

# Platform for Agricultural Risk Management

Managing risks  
to improve farmers'  
livelihoods

**Capacity Development**



# Uganda

**Capacity Development Seminar  
(CD1) on Agricultural Risk  
Management: PARM learning event  
for National Stakeholders**

**Presentations**  
July 2015





PARM  
PLATFORM FOR  
AGRICULTURAL RISK  
MANAGEMENT

Platform  
for Agricultural  
Risk Management

Managing risks  
to improve farmers'  
livelihoods



Capacity Development

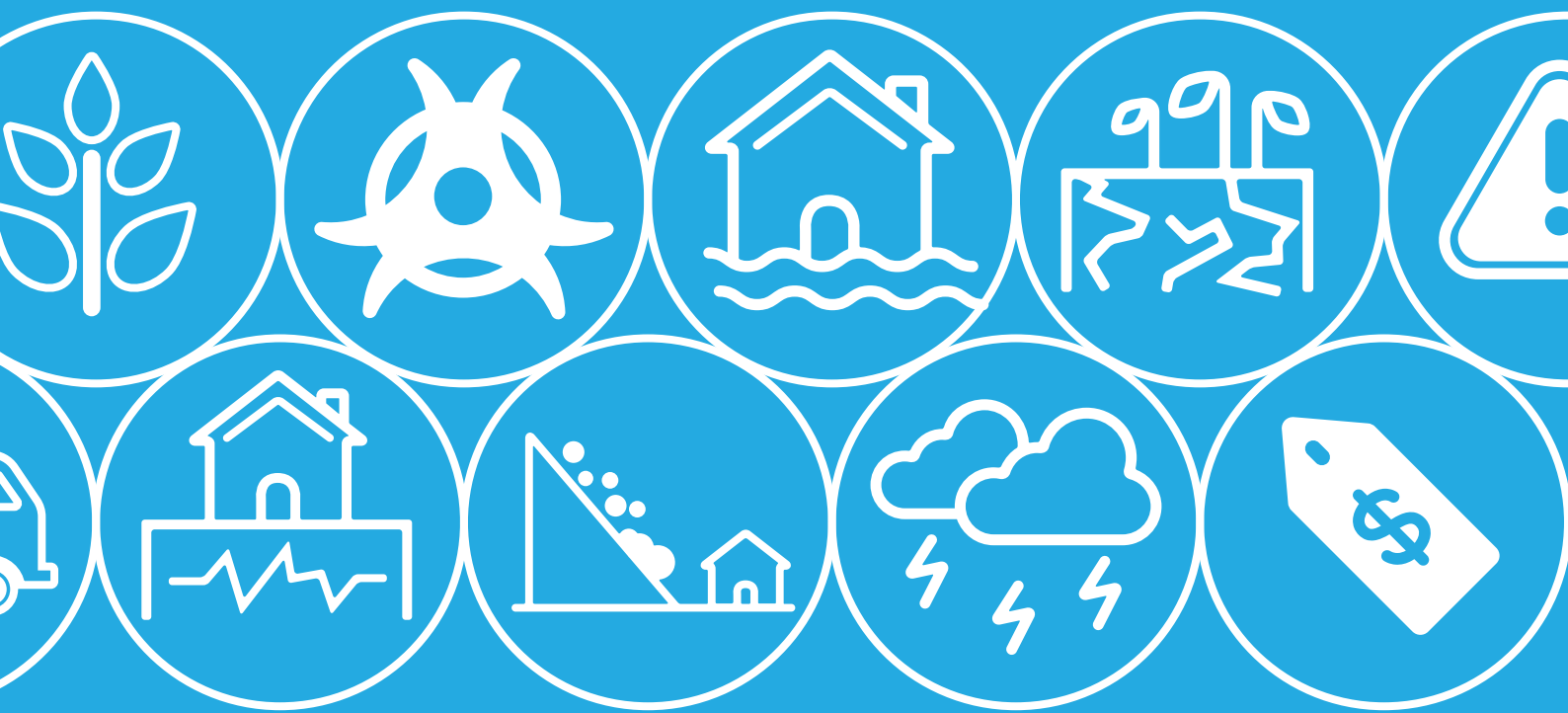
# Uganda

CAPACITY DEVELOPMENT SEMINAR ON  
AGRICULTURAL RISK MANAGEMENT

*PARM learning event for National Stakeholders*

VOLUME II

PRESENTATIONS



1-2 July, 2015 | Kampala, Uganda

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# SESSION 1

# Seminar on Agriculture Risk Management (ARM)

Session 1.  
Objectives, method and agenda of  
the seminar

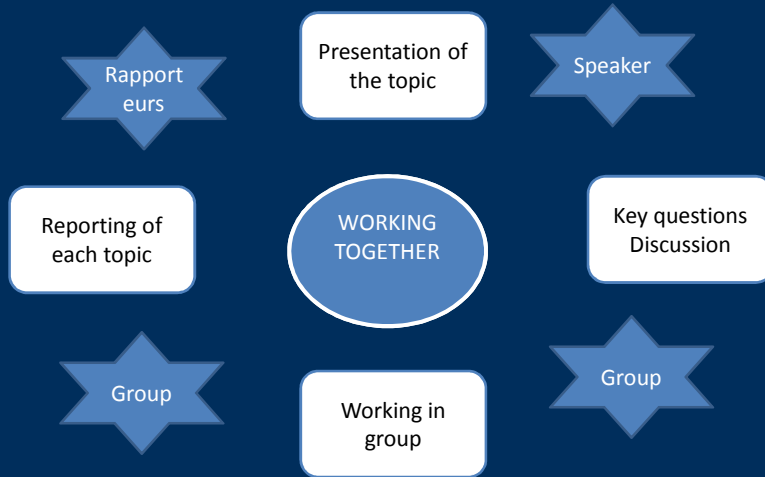
Francesco Slaviero (PARM)

## OBJECTIVES

The seminar pursues the following learning objectives:

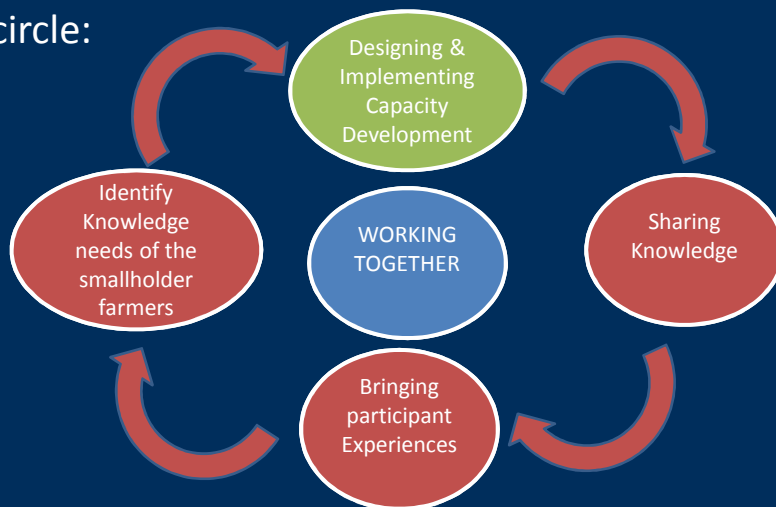
1. Enhance knowledge and skills on ARM and ensure a common understanding of the *holistic approach*
2. Bring experience of the Participants on ARM in Uganda as well as reinforcing team building among key stakeholders
3. Identify knowledge needs of smallholder farmers to build up a plan on Capacity Development on ARM in Uganda

# AGRICULTURE RISK MANAGEMENT (ARM) in SMALLHOLDER FARMERS



# LEARNING PROCESS

The three objectives are linked in a virtuous circle:



## SESSIONS

Session 2.

Understanding risk

How to link risks - Holistic Approach

Session 3.

Risk Assessment

How to measure impacts

Session 4.

Information source

Where to get relevant & timely information

Session 5.

Tools & Instruments

Which tools and roles of the stakeholders

## AGENDA FIRST DAY

First day from 9 to 11:

- ❖ Presentation of the participants (15 minutes)
- ❖ Pre-test
- ❖ *Session 2*: Understanding risks in smallholder farming
- ❖ Team building: discussion of key questions
- ❖ *Session 2*: Rethinking risks in smallholder farming through a holistic approach

## AGENDA FIRST DAY

First day from 11 to 13:

- ❖ Coffee break
- ❖ Working in groups
- ❖ Group work presentation
- ❖ Lunch

## AGENDA FIRST DAY

First day from 14 to 15.30 :

- ❖ *Session 3*: Risk assessment methods
- ❖ Team building: discussion of key questions
- ❖ *Session 3*: Risk analysis: quantification of impacts on livelihood of farmers

## AGENDA FIRST DAY

First day from 15.30 to 17.30 :

- ❖ Coffee break
- ❖ Working in groups
- ❖ Group work presentation
- ❖ Wrap up and conclusions on first day seminar

SEMINAR on ARM

LET'S START

## SESSION 2

# Seminar on Agriculture Risk Management (ARM)

Session 2.1.  
Understanding risks in smallholder  
farming

Francesco Slaviero (PARM)

## OBJECTIVES

By the end of this session, participants should be able to:

- Understanding the concept of risk (agriculture risks), key components and effects
- Identifying the main sources of agriculture risks

## CONCEPT OF RISK

Understanding risk and its factors is very important in dealing with agricultural systems, particularly in smallholder farming

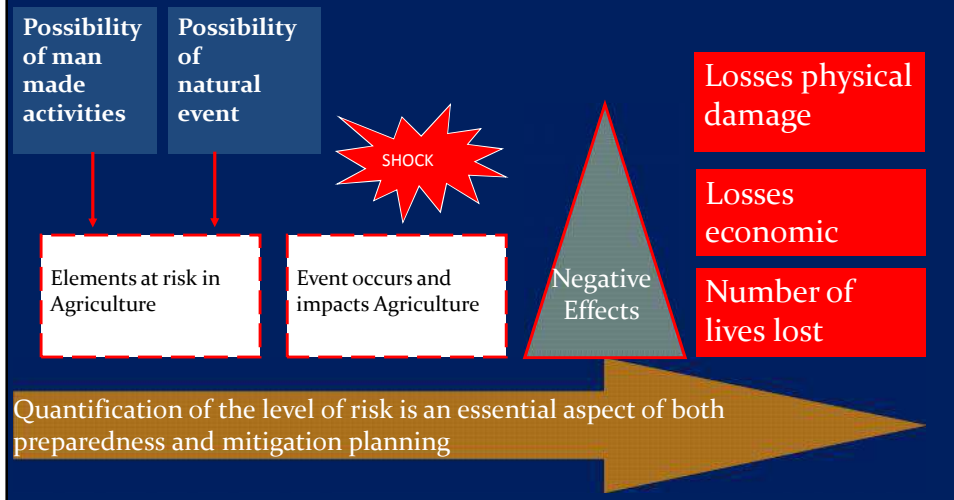
### What is a Risk?

The possibility of an undesirable state of reality (adverse effects) may occur as a result of natural events or man made activities

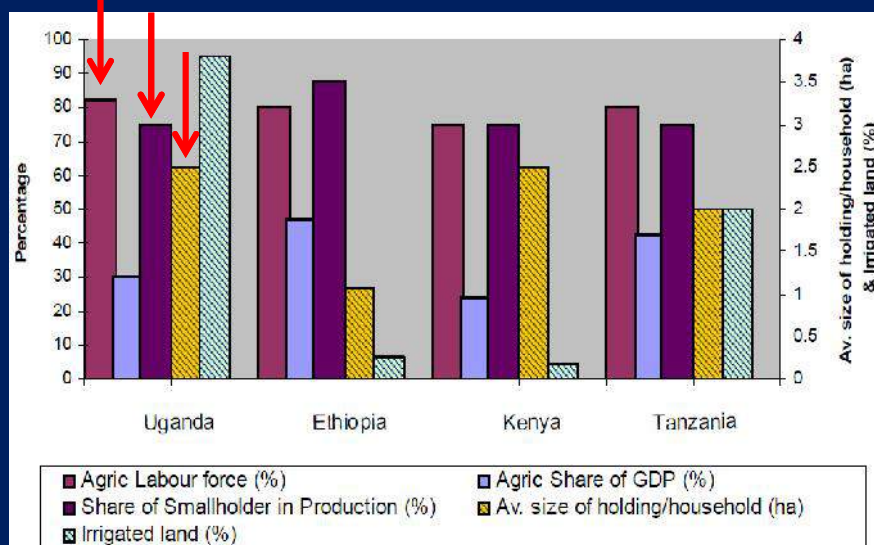
## KEY COMPONENTS

- **PROBABILITY:** the likelihood of experiencing any natural or human hazard at a location/region in a particular future time
- **ELEMENTS at risk:** identifying those elements which would be affected by the hazard if it occurred
- **POTENTIAL EFFECTS/IMPACT:** Expected losses from a hazard (severity) to a specific element at risk

## CAUSAL-EFFECT RELATIONSHIPS: EVENTS → EFFECTS



## Who is at risk? Smallholder farmers: Their significant role in the economy



## Example of risk in agriculture

...the peak of rains is expected to occur around mid-April; however short-lived dry spells are expected to interrupt the seasonal rains ... By mid-May, the rains are expected to relax with cessation occurring around early/mid June 2015

What are the adverse effects on agriculture

How such effects could be mitigated



## Example of risk in Livestock

...there is an outbreak of Foot and Mouth disease in Kigweri and Kiteyongera Parishes in Ngoma Sub County and Ngoma Town Council.

What are the adverse effects on livestock

How such effects could be mitigated



Risks faced by farmers are numerous and varied, and are specific to the country, climate, and local agricultural production systems.

