Photo: Allison Shelley

Satellite Data Applications for Smallholder Area Yield Index Insurance

Rose Goslinga, Emilio Hernandez, Victor Wang

World Bank AgFin COP Webinar and BBL
May 8, 2018

CGAP

PULA

Speakers
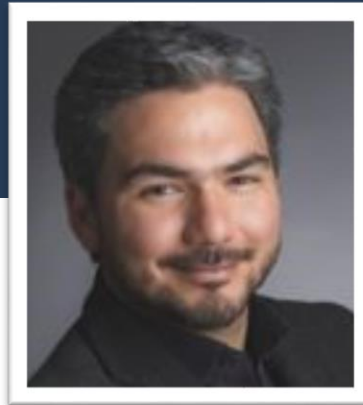
Rose Goslinga
Pula

Emilio Hernandez
CGAP

Victor Wang
Pula

Agenda

1	Pilot rationale and lessons from a development agency perspective
2	The PULA model and lessons from a private insurer perspective
3	Description of the algorithm developed and validation process
4	Open discussion

1. Pilot rationale

A PULA-CGAP collaboration

CGAP

CGAP's financial innovation for smallholder families

Goals:

- Improve understanding of smallholders' demand for financial services through 6 nationwide surveys (Tanzania, Mozambique, Nigeria, Uganda, Cote d'Ivoire and Bangladesh) and 3 financial diaries (Tanzania, Mozambique and Pakistan) between 2013-2015

- Translate demand-side insights into market impact by working with financial services providers

Why we focused on Nigeria and AYII

Pests/ disease are the most common shock at 64% incidence

34% of smallholders say agricultural insurance is most needed insurance

26% of smallholders are financially included

1% of smallholders are insured in any form

61% own a phone, yet less than 1% have a mobile money account

*Source: CGAP national surveys of smallholder households

CGAP

The CGAP-PULA collaboration

Experimenting with the use of satellite data to reduce the limits of AYII (cost and logistics) was considered worthwhile given an established market, reliable partners to access accurate yield data and distribute the product, and interested insurers and re-insurers. Also, Pula is a regional player with capacity to replicate if successful.

Legend:
- Insurance policy
- Credit insurance
- Input insurance
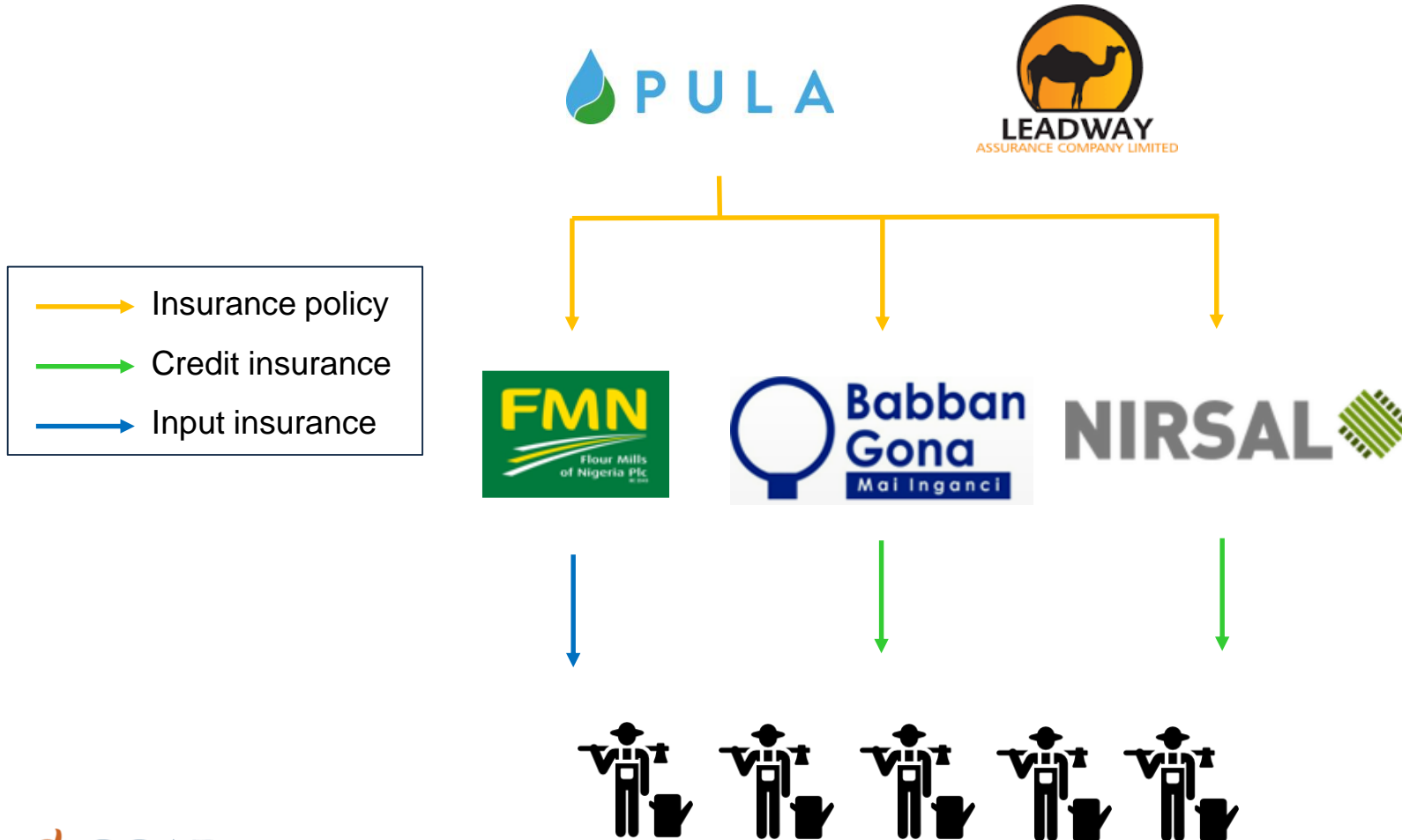
Lessons from the learning journey

Modify your question as you learn	• **The focus on predicting *individual* yields with satellite data was problematic.** A broad consultation led to focus on predicting *average* yields for payout within a larger area insured (Agro-Ecological Zones).
Satellite data is not an issue	• **Farm-level yield data is key.** Aligned partner incentives ensure accurate yield data, but biased towards good yields. Pilot investments included the search for poor yields to improve algorithm. Free satellite data performed well so preferred over private data.
AEZ can reduce costs and simplify logistics	• **New aggregate of area insured with common yield distribution significantly reduces (not eliminates) the number of CCEs, and thus logistics.** As CCEs data increases, the yield sampling requirements further diminish. Now applied in both Kenya and Nigeria.
Algorithm is as good as the insurers believe	• Engage the commercial insurers and re-insurers in the analytical process to ensure proper understanding and buy-in, as they are ultimately the underwriters of risk. Pilot able to convince MunichRe.

CGAP