

Extreme Weather Events and Market-based Adaptation: Exploring the Potentials of Rainfall Index Insurance in Nigeria

David Olufemi Awolala

WASCAL Graduate Research Programme of Climate Change Economics

Department of Economics, Universite Cheikh Anta Diop, Dakar, Senegal

E-mail: ddawolala@gmail.com

Supervisor:

Prof. Aly Mbaye

Prof. Joachim von Braun

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WASCAL
West African Science
Service Center on
Climate Change and
Adapted Land Use

Research Problem/Motivation

- **Two research questions:**
 - ✓ *How do extreme climate events affect farmers' livelihood?*
 - ✓ *Do extreme climate events justify weather index insurance adaptation?*
 - ✓ *What determines the feasibility of rainfall-index insurance for a particular area?*

Bio-Climatic Findings

- Monthly distribution of rainfall uncertainties keep expanding

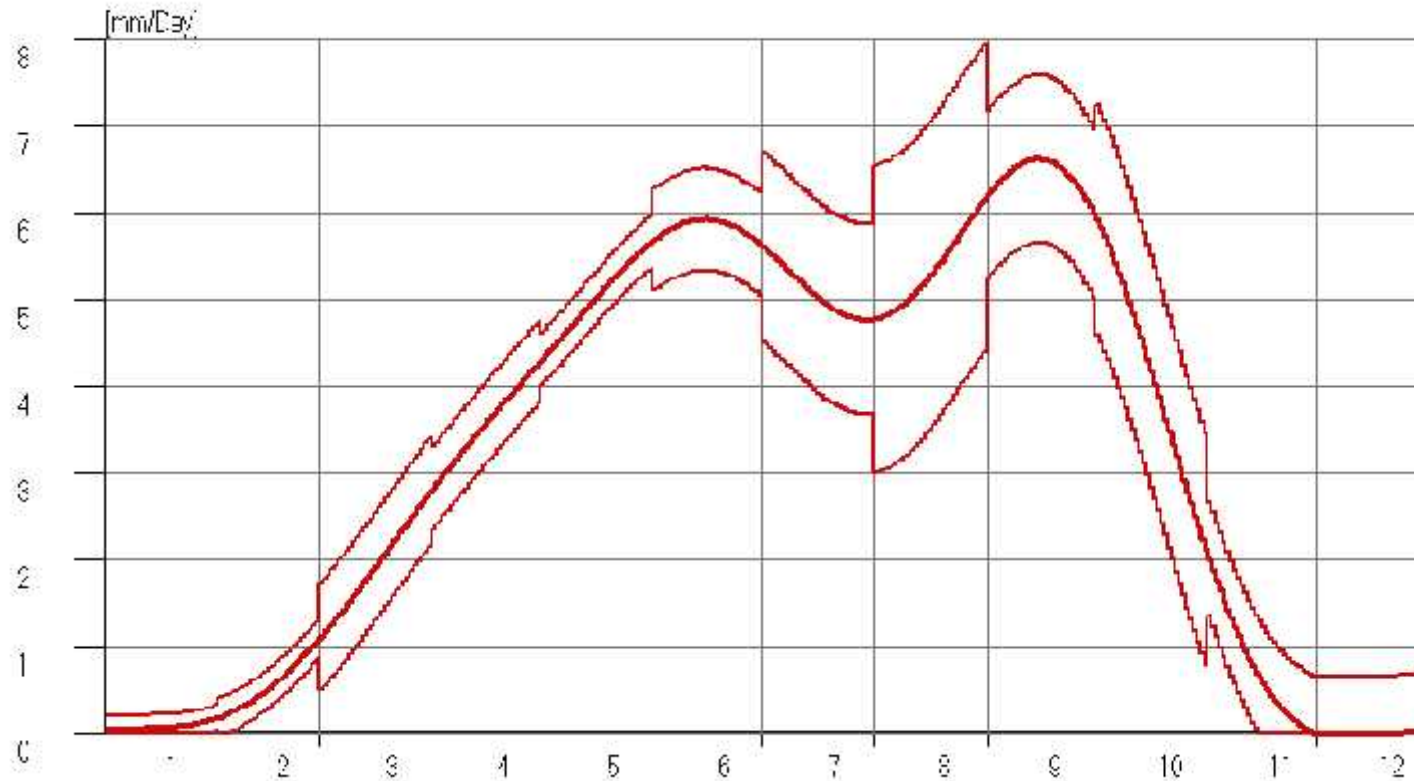
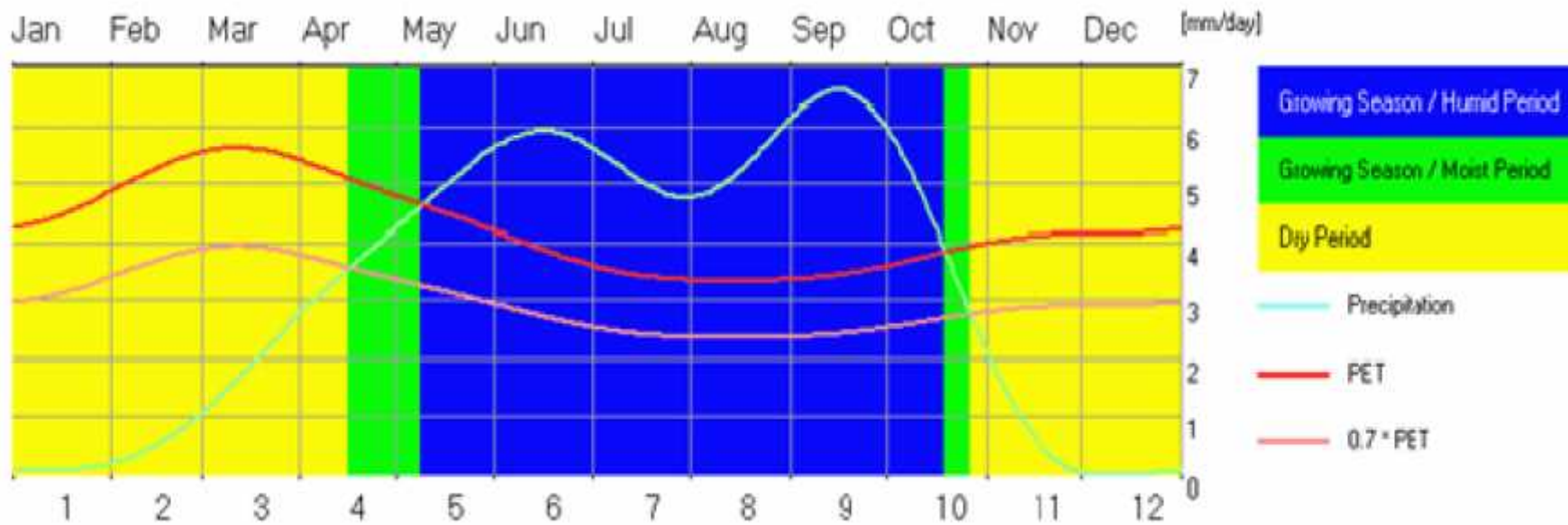