## Sources?

1. Weather-related risks
2. Biological and environmental risks
3. Market-related risks
4. Policy and political risks
5. Infrastructural risks
6. Management and operational risk
7. Human or personal risks

**FARMING  
RISK**

## Weather related risks

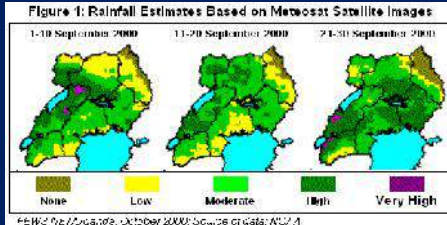
Weather risk may affect both the quantity and quality of agricultural products

Risks	Factors / Drivers	Effects / Impact
Weather risks	Rainfall variability	Lower yield, Loss of productive assets or income
Weather risks	Temperature variability	Lower yield, Loss of productive assets or income
Weather risks	hail storms	Lower yield, Loss of productive assets or income
Weather risks	strong winds	Lower yield, Loss of productive assets or income

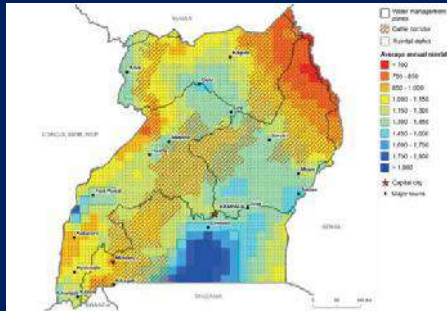
# Weather-related risks

## Example

### Rainfall Estimates (% normal)

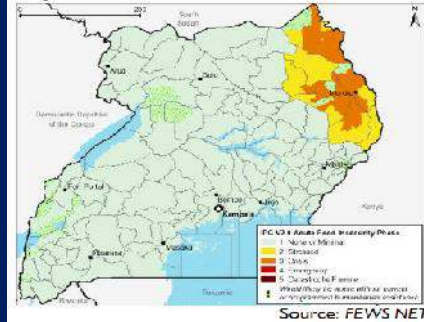


FEWS NET Uganda, October 2009. Source of data: NASA



Below average rainfall likely to delay and reduce harvests in Karamoja

### Projected food security outcomes, May to June 2015



Source: FEWS NET

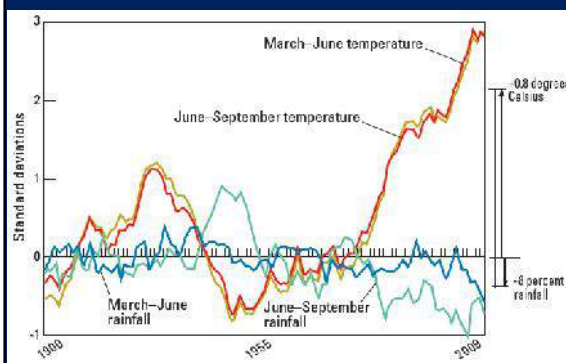
# Risks of Climate change in Uganda

Observed drying and warming of Uganda's climate



Potential EFFECT :

- NEGATIVELY IMPACT MAIZE AND COFFEE PRODUCTION AND
- EXACERBATE THE IMPACT OF DROUGHT



# BIOLOGICAL RISKS

## PESTS, DISEASES, CONTAMINATION

Risks	Factors / Drivers	Effects /Impact
Biological risks	Crop and livestock pests and diseases	Lower agricultural production & yield Loss of income ...
Biological risks	contamination related to poor sanitation	Lower agricultural production & yield Loss of income ...
Biological risks	contamination affecting food safety	Lower agricultural production & yield Loss of income ...

## Crop pests and disease in Uganda (2013) Example

Crop pests & disease: reported in central and eastern Uganda by 11% and 8% of households respectively



### EFFECT :

- 3/4 households experiencing this shock it hits their INCOME and, inevitably, for almost all (...) it hits

### FOOD PRODUCTION

- 1/5 households were forced to change their

### DIETARY PATTERNS

# MARKET RISKS

## PRICES

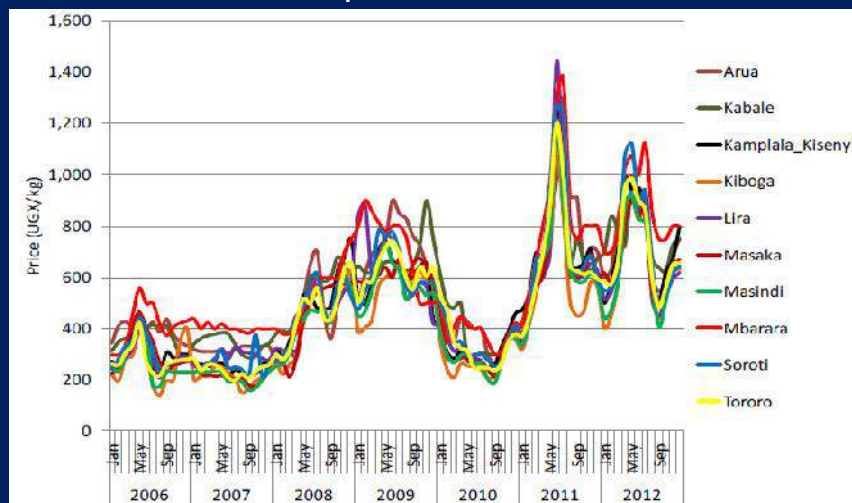
refers to the uncertainty about the prices producers will receive for commodities or the prices they must pay for inputs

Risks	Factors / Drivers	Effects / Impact
Price risks	Low prices, market and demand, volatility	Loss of income, savings and investments

## VOLATILITY ... VARIABILITY

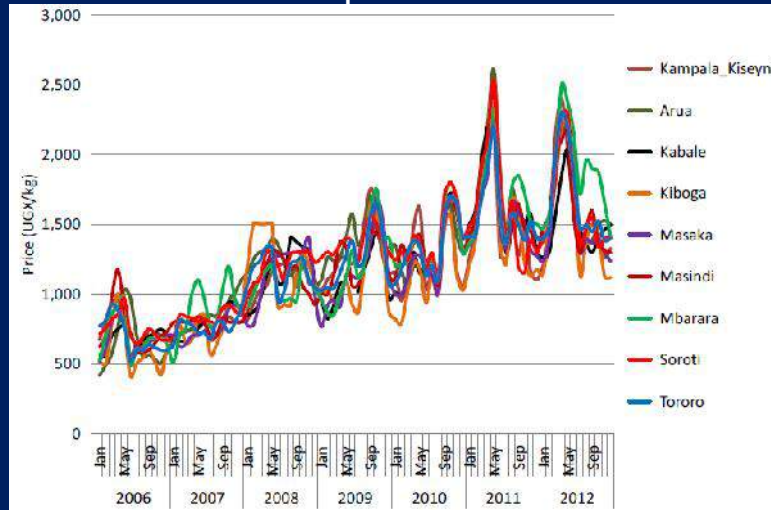
# MAIZE Price Variability - Markets

Nominal wholesale price of Maize



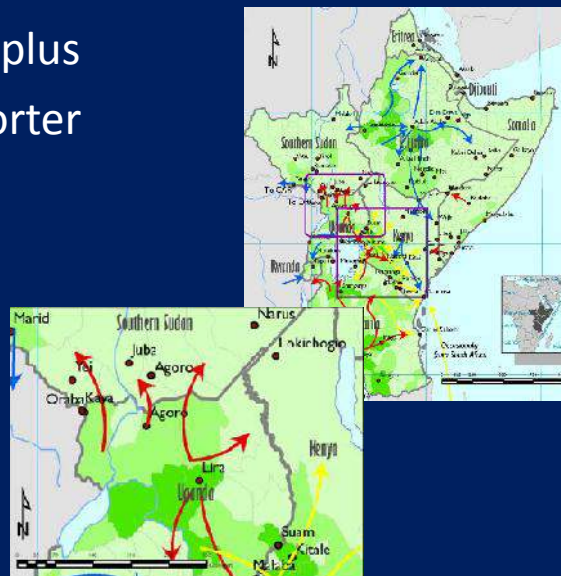
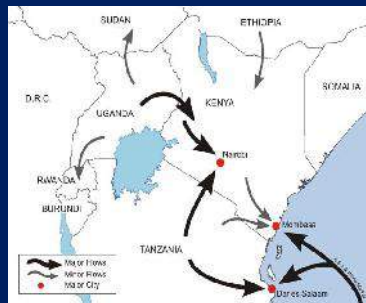
# BEANS Price Variability - Markets

Nominal wholesale price of Beans



# Crossborder Trade of MAIZE

Uganda: major surplus producer and exporter



## POLICY AND POLITICAL RISKS

RISKS	FACTORS / DRIVERS	EFFECTS / IMPACT
Policy risk	Regulatory changes	Changes in costs, taxes, market access, production, income
	E.g. inspection system, pack houses, certification, traceability system etc.	Changes in costs, taxes, market access, production, income
Political risk	Political upheaval	Changes in costs, taxes, market access
	Disruption of markets	Changes in costs, taxes, market access
	Unrest	Changes in costs, taxes, market access

## POLICY RISKS in Uganda (2015) Example

EU WARNS ON AGRICULTURAL EXPORTS FROM UGANDA

### WHY?

... Interception of products with harmful organism:  
 ... not meeting set of regulation of the EU rules →  
 restriction of the TRADE (exports) → estimated loss  
 of more than 64M USD -→ Impact 2,5 M farmers  
 mostly producing red pepper and roses

## Infrastructural risks

RISKS	FACTORS / DRIVERS	EFFECTS / IMPACT
Infrastructural risks	transports	Changes in costs, market access
transports	Degraded, inadequate maintenance	On inputs costs, output prices, market access, income etc ...
communication	Physical destruction, conflicts/disputes	On inputs costs, output prices, market access, income etc ...
Energy	...	...

## Management and Operational Risks

RISKS	FACTORS / DRIVERS	EFFECTS / IMPACT
Poor management decisions in asset allocation and livelihood/enterprise selection;	Lack of knowledge and information	Poor yields and lack of market
poor decision making in use of inputs;	Lack of knowledge and information	Poor yields and lack of market
poor quality control; forecast and planning errors; breakdowns in farm or firm equipment; lack of preparation to change product, process, markets; inability to adapt to changes in cash and labor flows	Lack of knowledge and information	Poor yields and lack of market
use of outdated seeds;	...	...

## Human or personal risk

Refer to factors such as problems with human health or personal relationships that can affect the farm business

RISKS	FACTORS / DRIVERS	EFFECTS / IMPACT
Labour and health risks	Illness, death, injures	Loss of productivity, loss of income, increased costs
	Divorce	
	Accidents	

## HEALTH RISK in Uganda (2013)

### Example

Serious illness/accident of income earner reported by 10% households in central Uganda



### EFFECT:

- Hits their income (more than 90%) because of the reduced earning capacity.
- 8% changed their eating patterns

# Seminar on Agriculture Risk Management (ARM)

Session 2.2.  
Rethinking risks in smallholder  
farming through a holistic approach

Francesco Slaviero and Jesus Anton  
(PARM)

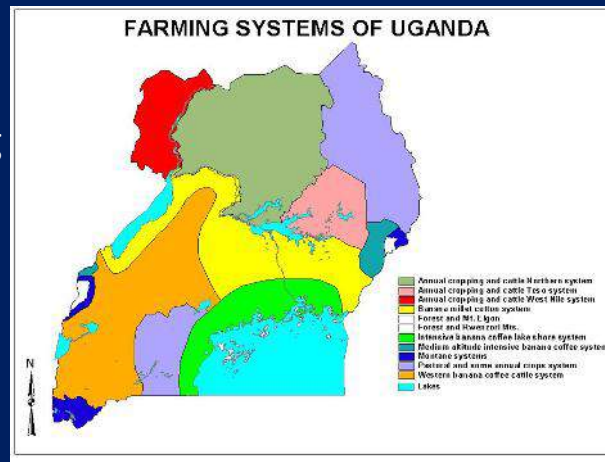
## Objectives

By the end of this session, participants should be able to:

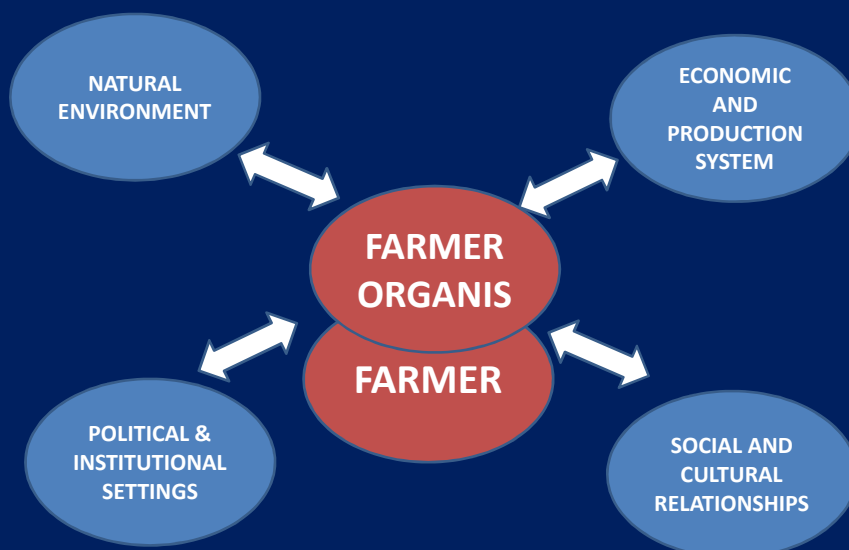
- Relationships between different risks in smallholder agriculture. Correlation of risks: i.e. widespread risks vs localised risks
- How to explain risks through a holistic approach perspective?

