack the NDCs so that the small holder can do his/her part
- Operationalizing NDCs will give Africa a leverage against food security, increase revenue through increase productivity, manufacturing, agribusiness and poverty alleviation.
- Through transfer of technology and ICT, making sure NDCs information reach the actors.

THANK YOU FOR YOUR ATTENTION!

YES WE CAN

YES, IT IS TIME FOR the IMPLEMENTION OF THE NDCs and AFRICA GREEN REVOLUTION

ba31@un.org

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