Figure 1. Distribution of rainfall uncertainty at normal standard deviation



Longitude	4.333												
Latitude [°]	8.618												
Altitude [m]	300												
Method	Nearest Neighbour												
Nr.	Total	Type	Length	Begin	Begin	End	End	Humid 1	Humid 1	Humid 1	Humid 1	Humid 1	
			Days	Date	Day	Date	Day	Length [D]	Begin [Da]	Begin [Da]	End [Date]	End [Day]	
1	1	3	194	16-Apr	106	26-Oct	299	164	8-May	128	18-Oct	291	

- Radiation index of dryness of 1.394, at an evaporation rate of 949 mm/year and rainfall deficit of 366 mm/year, hence the sub-humid region is rapidly moving towards aridity.

Socioeconomic Drivers of Decision to Insure

- Statistical model results reveal that farmers' commitment to insure (WTI) in rainfall index insurance is determined by:
 - ✓ access to **extension services** on drought management
 - ✓ farmers' **crop insurance awareness**
 - ✓ farmers' access to **early warning signals**
 - ✓ **reliable weather data and forecast**
 - ✓ livelihood **dependence on farm income**
 - ✓ **reliance on rain water collections** as dominant coping strategy

Findings on Rainfall Insurance Uptake

- **72.5%** will take up proposed rainfall insurance **as after-harvest lumpsum premium payment**
- ✓ **68.9%** will be unable to pay for the product **except with premium subsidy**
- ✓ **Cooperatives/group insurance uptake** was expressed by **55.7%**; but 44.3% will buy as voluntary contracts.
- ✓ **76.6%** will continue premium payment even if there is no payout in the following year;
- ✓ **Only 31.1%** agreed to continue uptake should basis risk be so severe for next 5 years, and there is no payout

Policy Outcomes

In time; as developing economies (Nigeria) to operationalize the current Conference of the Parties (COP 21) Agreement on adaptation/loss and damage; the legal instruments for focus:

- ✓ *client education and training must be prioritized*
- ✓ *better indices must be developed based on reliable weather forecast*
- ✓ *public-private led insurance delivery* (linking finance service providers and agro-input dealers as basis for lending)
- ✓ **develop weather databank** and **data access sharing**
- ✓ Invest **countrywide automatic-weather station installations** for reliable daily weather communication