## VARIETY OF RISKS

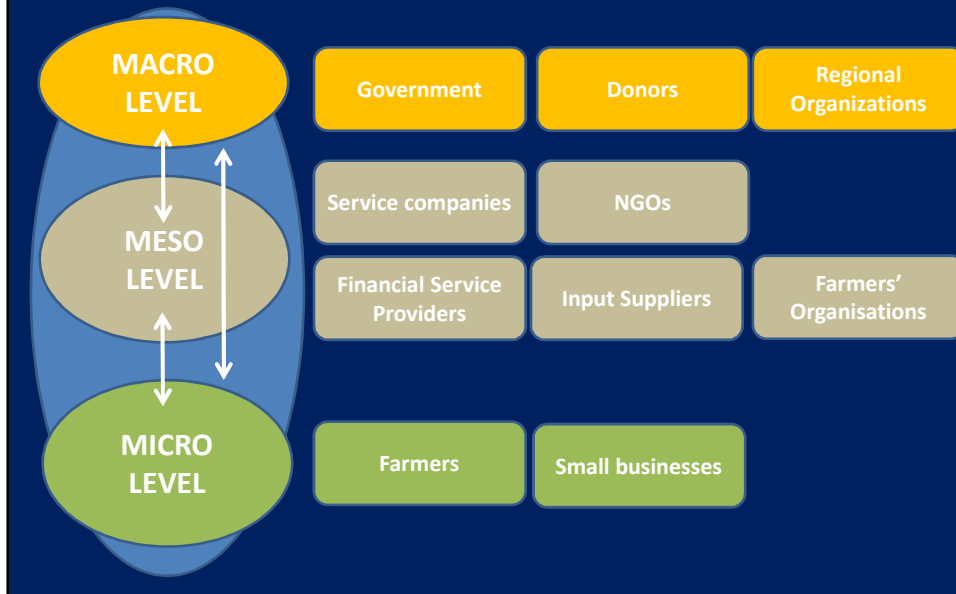
The types and severity of the risks confronting farmers vary by farming system, agroclimatic region



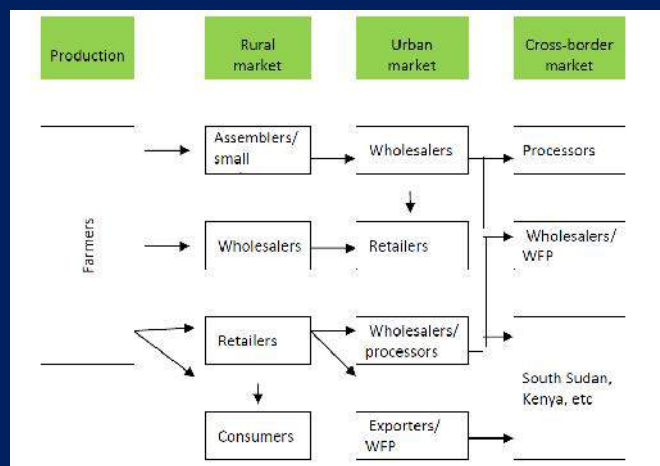
## FARMER IN A DYNAMIC CONTEXT OF DIFFERENT RELATIONSHIPS



## Institutional settings and actors



## Several Actors in the Marketing Chain



(maize and beans)

## Perception of risk (known)

Behaviour of a smallholder farmer (individual farm – MICRO LEVEL) depend on household characteristics, farm size/assets, production system and the context

FARMERS have developed a wide range of methods for managing risks: Ex ante measures : crop diversification, share-cropping)  
Ex post : credit, temporary employment, savings)

RURAL COMMUNITIES: farmers pool risks among households (sharing food stocks, rely on kin support networks). Risk-sharing arrangements help some risks affecting assets, seasonal production and income (e.g. transhumant grazing rights among pastoral groups)

Traditional method are least effective at handling low frequency, highly correlated risks that affect many people simultaneously ...

## How Agricultural risks are often Correlated

Managing risks in agriculture is particularly challenging, as many risks are highly correlated, resulting in whole communities being affected at the same time

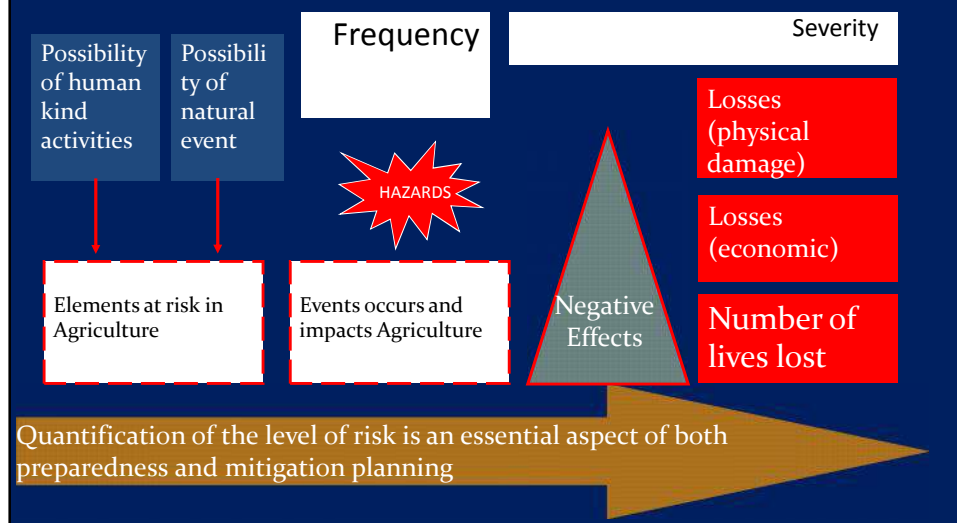
Covariance: the degree to which they are correlated across households within a community or region ranging from independent (affecting one person) to highly covariate (affecting everyone at the same time)

## Correlation in agricultural risks



Between these two extremes lie a variety of risks that are moderately covariate and occur with moderate frequency

## Causal-effect relationships: between events and their effects



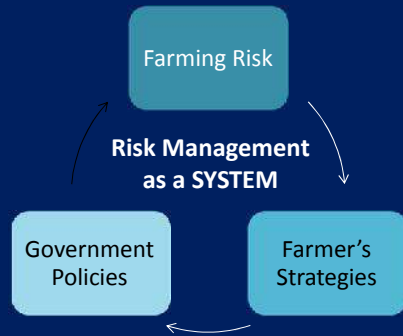
## Type of risk and idiosyncratic/systemic

Type of risk	Micro (Idiosyncratic)	Meso (covariant)	Macro (Systemic)
Market/prices		Changes in price of land	Changes in input/output prices due to shocks, trade policy etc.
Production	Hail, frost. Personal hazard	Rainfall, landslides, pollution	Floods, droughts, pests, contagious diseases
Financial	Changes in income from other sources (non-farm)		Changes in interest rates/value of financial assets/access to credit

## Type of risk and loss

Type of risk	Degree of covariance	Frequency	Type of loss		
			Life	Assets	Production/Income
Catastrophes	HIGH	LOW	WIDE	WIDE	SEVERE
Less-severe drought, new pest outbreaks	MEDIUM	MEDIUM	SOME Loss of life Widespread health problems	WIDE	Loss of income from low market prices (Income impacts)
Localized weather and pest problems	LOW	HIGH TO MEDIUM	Accidents, illness predictable	Loss, damage or disease predictable	Low yield for some farmers

## Interaction of the Holistic Approach



A **Holistic approach** means the focus is on:

- the whole farm / farm household income
- all sources of risk and correlation
- the whole set of policies and strategies

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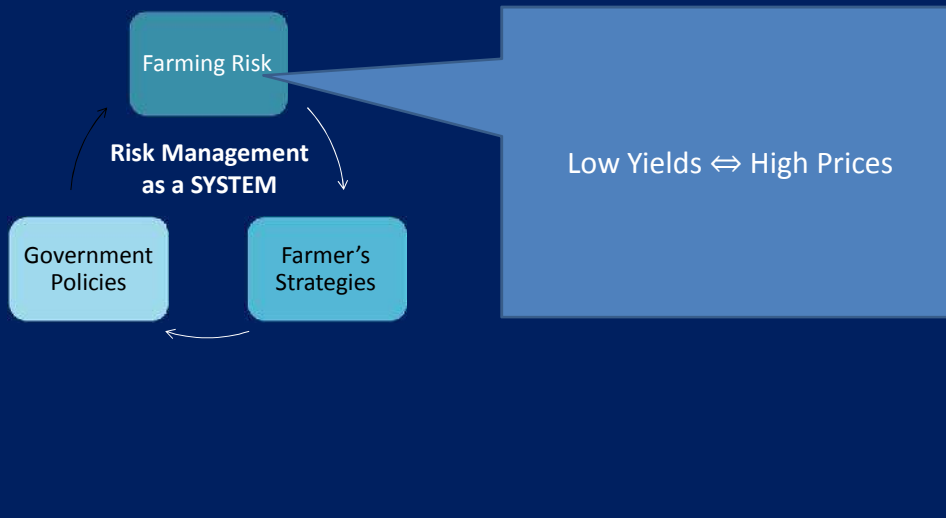
## Interaction of the Holistic Approach



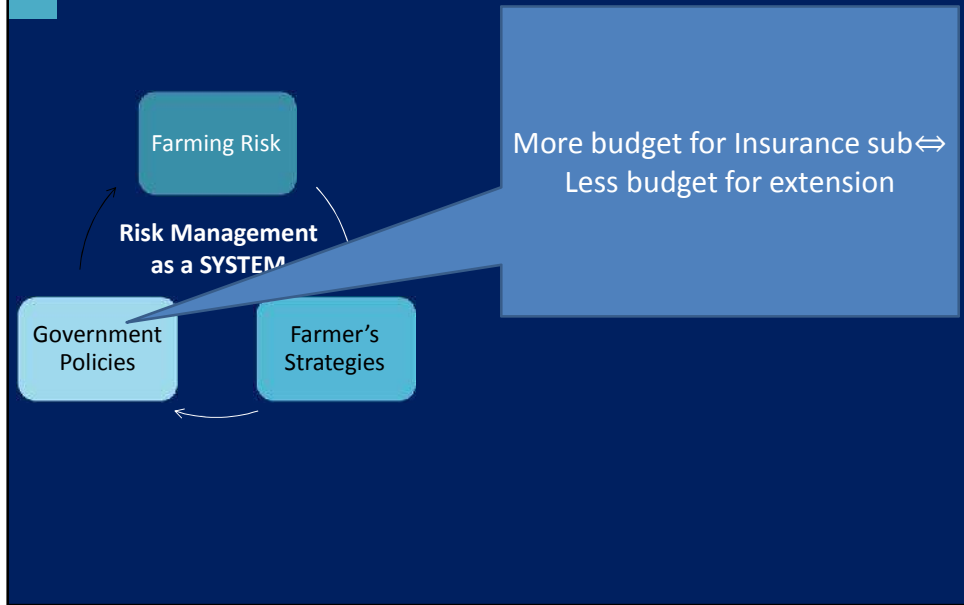
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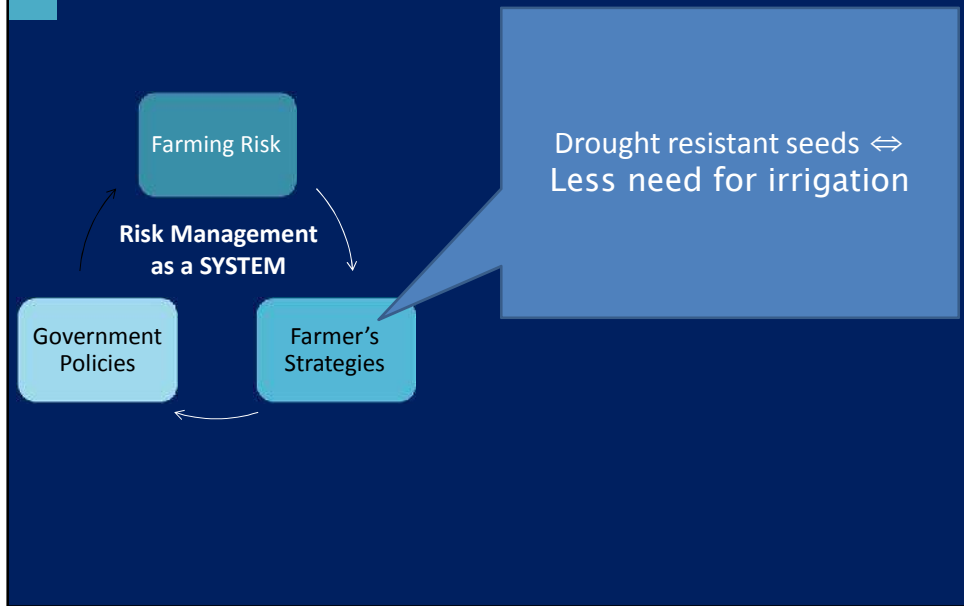
## Other Interactions



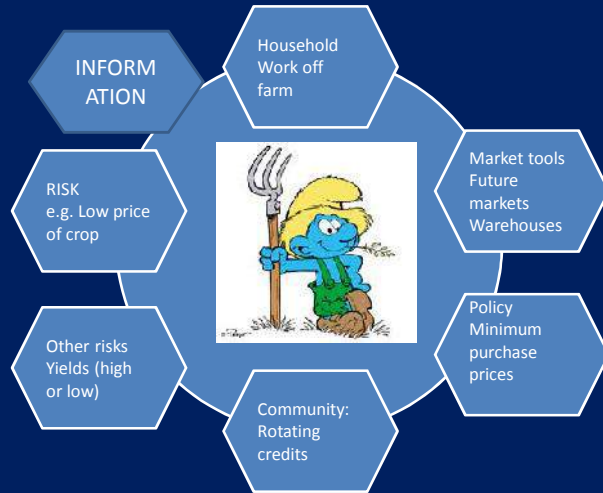
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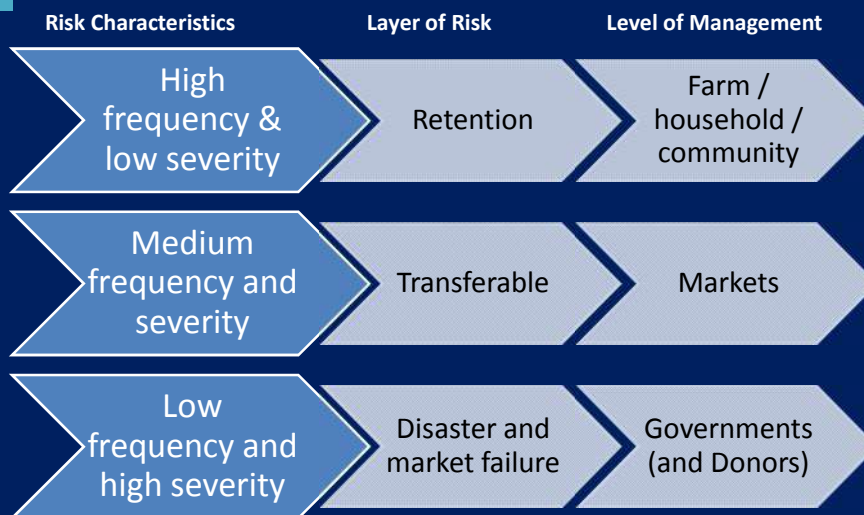


# Holistic at work for Small holders



WHY A HOLISTIC APPROACH TO ARM

## Layers of risk and Levels of Management



Source: OECD (2011)

## Wrap-up

- The risk management system of smallholders is complex: many elements all interrelated
  - Need of Information and Risk Assessment capacities
- Risk characteristics determine different types of risk and different options to manage
  - Frequency, severity and correlation
- A risk management system for Uganda requires different layers of responsibility

## 2.3. KEY QUESTIONS

1. Based on your experience and working environment, what are the main sources of risks for smallholder farmers?
2. For each identified type of risk, which are the main factors/drivers?
3. What are the main effects/impacts on smallholder farmers?

## 2.4. GROUP WORK

1. What are the main knowledge and skills needs to better manage the identified risks for smallholder farmers?
2. Please define the role and responsibilities of your organization in improving the management of risks for smallholder farmers?

## 2.4. GROUP WORK

1. Farmer Organization
2. Wholesaler
3. Micro Finance Institution
4. NGO
5. Input Provider
6. District Services (Extension)

# SESSION 3



### Session 3.1. Tools for risk assessment

1 July, 2015 | Kampala, Uganda



#### WHAT RISKS?



**OVERVIEW.** Uganda's agriculture is affected by a multitude of risks. Often, risks are inter-related and the impact is increased by the constraints that farmers face, in particular smallholders.

Input risk	Seeds do not germinate or pesticides/herbicides do not kill pests/diseases
Weather risk	Yields are low because of droughts, heatwaves, etc.; fields are flooded/washed away
Biological risk	Pest & diseases kill crops and lower yield; kill animals or reduce production (e.g. milk)
Infrastructure risk	Produce is rotting away in storage, gets attacked by mice/insects/etc.
Price risk	Lower income due to low prices on markets

In some part of the country, also security issues can lead to losses, e.g. cattle raiding in the North East.

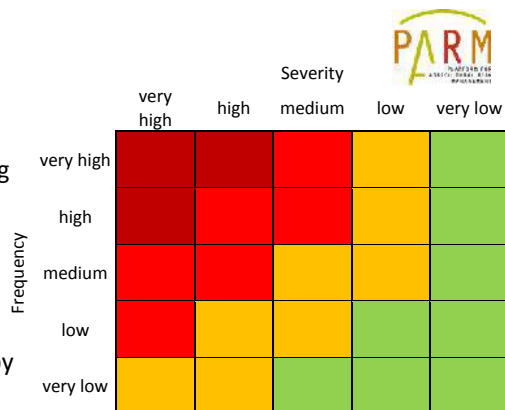
Farmers are also affected by personal risks, such as health.



## ANALYZING RISK

Uncertainty is one of the main characteristics of risk: uncertainty on when something will happen (frequency) and how severe the impact will be (severity).

A risk matrix can help to prioritize different risks faced by farmers in Uganda.



## FREQUENCY VS. SEVERITY

**GROUP DISCUSSION.** Look at the following farm. Which of the two risks poses are more severe threat to the livelihood of the farmer? Why?

Farmer John in Masindi has 2 hectares of land. On 1 hectare he grows maize and on the rest he grows other crops (vegetables, etc.).

In a good year he can harvest 2,000 kg maize on one hectare. But because of low quality pesticides he gets attacked by minor pests every year. In the last 10 years (2004-2014) he lost 10% of harvest (200 kg) on a yearly basis.

Then, in 2014 the long rains did not bring enough rains and the whole area suffered a severe drought. John lost 90% of his maize (1,900 kg) due to drought.



## FREQUENCY VS. SEVERITY cont'd



**GROUP DISCUSSION.** Look at the following farm. Which of the two risks poses are more severe threat to the livelihood of the farmer? Why?

Pest risk: low severity, high frequency - farmer John loses 200 kg every year for 10 years, in sum he lost 2000 kg

Drought risk: high severity, low frequency – farmer John loses 1900 kg in 2014

Mathematically, pest risk is more severe BUT we do not know yet long term cost of drought, for example, maybe John had to sell 1 hectare of land to cover cost of food in 2014. Then he has less land in the future to plant and generate income.



## IMPACT OF RISK



**IMPACT ON FARMERS.** (Smallholder) farmers face severe consequences from risks. Farmers are, for example, forced to reduce food consumption

The impact of shocks often permanently damages the farmers' capacity to generate income: for example, the sale of livestock and land means reduced income sources for the future..



## ASSESSING SEVERITY



For the severity assessment we have methodological problems:

1. Not always easy to identify root cause of problem (e.g. bad input)
2. Long term costs are not always known
3. "Normal" yields are not always known

For the assessment we always need to consider two aspects:

1. How much does the risk cost us on an annual basis?
2. What is the worst that can happen (worst-case scenario)?



## RISK SEVERITY & FREQUENCY



Overview on risk frequency and severity for Uganda

Risk	Frequency	Average	Worst case
Crop pest & diseases	Annual with fluctuating probability	205,500,000	298,000,000
Livestock pest & diseases	Annual with fluctuating probability	91,600,000	91,600,000
Input risk	Annual with constant probability	16,550,000	22,400,000
Droughts	On average every 5.5 years for large events, smaller events on an (almost) annual basis	44,402,581	383,454,390
Post harvest revenue loss	Annual with variations	97,179,571	167,951,914
Price risk food & cash crops	4 year return period for major crops	100,122,503	165,197,781



## RISK MATRIX

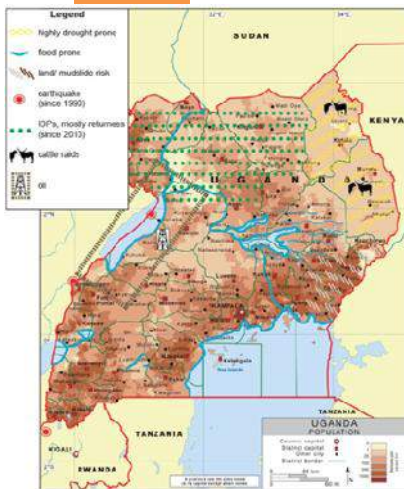
Risk matrix for Uganda



Risk Category	Risk	Severity Scale	Frequency Scale
Input risk	Quality inputs	medium	very high
Weather risk	Droughts	medium	medium
	Floods	very low	high
	Hailstorms	very low	very high
	Thunderstorms	very low	very high
	All other natural risks	very low	very high
Biological risk	Crop pest & diseases	very high	very high
	Livestock pest & diseases	high	very high
Infrastructure risk	Post harvest loss	high	high
Price risk	Price risk food & cash crops	very high	high
Security risk	Karamoja cattle raids	low	high



## GEOGRAPHICAL & VALUE CHAIN DIMENSION



Risks do not affect all regions and all farmers in the same way.

Risk Category	Risk	Food crops	Cash crops	Livestock	Fisheries
Input risk	Quality inputs				
Weather risk	Droughts	red	red	red	green
	Floods	yellow	yellow	green	green
	Hailstorms	yellow	yellow	green	green
	Thunderstorms	yellow	yellow	green	green
	All other natural risks	green	green	green	green
Biological risk	Crop pest & diseases	red	red	green	green
	Livestock pest & diseases	green	green	red	green
Infrastructure risk	Post harvest revenue loss	red	red	green	green
Price risk	Price risk food & cash crops	red	red	yellow	red
Security risk	Northern Uganda insurgency	green	green	green	green
	Karamoja cattle raids	green	yellow	green	green



## HOW TO DEVELOP RISK ASSESSMENT?



Starting point:

1. Draw a map/structure of your agricultural segment, value chain, etc. (it sometimes help to draw it in chronological order, e.g. “farmer first buys seeds”, “farmer grows crop”, etc.).
2. Assign risks for each of the stages (e.g. quality of inputs for the first phase where farmer buys seeds) or as a constant risk (e.g. security issues during each phase).
3. Assess the frequency and the severity of the risk (exact quantification is not always possible, sometimes enough to distinguish between high, medium, and low impact).
4. Prioritize risks based on the assessment (if possible, just 2-3 major or high priority risks; there is always an element of subjective assessment).
5. Identify the root causes for the priority risks identified.

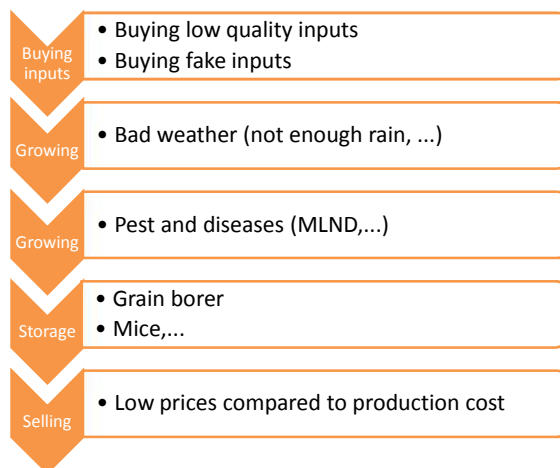
After these five steps strategies and tools can be developed.



## HOW TO DEVELOP RISK ASSESSMENT? cont'd



Example: Maize



	Impact	Frequency
Buying inputs	Medium	Low
Growing	High	Low
Growing	Medium	Medium
Storage	Medium	High
Selling	High	Medium



## HOW TO QUANTIFY?



It is not always possible to exactly determine the cost of each risk due to:

1. Lack of data/information
2. Interlinked risks (herbicides and pest)
3. Effect of other constraints (e.g. lack of roads)

### **We have to be creative!**

How to determine effect on whole district/value chain from information from a few farmers only? → we need to get to a minimum of observations to draw conclusions, e.g. visit at least 5-10% of locations for a district, interview at least 50-60 farmers (for example through focus group discussions).



## QUANTIFYING RISK



### INPUT RISK

- Difficult to assess: did seed not germinate because of low quality, fake, weather factors, wrong management, etc.?
- Sometimes only possible to assess frequency through e.g. newspaper reports, personal experience, etc.?
- New hotline available at Transparency International Uganda that may provide regional information (0800 280 280 - <https://www.facebook.com/pages/TIU-Agro-Input-Counterfeit-Hotline/855603557786268>).

### WEATHER RISK

- Difficult to know what is “normal” yield; but farmers mostly know what they harvest in average years.
- Direct effect of reduced yields can often be calculated for some years (5) based on memories of farmers.
- Important to look both at average losses and worst cases



## QUANTIFYING RISK cont'd



### PEST & DISEASE RISK

- Not easy sometimes to separate weather from pest risks (often attack together)
- Still, often people know how much they lost due to specific pests/diseases in most recent years (or a worst case year)
- Direct and indirect cost, e.g. livestock cost for disease control, treatment, and vaccination. Direct losses are associated with animal mortality, reduced milk production, and use of animal for traction.

### POST HARVEST RISK

- Difficult to assess due to two opposing effects (weight loss and price).
- Regional data is available from APHLIS (<http://www.erails.net/UG/aphlis/aphlis-uganda/Home/>) for major crops.



## QUANTIFYING RISK cont'd



### PRICE RISK

- Important to assess whether price drop is not simply due to very high prices in recent years.
- Price data is available at Farmgain (<http://farmgainafrica.org/>) and Infotrade (<http://www.infotradeuganda.com/>)
- We need to look at how profit margins have developed (e.g. how much did production cost 5 years ago and how much was revenue; compared to production cost of today and revenue of today).

**PLENARY DISCUSSION.** In 2014 John invested UGX 200,000 on 1 ha of maize (labor, inputs, etc.) and he earned UGX 300,000 (local price per kg 1500). In 2015 John invested only UGX 150,000 (because seeds are now subsidized) but prices dropped to 1250 per kg), so he earned only UGX 250,000. So in both years, John made UGX 100,000 profit. Did he suffer from a price shock in 2015?



## QUANTIFYING RISK cont'd



### PRICE RISK

#### PLENARY DISCUSSION.

Prices dropped significantly in 2015, so there was a price shock and John generated less income in 2015. But also input price dropped (due to subsidy from government), so he benefitted from the input price drop in 2015. The dropped input price could be the reason for lower market prices.

If prices dropped due to other reasons, John would have suffered from reduced profit.

AND: John actually suffered from the price shock because of inflation. He only earned as much as last year but prices for food, school, etc. have gone up in 2015.



## RISK ASSESSMENT EXERCISE



#### GROUP WORK.

1. Split up according to common interest/knowledge (e.g. commodity/area/etc.)
2. Develop an overview/map of your commodity/area/etc. based on value chain, timeline, or similar
3. Assign risks for each step
4. Assess frequency and severity of each risk (quantification might not be possible; simple ranking into high, medium, low severity and frequency might be enough).
5. Prioritize risks based on your assessment; identify two top priority risks
6. (Identify root causes of two top priority risks)





THANK YOU

## 3.2. KEY QUESTIONS

**PLENARY DISCUSSION.** In 2014 John invested UGX 200,000 on 1 ha of maize (labor, inputs, etc.) and he earned UGX 300,000 (local price per kg 1500). In 2015 John invested only UGX 150,000 (because seeds are now subsidized) but prices dropped to 1250 per kg, so he earned only UGX 250,000. So in both years, John made UGX 100,000 profit. Did he suffer from a price shock in 2015?



### PRICE RISK

#### PLENARY DISCUSSION

Prices dropped significantly in 2015, so there was a price shock and John generated less income in 2015. But also input price dropped (due to subsidy from government), so he benefitted from the input price drop in 2015. The dropped input price could be the reason for lower market prices.

If prices dropped due to other reasons, John would have suffered from reduced profit.

AND: John actually suffered from the price shock because of inflation. He only earned as much as last year but prices for food, school, etc. have gone up in 2015.



## 3.3. GROUP WORK

1. Split up according to common interest/knowledge (e.g. commodity/area/etc.)
2. Develop an overview/map of your commodity/area/etc. based on value chain, timeline, or similar
3. Assign risks for each step
4. Assess frequency and severity of each risk (quantification might not be possible; simple ranking into high, medium, low severity and frequency might be enough).
5. Prioritize risks based on your assessment; identify two top priority risks
6. (Identify root causes of two top priority risks)



# SESSION 4

# 4.1. MAPPING OF AGRICULTURE RISK MANAGEMENT INFORMATION SYSTEMS IN UGANDA

1 – 2 July 2015

AGNES ATYANG

## Introduction

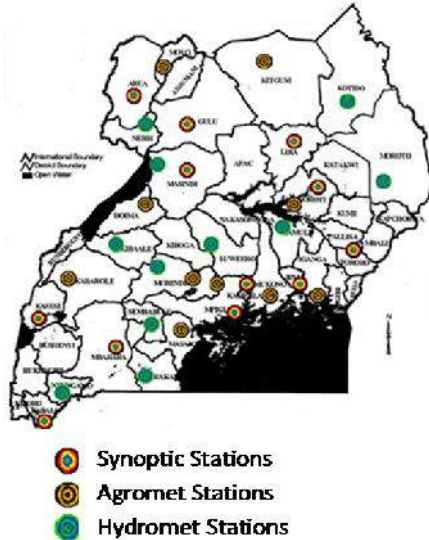
- Risk management in agriculture is an interaction between the sources of risk, farmers' strategies and government policies
- Sources of risk in agriculture include;
  - ▣ availability of genuine agricultural inputs,
  - ▣ volatility of prices of agro- inputs and products,
  - ▣ weather related hazards particularly droughts, floods and climate variability;
  - ▣ pests and diseases;

- Information systems - are knowledge infrastructures which facilitate the dissemination of information for risk awareness and mitigation, market decisions, and policy decision-making.

## 1. Weather and climate info

- Meteorological and climate information
  - Agriculture production in Uganda is rain-fed i.e. dependent on weather and climate
  - Weather influences farmers' decisions e.g. choice of agric. enterprise to engage in, crops to grow, when to plant, etc.
  - Main source of information is UNMA. Others FEWS NET and web-based [totoagriculture.org](http://totoagriculture.org)

## Data collection

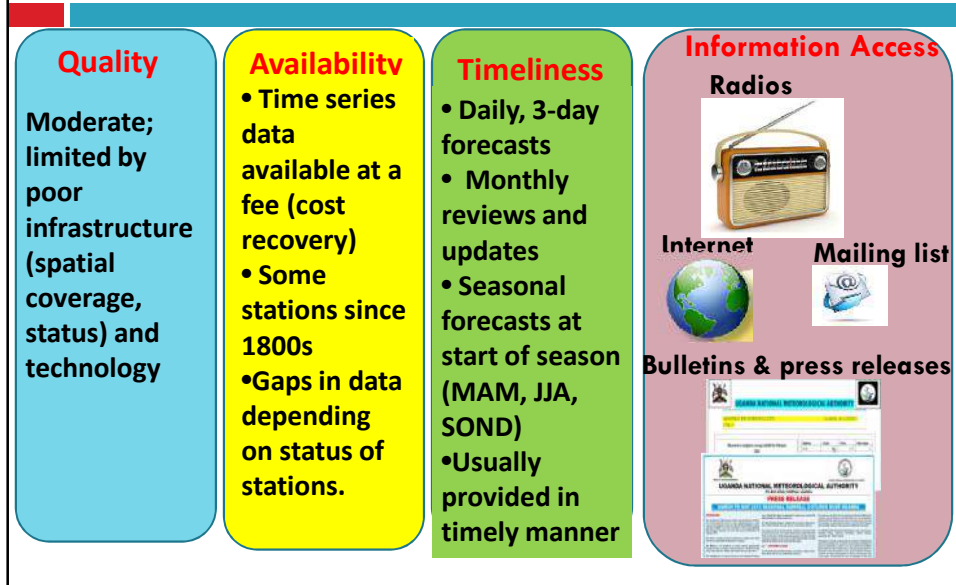


- Sparse distribution of weather stations
- spatial variability of the different meteorological zones not covered
- Operation affected by vandalism and insufficient maintenance of equipment
- Data is from weather stations, satellite, Regional & Global Met. Centres.

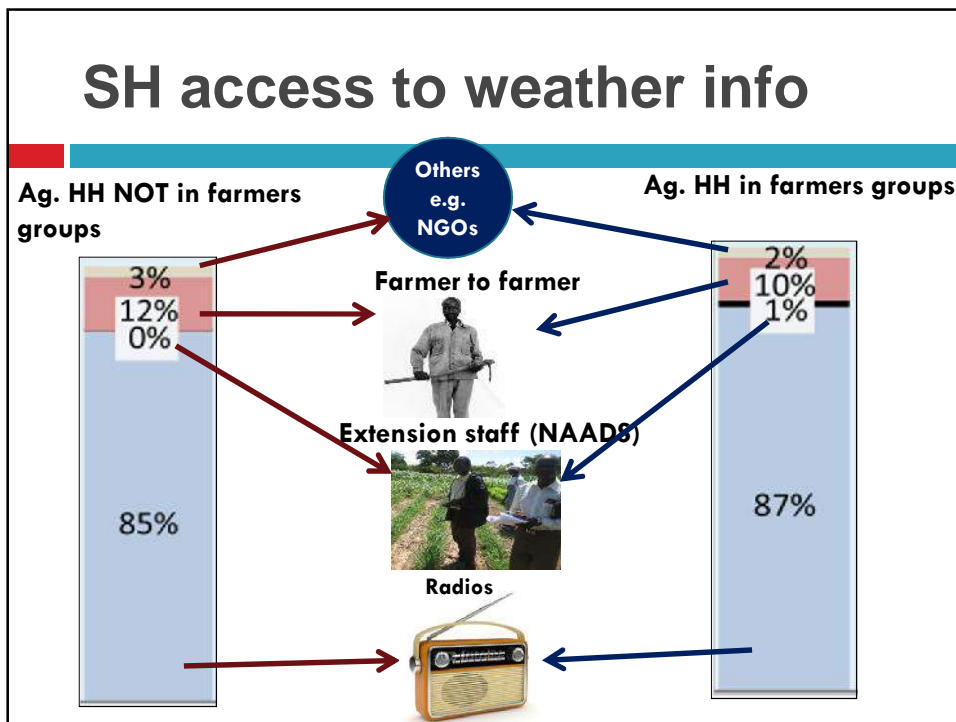
## Status of Met. stations

Station type	Existing (No.)	Fully operational (No.)
Synoptic	12	0
Agro-meteorological	17	7
Hydro-meteorological	15	5
Rainfall stations	150-300	60
Automatic Weather Stations	33	1
Radar	1	0
Upper Air	0	0
Pilot Sounding	0	0
Satellite receiving stations	1	1

# Aspects of Met. data/info



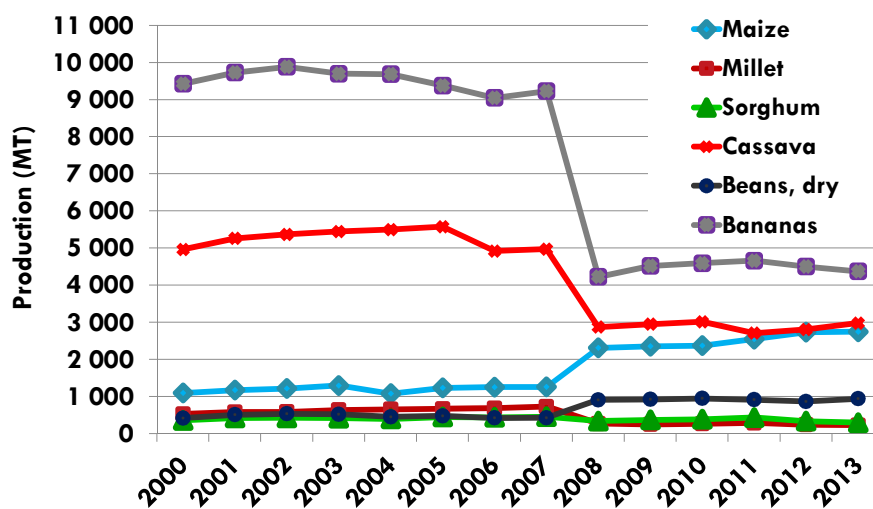
# SH access to weather info



### 3. Production and yield info

- Collaborative effort of UBoS & MAAIF
- Few annual stats collected to low capacity to collect and process data; information published annually is generated by imputation.
- Production data available for 15 selected crops aggregated at national level, for the period since 1980 to 2014
- Downloadable from <http://countrystat.org/>

### National Crop Production Trends (2000 - 2013)



## Aspects of prod. data/info

### Quality

Moderate;  
• Limited by capacity to collect & analyse at MAAIF

### Availability

- Production at **national** level
- 15 primary crops covered
- Since 1980 to current (2014)
- Disaggregated data **not** available
- Yields **not** available

### Timeliness

- Annual, by mid year

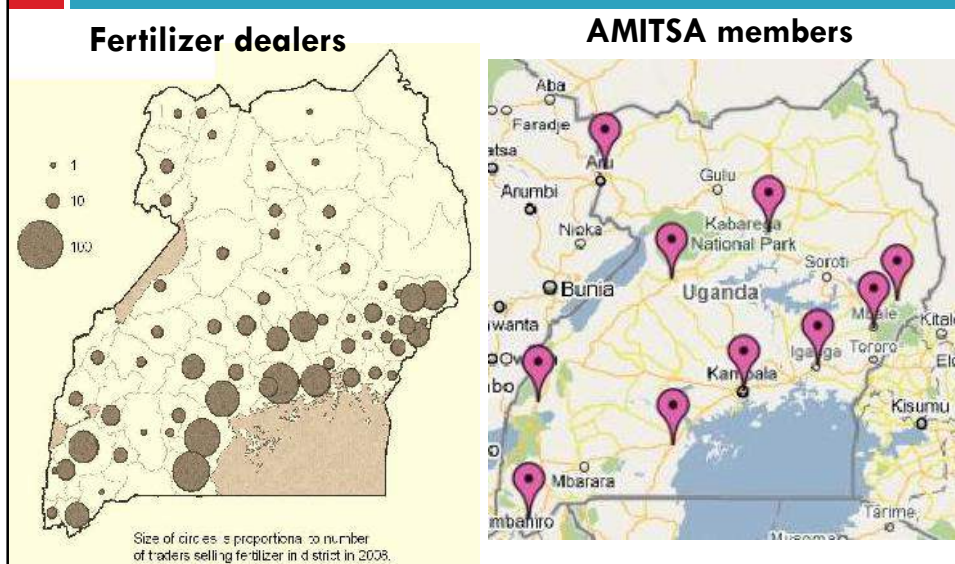
### Information Access

- Web based <http://countrystat.org/home.aspx?c=UGA>.
- UBOS Annual Statistical Abstracts
- Access by policy makers only.

## 4. Inputs information system

- Provided by Agricultural Input Market Information and Transparency System (AMITSA) – aims to improve access to market and technical information on agric. inputs within COMESA and EAC Region.
- Monthly prices of fertilizers, seeds (maize and bean), pesticides and herbicides in 11 markets collected from members
- Prices available from 2010, albeit with some gaps for specific commodities
- <http://www.amitsa.org/>

## Distribution of Input Dealers



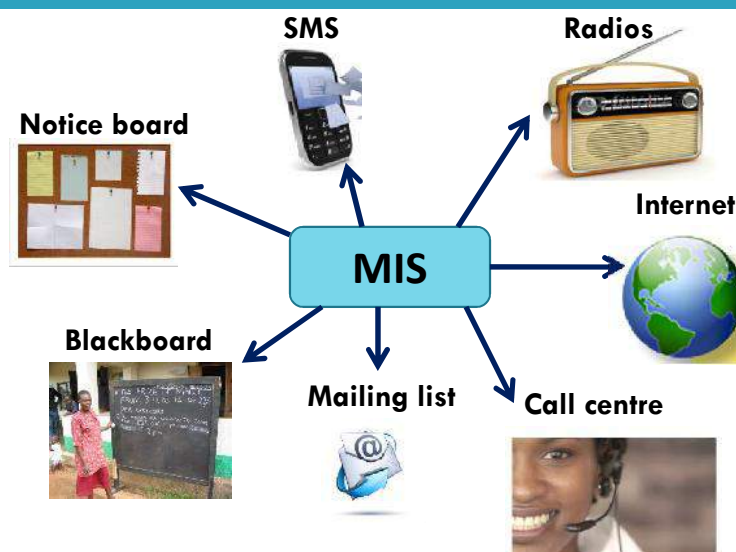
## Accessibility by smallholders

- AMITSA provides contact of dealers in genuine inputs (members)
- Price of fertilizers from AMITSA available monthly to Infotrade subscribers and online
- Dealers offer advice to farmers on the use of fertilizer and other inputs
- Information on availability of genuine inputs or prices **not** accessible to majority of smallholders.

## 5. Market info (food commodities)

- Primary providers are Infotrade and Farmgain, redistributed by Grameen
  - ▣ Infotrade - 35 markets, 47 commodities
  - ▣ Farmgain - 18 markets, 37 commodities
  - ▣ Wholesale and retail prices
- Available thrice a week/weekly from main district markets
- Bulk data (historical) available for trend analysis at a fee, up to 20 years

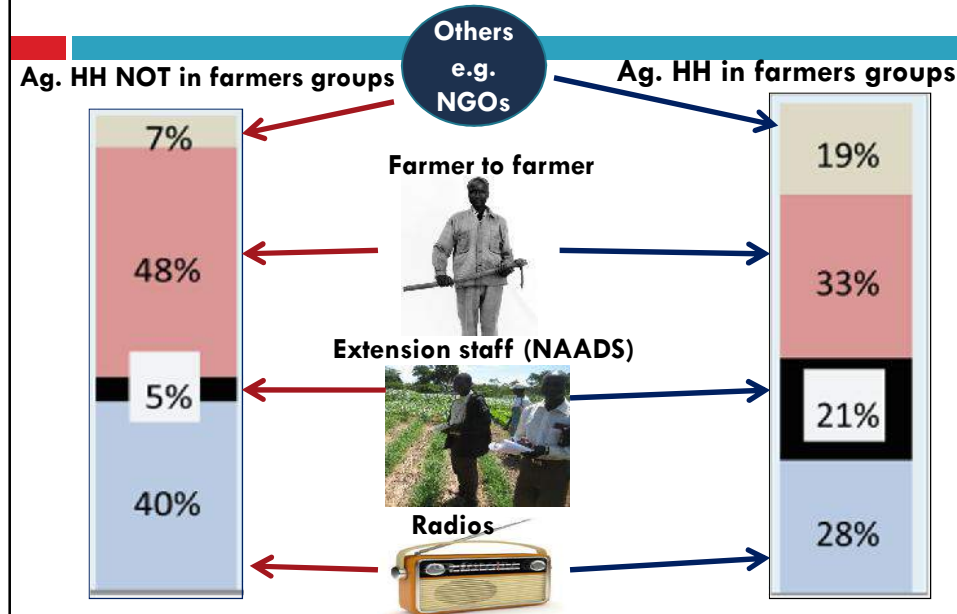
## Access to market info



## 6. Pests and diseases info

- Information needed on:
  - ▣ location of outbreaks to avoid getting infected materials, spreading
  - ▣ Appropriate control methods
- Farmers report outbreaks to extension staff, who relay to MAAIF as appropriate.
- Information on control is provided during extension visits, radio and farmer-to-farmer sharing

## Smallholder access to P & D info



## Summary of IS

IS	Availability	Timeliness	Quality	Accessibility
Weather	Time series available Daily, 3-day, seasonal forecasts Regional, district	Start of season	Moderate	Radio, farmer to farmer, extension agents
Production/ yield	Time series since 1980 (selected) Annual production at National level	Mid year	Moderate	Annual statistics abstracts, <a href="http://countrystat.org/">countrystat.org/</a>
Inputs	Time series (2010) Weekly/Monthly	On demand	Good	Limited SMS (Infotrade), web Majority no access
Market prices	Time series limited (a few since 2000) District level Weekly	On demand (current)	Good	SMS, radio, blackboard, notice board, mail, web
Pests and diseases	No systematic collection, outbreaks reported	Varied	Moderate	Radio, farmer to farmer, extension agents

## What differentiates IS for ARM

- Presents specific indicators on the variability of agricultural related variable such as rainfall, market prices, production, the frequency and severity of shocks
- Includes historical data with time series that allow to calculate indicators of variability or frequency or severity of shocks

- Provides early warning about risks
- Provides forecasts of upcoming events
- Provides information at micro level as well to estimate the risks of farmers and households

## Conclusion

- Most information systems don't reach the majority of smallholder farmers in Uganda.
  - ▣ Awareness
  - ▣ ICT (phone)
  - ▣ Costs (SMS, subscription, etc)
  - ▣ Coverage/level-perception of relevance

**Thank you**

## **Weakness of the Ugandan IS**

- Information is not presented in the form of indicators of variability or frequency / severity of events
- Time series not easily available
- Household level (micro) data not available (national)
- No integration between the different systems

## 4.2. Early warning Systems in Uganda

Seminar on Agriculture Risk  
management (ARM)

Deus Senzira, MAAIF

### ***What is Early Warning (EWS)?***

- Provision of timely and effective information, through identified institutions, that allows individuals exposed to risks to take action to avoid or reduce their risk and prepare for effective response.

## *Elements of an EWS*

- *Risk Knowledge*
  - Risk assessment (types, severity, frequency)
- *Monitoring and Predicting*
  - Provide timely estimates of the potential risk faced by communities, economies and the environment
- *Disseminating Information*
  - to the potentially affected locations. The messages need to be reliable and simple to be understood by authorities and public
- *Response:*
  - Coordination and appropriate action plans are a key point in effective early warning.

## *Early warning systems in Uganda*

- Meteorology early warning system (UNMA): weather/rainfall, extreme weathers (el Niño (enhanced r.f), la Niña, droughts)
- MAAIF early warning system for food security
- FEWSNET. Famine early warning system (USAID).

- Karamoja Drought early warning system (DEWS) by ACTED -
- National early warning subcommittee in OPM for Disasters.
- National emergency co-ordination and operations centre NECOC (sectoral early warning systems report to NECOC to handle issues of emergency)

### *The Early warning system in MAAIF*

#### Roles

- To provide timely seasonal advisory messages to farmers (MAAIF-DLG-Farmer)
- To provide timely information on food security situation (IPC)

## *Major Activities of MAAIF EWS*

- Prepare seasonal farmer's advisory messages on
  - risks
  - vulnerable areas
  - proposed measures to mitigate these risks
- Production assessments and forecasts. Main indicators are
  - Rainfall amounts received
  - Acreage planted
  - Quantities of seeds/seedlings planted, crop/livestock condition
  - Pest and disease outbreaks

- Post harvest assessments.
  - areas of food surplus and shortages
  - how long the available food will take or areas that may require food aid.
  - monthly price bulletin and a quarterly pest and disease bulletin
- MAAIF EWS is coordinating IPC activities in Uganda
- Develop and disseminate IPC products for decision making and action.



# Monthly Food price Bulletins

Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)  
 P.O.Box 302, Entebbe Uganda  
 E-mail : [pa@agriculture.go.ug](mailto:pa@agriculture.go.ug)  
[pa@mail@info.com.co.ug](mailto:pa@mail@info.com.co.ug)  
 Telephone: 0414 320 987/ 0414 320 004



## FOOD PRICE BULLETIN

February 2015



### Highlights

This publication gives the underlying wholesale or consumer prices for selected food commodities that are mostly consumed in Uganda. It too are Matooke, Sweet potatoes, Irish potatoes, Greenish beans, Cassava Flour, Dried beans, Maize flour, Millet Flour, Beef, Fresh milk and Ground nuts. The prices used are consumer prices that were collected by the Uganda Bureau of Statistics from seven selected urban centres of Kampala, Jinja, Mbale, Nalanda, Moroto, Gulu and Arua.

The prices reported are average prices per Kilogramme (one standard unit of measurement) that were collected from individual outlets during the period 1<sup>st</sup> to 15<sup>th</sup> of each month of January 2014, December 2014 and January 2015.

The general observation is that prices within the country vary in terms of time and geographical area. At the end of this publication, data on consumer prices for the months January 2013 to present have been attached (Tables 13-19).



# Quarterly Pest and Disease Bulletin

Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)  
 P.O.Box 302, Entebbe Uganda  
 E-mail : [pa@agriculture.go.ug](mailto:pa@agriculture.go.ug)  
[pa@mail@info.com.co.ug](mailto:pa@mail@info.com.co.ug)  
 Telephone: 0414 320 987/ 0414 320 004  
 Fax: 0414 321 047/ 0414 321 010



## CROP DISEASE AND PEST BULLETIN

February 2015



### Highlights

The data was obtained from 219 and 16 plant clinics in 2013 and 2014 respectively in addition to survey reports. Fewer clinic data was submitted in 2014 following the halting of the NAADS program. Data is reported on Bananas, maize, cassava, beans, ground nuts, tomatoes, mangoes and citrus.

In bananas, Banana bacterial wilt (BBW) and banana weevils were the most recorded cases accounting for 45.2% and 19.4% in 2014 respectively; indicating a decline as compared to 2013.

For cassava, Cassava mosaic disease (CMD) and Cassava brown streak disease (CBSD) were the most recorded accounting for 58.8 and 16.6 of the diagnosed cases in 2014, which indicates a decline in CBSD and an increase in CMD as compared to 2013.

## Strengths

- A server and database for early warning and food security. A web link to the MAAIF website is in the process
- Drought Early Warning System tool developed by ACTED for Karamoja. It's a community EWS
- ARC GIS tool
- Qualified and skilled Staff

## Challenges

- UNMA forecasts come late when the seasons have started so advisory messages are done late
- Inaccurate forecasts
- Inadequate skills and knowledge on remote sensing and GIS
- Inflow constraints. Poor feedback from end users
- Inadequate funding for disseminating the advisory messages

## Support Required

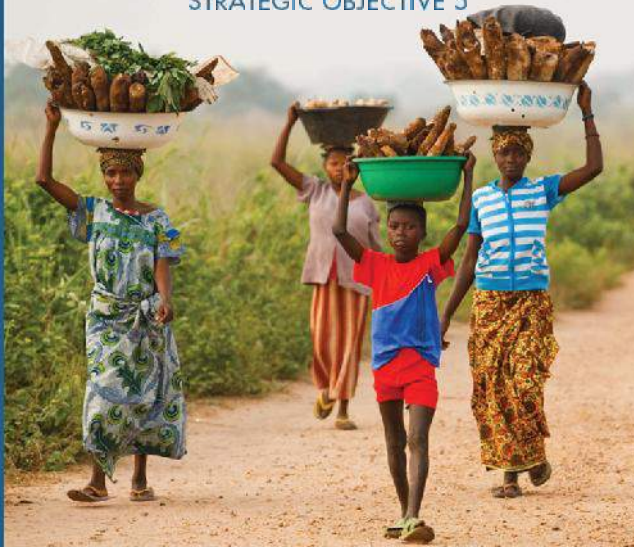
- Capacity Building (GIS and remote sensing)
- Scale up the community early warning system which was started by ACTED in Karamoja to other areas
- Improve the system at community level
- Support to continue with IPC activities in Uganda. Assessments to generate data and analysis workshops
- Support in the dissemination of early warning farmers advisory messages
- Livelihood analysis to generate baseline early warning data on the various risks

*Thank  
You*

4.3.

## INCREASE THE RESILIENCE OF LIVELIHOODS TO THREATS AND CRISES

STRATEGIC OBJECTIVE 5



### MAIN SHOCKS



Natural disasters



Food chain emergencies of transboundary or technological threats



Socio-economic crises



Violent conflicts

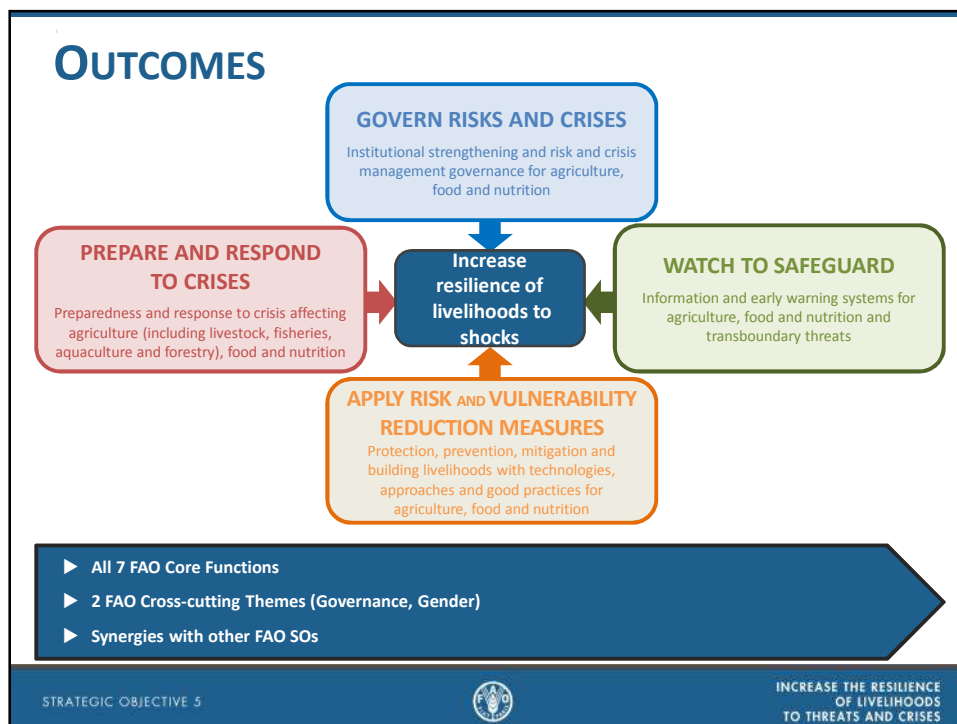


Protracted crises

STRATEGIC OBJECTIVE 5



INCREASE THE RESILIENCE OF LIVELIHOODS TO THREATS AND CRISES



### **DROUGHT EARLY WARNING SYSTEM (DEWS), KARAMOJA - EXAMPLE OF EW AT LOWER LEVEL**

- **Managed by Agency for Technical Cooperation and Development (ACTED)**
- **Started in 2008 in Nakapiripirit District later expanded to rest of Karamoja.**
- **Aim: provide timely information on risk of drought to inform early initiation, implementation of mitigation and response measures.**

## **DEWS, KARAMOJA - EXAMPLE OF EW AT LOWER LEVEL**

- **Indicators collected at household, kraal, market level:**  
**HOUSEHOLD INDICATORS:** types of food eaten, type of crop(s) planted, crop condition, time spent to fetch water, type of water sources, quantity of water at household level, freedom of movement, coping means
- **MARKET INDICATORS:** price of firewood, charcoal, and price of casual labour
- **KRAAL INDICATORS:** livestock body conditions, access to grazing areas, market prices, the type and number of animals available in the market, and migrations to and from the communities
- **REMOTE SENSED DATA:** rainfall



## **GAPS/CHALLENGES, OTHER KNOWLEDGE**

- **Data collection not regular and mainly aggregated at national level, limited data at at lower levels**
- **Data reported along/within administrative structure, analysis within livelihoods difficult**
- **Other knowledge: indigenous information, explore how this can be included in the analysis.**



#### 4.4. KEY QUESTIONS

Which information sources do you use to assess risks in agriculture?

What are the main gaps to obtain relevant and timely information on risks faced by smallholder farmers?

1. Farmer Organization
2. Wholesaler
3. Micro Finance Institution
4. NGO
5. Input Provider
6. District Services (Extension)

#### 4.5. GROUP WORK

You are a Farmer Organisation/Group and your smallholder farmers will likely experience a risk of:

1. Pests on crops
2. Animal diseases
3. Price variations
4. Low quality of inputs
5. Drought/ Floods
6. Constraints in Storage Facilities

1. Where the Farmer Organisation/Group can get useful and timely information on the identified risk?

2. What are the main challenges in getting useful and timely information faced by the Farmer Organisation/Group?

3. How the Farmer Organisation/Group may use such information to provide support to their smallholder farmers members in managing the risk?

# SESSION 5



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## 5.1. COOPERATIVE MODEL OF FINANCING AGRICULTURE

By Samuel Sentumbwe

Email: [samuel.sentumbwe@gmail.com](mailto:samuel.sentumbwe@gmail.com)

: [ssentumbwe@uca.co.ug](mailto:ssentumbwe@uca.co.ug)

PARM Meeting.

Hotel Africana 1<sup>st</sup> – 2<sup>nd</sup> July 2015



## PRESENTATION OUTLINE

- Background
- Govt's Microfinance & Agric. Prod setting
- Where is the missing link?
- The ACE model and how it tries to address these challenges
- Achievements so far
- Constraints to the model



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## ABOUT Uganda Co-operative Alliance

- A 1961 established umbrella organisation for co-operatives in Uganda.
- At least 4/10 Farmers is a member.
- Growing at an annual rate of about 5%

### The Mandate:

1. Advocate for friendly cooperative policies.
2. Educate and train members.
3. Mobilize resources for co-operative development.



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## Activities

### Agribusiness Dept

- Provide strategic support to the agricultural co-operatives
- Provide extension services to member farmer
- Advocate for friendly agricultural production and marketing policies
- Supports members in Value Chain development.

### Micro-finance Dept

- Provides strategic SACCO support services.
- Offers consultancy services to the sector
- Provides advisory services to UCCFS (the central finance facility) and other players in the SACCO sector
- Carries out advocacy and policy dialogue in Uganda for the benefit of the SACCO sector



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## GoU's Microfinance & Agric. Prod. Approaches

### Micro-finance Approach

- Liberalized sector (free entry & exit of the players)
- Encouraged micro finance institutions to qualify for regulation and supervision by the BOU under the MDI Law
- Mobilized people to form SACCOs
- Supporting SACCOs to build technical and logistical capacity to render services to their members
- Set up the MSC to provide whole sale loan funds (at low interest rates) to microfinance institutions to enable them scale up their out reach.
- Set up the Agricultural credit facility????????????????????????????????



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## GoU's Microfinance & Agric. Prod. Approaches

### Agricultural Production & Marketing Approach

- Liberalized sector
- Freedom of operation by practitioners, promoters and supporters
- Mobilized farmers to form groups (most of them being informal)
- Provided agricultural extension services to farmers through NAADS



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## Where is the missing link in Financing Agriculture?

Disjointed interventions.

The micro-finance and agricultural production & marketing approaches should be integrated.

Marketing still Weak.

Value addition, post harvest handling & processing and warehouse system need to be properly developed.

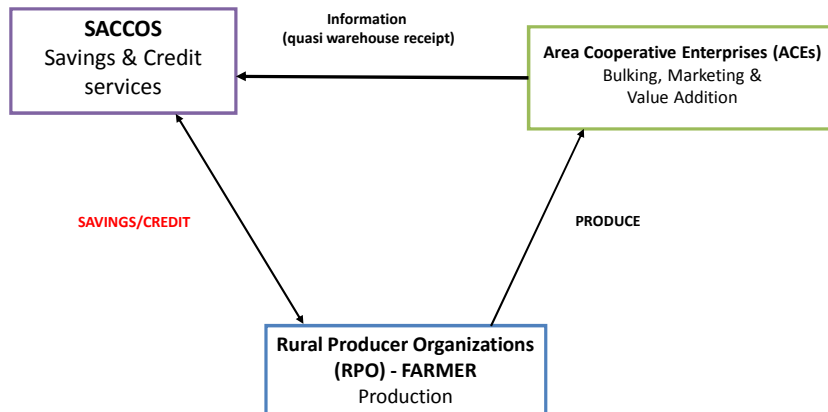
Need for proper/stronger regulation mechanisms.



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## The Area Cooperative Enterprise Model



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## Rural Producer Organizations (RPO)

Is a set of primary societies (minimum of 3 RPOs)

Made up of a minimum of 30 members each

Usually formed at village/parish/sub-county level

Major role is to collectively produce up to 3 agricultural products of their choice.

Produce is then transferred to the ACE stores and receipt issued.

Members can access financial services from their SACCO at either production or post harvest



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## The Area Co-operative Enterprise (ACE)

A secondary level co-operative whose membership is made up of several RPOs.

Does the value addition (bulking, cleaning, grading, packaging etc.)

Markets the produce on behalf of its members.

Issues a receipt to the farmers that acts as collateral to the SACCO

Sell farmers produce through the SACCO



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## Between SACCOs and RPO

SACCO is mainly owned by farmers in the RPOs

SACCO raises capital through membership fees, selling shares, mobilizing savings and acquiring credit.

Provides credit services at the best possible terms to its members.

The farmers also stand to benefit by earning dividends accruing from the SACCOs operations.



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## Achievements

- About 80 ACEs have been established in the country and are well linked to SACCOs.
- The ACE and Unions are beginning to enter into long term contracts with multinational orgs. and large companies like WFP, Beer Companies and Regional trade companies.
- ACEs are being used to channel other financial services like insurance (life, medical, crop insurance etc)
- The model is being duplicated by many other organizations



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## Constraints

- Inadequate storage facilities to enable ACEs store their members' produce
- The linkages have been weakened by non performance of one of the players.
- Limited access to necessary logistics (e.g. heavy duty weighing scales, fumigation facilities, insurance, etc) for effective handling of the members' produce
- Inadequate loan funds in SACCOs to enable them extend longer term loans to farmers to access better farm machinery.
- On its part, UCA has not had enough resources to roll out the ACE methodology to many more communities.



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THANK YOU !!!



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## 5.2. KUNGULA INSURANCE IN EAST AND NORTH UGANDA



## WEATHER INDEXED INSURANCE(WII)

Why WII

Constantly changing weather patterns

Traditional agric insurance not ideal for smallholder farmers

Advanced in technology making it possible to monitor up to a pixel

Availability of 32 years plus meteorsat data

Development agency assistance in product development



## HOW WII WORKS

Traditional crop insurance is difficult to deliver in smallholder economies as it involves costly individual loss assessments and is prone to moral hazard and adverse selection.



## INDEX-BASED CROP INSURANCE

uses weather observations as proxies for losses in production or quality and does not require loss assessments.

Index-based crop insurance systems have lower administrative costs and

are less technically complex than traditional crop insurance,

Cons

exposed to basis risk (that is, mismatch between actual loss and insurance indemnity) and

only cover selected perils.



## KUNGULA INSURANCE

Currently 8 insurance companies

Covers livestock and crops

Perils drought and excessive rainfall using REI

Several pilot programs running or being implemented



## THE ROLE OF AGRIFIN INSURANCE

GDP - composition by sector

- ❖ agriculture: 23.1%
- ❖ industry: 26.9%
- ❖ services: 50% (2013 est.)

Labor force

- ❖ 17.4 million (2013 est.)

Labor force - by occupation

- ❖ agriculture: 82%
- ❖ industry: 5%
- ❖ services: 13% (1999 est.)

Unemployment

- ❖ total: 4.2% (2010)

Source *Index mundi* (2014)



## FINANCIAL INSTITUTION LENDING CHALLENGES

- ❖ fear of risk of non performance of loans if there were a drought.
- ❖ without access to loans, farmers could not purchase high quality inputs that would increase productivity.

*How smallholder farmers adapt to risk*

Assets depletion(challenges Restoring farm productive capacity is a slow process, because farmers face a buyers' market in the disaster year and a seller's market in the post-disaster year



## RISK TRANSFER USING WII

Help farmers manage weather (drought) risk;

- ❖ Facilitate farmers' access to agricultural credit by reducing the risk of smallholder loan default;
- ❖ Allow banks to expand their lending portfolio to the agriculture sector without increasing default risk.



## IFDC INPUT SCHEME STORY

The IFDC pilot scheme is targeting 5000 farmers in just 3 districts  
10000 targeted in the next 2 years.

- Voucher System
- Agroinput scheme



## CONCLUSION

Index-based weather insurance is not a panacea.

It is necessary to raise awareness of the limited role that weather insurance has in managing the larger spectrum of risks farmers face and to control these risks as much as possible within the program.

The two pilot phases in Malawi illustrated that problems related to production, marketing, and sale of crops can undermine credit repayment. *(source World bank report)*



CONT.

Insurance programs must be integrated into supply chains so that other risks related to agricultural production can be managed.

Effective index-based weather insurance contracts require reliable, timely, and high quality data weather station networks.



**CONT**

A committed meteorological services authority is essential to ensure adherence to strict quality requirements and an independent source of data for verification.

A long, clean, and internally consistent historical record to allow for a proper actuarial analysis of the weather risks involved.



CONT

An enabling legal and regulatory framework is necessary for the expansion of the program.

Client/stakeholder education and outreach is essential to establish successful micro-level insurance programs.

Lack of understanding of insurance can lead to dissatisfaction with the program and resistance to insurance purchase



Questions?



## 5.3. Rural Finance and Tools for ARM

**Julius M. Segirinya**

Agricultural Finance Specialist

GIZ/AGRUFIN Project

## Background

- ▣ Rural finance – provision of financial services to people who reside in rural areas.
- ▣ Rural finance is often interchanged with agricultural finance but there's a difference.
- ▣ Agriculture is the major source of economic livelihood for the largest proportion of the rural folk.
- ▣ The majority of people who live in rural areas are smallholder farmers – some estimates put this at over 92%.
- ▣ Smallholder farmers are impacted most by agricultural risks and other adverse events because of their limited capital base.

## Who is a Smallholder Farmer?

- Commercial agriculture is defined by many in terms of scale of production (acreage).
- Characteristics of small holder farmers – less than 2ha, low use of purchased inputs, low output relative to potential, low credit utilization, family labor, etc.
- Agricultural production on more than 2 ha is considered to be commercial while below that is taken to be subsistence – this leaves out the dimension of commodity value.
- High value crop/animal production can be done on relatively smaller plots of land on commercial basis e.g. a single acre of tomatoes is certainly commercial although one acre of maize is considered subsistence.

## What is Risk?

- Risk is the certainty that things may not work out as planned (*J. D. Von Pischke*)
- Agricultural credit risk – risk to the FI from a client's inability to meet his/her obligations as stipulated in the loan contract.
- Agricultural risks can be grouped into systemic risks and idiosyncratic risks.
- Agricultural risks pose the biggest threat to realization of farm production.

## Tools for Agricultural Credit Risk Mgt.

Measures	Specific Tools	Risk(s) Addressed
<b>1. Agricultural value chain financing interventions</b>	Trader credit	<ul style="list-style-type: none"> <li>- Price volatility</li> <li>- Production variability</li> <li>- Information asymmetry</li> </ul>
	Collaborative credit schemes	<ul style="list-style-type: none"> <li>- Price volatility</li> <li>- Production variability</li> <li>- Management risk</li> <li>- Limited collateral risk</li> <li>- Institutional capacity risk</li> <li>- Loan diversion risk</li> </ul>
	WR financing	<ul style="list-style-type: none"> <li>- Price volatility</li> <li>- Limited collateral risk</li> <li>- Institutional capacity risk</li> <li>- Information asymmetry</li> <li>- Liquidity risk</li> </ul>

## Tools for Ag Credit Risk Mgt. – contd.

Measures	Specific Tools	Risks Addressed
<b>2. Risk sharing and risk transfer</b>	Loan guarantees	<ul style="list-style-type: none"> <li>- Production variability</li> <li>- Price volatility</li> <li>- Limited collateral</li> <li>- High interest</li> </ul>
	Agricultural insurance	<ul style="list-style-type: none"> <li>- Production variability</li> <li>- Price volatility</li> </ul>
<b>3. Tying of funds to critical production stages</b>	Phased disbursements	<ul style="list-style-type: none"> <li>- Loan diversion risk</li> <li>- Management risk</li> <li>- Production variability</li> </ul>

## Tools for Ag Credit Risk Mgt. – contd.

Measures	Specific Tools	Risks Addressed
<b>4. Rigorous assessment of credit worthiness and cash flow</b>	Detailed agricultural loan appraisal tools	- Overall credit risk associated with borrower - Information asymmetry
	Agricultural loans data analysis tools	- Overall credit risk associated with borrower - Untimely disbursement
	Credit scoring	- Overall credit risk associated with borrower
<b>5. Negotiation of new loan repayment terms</b>	Loan rescheduling (ex-post)	- Production variability - Price volatility - Loan loss

## Tools for Ag Credit Risk Mgt. – contd.

Measures	Specific Tools	Risks Addressed
<b>6. Establishment of strategic alliances with development organizations</b>	Well designed and qualified technical training programs for farmers & farmer-groups	- Production variability - Price volatility - Management risk
<b>7. Setting floor commodity prices</b>	Minimum price guarantee contracts	- Price volatility
<b>8. Formation of marketing cooperatives</b>	Bulk marketing of produce	- Production variability - Price volatility

## Tools for Ag. Credit Risk Mgt. – contd.

Measures	Specific Tools	Risks Addressed
<b>8. Avoidance of high risk clients</b>	Borrower risk profiling	<ul style="list-style-type: none"> <li>- Production variability</li> <li>- Overall credit risk associated with borrower</li> </ul>

## Constraints for Reaching Final Beneficiaries

Tools	Constraints
1. Trader credit	<ul style="list-style-type: none"> <li>- Farmer exploitation by traders</li> <li>- Delayed delivery of inputs</li> <li>- Very few linkages to formal FIs</li> </ul>
2. Collaborative credit schemes	<ul style="list-style-type: none"> <li>- Limited number of agribusiness buyers/processors</li> <li>- Low institutional capacity to design agricultural lending products</li> <li>- Negative perception on agricultural lending</li> <li>- Side selling</li> </ul>
3. WR financing	<ul style="list-style-type: none"> <li>- High costs of collateral management</li> <li>- Shortage of standard warehousing facilities</li> <li>- Incidents of malfeasance (theft &amp; fraud) experienced in warehouses</li> <li>- Preference for larger scale operators as opposed to smallholder farmers or farmer groups</li> </ul>

## Constraints for Reaching Final Beneficiaries – contd.

Tools	Constraints
4. Loan guarantees	<ul style="list-style-type: none"> <li>- Poor design of loan guarantees leading to high losses</li> <li>- Negative attitude due to failed loan guarantee programs</li> </ul>
5. Agricultural insurance	<ul style="list-style-type: none"> <li>- Lack of weather infrastructure</li> <li>- Few successful experiences in Africa</li> </ul>
6. Credit scoring	<ul style="list-style-type: none"> <li>- Absence of expertise needed for development of credit scoring models</li> <li>- High cost of developing credit scoring tools</li> <li>- Failure to appreciate benefits of credit scoring in many FIs and danger of replacing prudent judgment with credit scores</li> </ul>

## Constraints for Reaching Final Beneficiaries – contd.

Tools	Constraints
7. Detailed loan appraisal tools	<ul style="list-style-type: none"> <li>- Failure of FIs to appreciate peculiarity of agricultural production finance</li> </ul>
8. Agricultural loan analysis tools	<ul style="list-style-type: none"> <li>- Lack of well designed agricultural lending tools</li> </ul>
9. Technical training programs for farmers and farmer groups	<ul style="list-style-type: none"> <li>- Inability of FIs to appreciate benefits of farmer trainings outside of the normal credit utilization trainings.</li> </ul>
10. Minimum price guarantee contracts	<ul style="list-style-type: none"> <li>- Few organizations and government agencies willing to set floor prices</li> <li>- Agribusiness buyers benefit from price volatility</li> </ul>

## Constraints for Reaching Final Beneficiaries – contd.

Tools	Constraints
11. Bulk marketing of produce	<ul style="list-style-type: none"><li>- Needs extensive farmer mobilization, training and systematic group formation processes</li><li>- FIs prefer to work only with well established farmer cooperatives</li></ul>
12. Risk profiling of borrowers	<ul style="list-style-type: none"><li>- Lack of agricultural lending technical skills in many FIs</li></ul>

**END**

**Thanks for listening!**

## **5.4. Platform for Agricultural Risk Management (PARM) Seminar at Hotel Africana Kampala**

**July 1<sup>st</sup> - 2<sup>nd</sup> 2015**

**Presented by Charles Sembatya  
VODP2 Hub Coordinator Eastern Uganda Mbale**

**Vegetable Oil Development Project –Phase 2**



Ministry of Agriculture, Animal Industry and Fisheries  
Vegetable Oil Development Project – Phase II

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## **VODP Goal and objective**

**Goal:** poverty reduction in the project area.

### **Objectives:**

- Import Substitution.
- Sustainable rural poverty reduction in project area through raising incomes of small holder producers.
- Improve the health of the population through increased intake of vegetable oil.
- Export Diversification.



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Vegetable Oil Development Project

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## Investment costs

- IFAD Loan (USD 52M),
- GOU (USD14M),
- Private sector (USD70M),
- Farmers (USD3.9M)
- KOPGT (USD4.4M),
- **Total funding USD 147million**



## Vegetable Oil Development Project

- Main partners: smallholder farmers, Government of Uganda and private sector (BIDCO)
- Support production and processing of oil palm to reduce reliance on imported vegetable oils and address low per capita vegetable oil consumption
- Combining small-scale production with large-scale processing and integrating small-scale producers into the wider economy

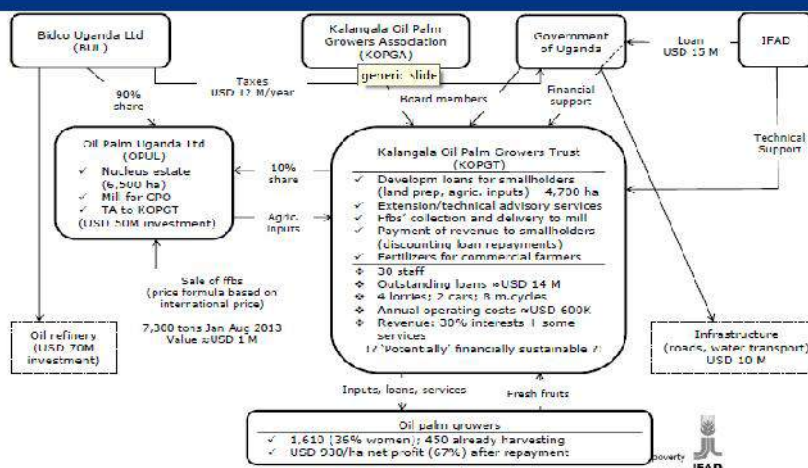


## Business model - Overview

- Nucleus estate and contract farming
- Smallholders: 1,600 farmers (600 women) harvest ffb & sell to OPUL; cultivate 3500ha
- KOPGT: Intermediary between OPUL and farmers; provides services to farmers (extension, loans, transport,...)
- OPUL: Buys ffbs; manages nucleus estate of 6500ha and oil palm mill
- GoU: Purchased and leases land for nucleus estate; support smallholder involvement (including KOPGT); transportation infrastructure



## The business model



## Business model - Ownership

- Farmers have a 10% minority share in OPUL and BUL owns the remaining 90%
- Land rights remain vested in smallholders, while BUL leases nucleus estate
- Nucleus estate: unencumbered public land and purchase of private land on a willing seller-willing buyer basis
- Increase women's access to land (encumbered public land, purchased private land, sharecropping arrangements, land fund, legal support, sensitization of men)



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## Business model - Voice

- Wide consultations with farmers and communities before implementation
- Farmers can influence decision making of company
  - 10% share in OPUL
  - Representation on OPUL board
  - Representation on Oil Palm pricing committee
  - Representation on the services cost panel
- Farmers' interests represented by KOPGT and KOPGA
  - Democratic elections
  - Representation at different levels (units, blocks, district)
  - Annual general meeting
- Strengthen women's membership & participation
  - Access to land, max and no min acreage, 578 women
  - Quota of 30%, acceptance of male community members
  - KOPGT staff and management



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## Business model - Risks

Stakeholders bear different risks:

### ● Smallholders:

- Purchase price determined through fluctuating market prices
- Production risks linked to weather, pest and other factors affecting harvest (mitigation: loans and “in kind” repayment system)
- Production risks linked to land tenure situation (mitigation: demonstration of legitimate access to land)
- Risk associated with loans (mitigation: co-guaranteeing approach)
- Risk of having ffb unduly rejected (mitigation: inspection officer)

### ● OPUL:

- Market risk as it has committed to purchase produce at guaranteed prices (demand is still very high)



## Business model - Reward

### ● Farmers (of which 36% women)

- Improved and steady incomes (\$390/month); fair price
- Say in decision-making of company
- Access to support package
  - Extension (appropriate venue, timing & material; female officers; attention to basic business and marketing skills)
  - Access to Inputs is guaranteed
  - credit (entry requirements do not exclude women)
- Assured market for produce

### ● Private sector

- Increased production (commercial benefits from investing in women)
- Increased sales
- Co-investment by farmers and government

### ● Government

- Increased tax incomes
- Increased investment in agriculture-FDI and New industry in place
- Employment creation



## Lessons Learned

- Effective partnership between rural smallholders and the private sector with positive development outcomes is possible
- Governments can play a positive role in agricultural investment projects (policy environment, mobilising smallholders, infrastructure and building trust)
- Choice of the business partners is very important willingness to work with smallholders
- Inclusion of smallholders in all decision-making processes has been key to the project's success
- Building partnerships takes time



## Price trends per kg of FFB in Kalangala (2010-2015)

Month	Y 2010	Y 2011	Y 2012	Y 2013	Y 2014	Y2015
January	215	407	391	340	397	359
February	215	431	401	369	381	373
March	227	434	397	378	396	
April	247	410	443	371	431	
May	246	398	466	358	407	
June	248	466	422	365	398	
July	252	428	386	370	390	
August	256	436	393	357	393	
September	280	468	408	377	355	
October	285	465	393	371	334	
November	328	422	349	379	346	
December	348	411	348	403	373	
Average annual price	262	431	400	370	383	366



## OIL SEEDS BUSINESS MODEL

The partnership target organized farmers – organizations registered at district and national level (e.g. Associations, Cooperative) to produce Soybean and sunflower for processors Under forward contracting arrangement



## OILSEEDS DEVELOPMENT

### Facilitating the establishment of a competitive oilseeds value chain

#### Framework for Oilseeds Value Chain Actor Linkages



## Outline of UDBL loan conditions

- Minimum Loan amount 100 million
- Fund up to 70% financing gap of the project
- Loan period-depends on crop cycle up to 10 months
- Interest rate is 10% per annum (0.833 per month)
- Security: personal guarantees of cooperative/association executive in addition to floating debenture
- Loan lead time depends on the documents submitted
- Grace period of 6-8 months (70% instalment after 8 months and 30% 2months)
- Loan processing fees is 3% of loan amount

## Process begins with submission to UDBL bank the following;

- i. **Business plan of the project /enterprise**
- ii. **Registration certificate of group**
- iii. **List of beneficiaries' individual loan request**
- iv. **Experience bulking together (past records for 3 seasons)**
- v. **Introduction letter for the cooperative/association and executive from LCs 1-3**
- vi. **Executive profile CVs (where they double in management)**
- vii. **Bank statement (recognized institution- preferred commercial bank)**
- viii. **Resolution to borrow and minutes to that effect**



## **SOME OF KEY AREAS OF APPRAISAL**

- Legal status and governance structure
- Past Financial performance
- Management structures in place
- Skill and knowledge (extension support and any other)
- Commitment to bulking
- Off-taker of produce (recognized)
- Record keeping (minutes of meeting, decisions taken)
- Executive competence and role,



## **VODP2 role in the partnership**

- Identify groups that are ready for credit using criteria provided by UDBL
- Worked with farmers to identify areas/activities that require financing
- Supported business plan development using format provided by UDBL
- Guiding the group to put in place system for proper record keeping
- Identification of other off-takers to partner with farmers
- Witnessed off-taking agreement between the farmers, UDBL and off-taker of the financed oilseed crops; soya bean, sunflower



- ❑ Supporting preparation of financial accounts of some groups
- ❑ Strengthening the governance of the associations (reviewing the structure and roles)
- ❑ Providing extension and technical training to financed groups in extension, marketing, postharvest and bulking systems; in a sustainable manner
- ❑ Offer technical advice to the bank regarding primary production finance of oil crops. The advice may involve project viability, risk mitigation and cost benefit analysis, and or advice on mode of disbursement



### Status of Loan repayment by March 2015 – Lira Hub

Repayment status	Alito Coop	Acwec Omio	Angetta	Totals
<b>Loan repaid</b>	290,378,000	196,936,000	174,135,000	661,449,000
<b>Loan balance</b>	104,996,910	336,075,550	361,555,000	802,627,460



## Soybean Loan Repayment update April 2015

DFA	Area planted Acre	Benef. Farmers	(Loan Disbursed) Million Ugx.	Recovery By April 2015
Mayuge	454	158	201	28%
Iganga	310	280	180	45%
Jinja	576	232	329.4	33%
<b>Total</b>	<b>1,340</b>	<b>670</b>	<b>710.4</b>	



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## Weakness in farmer institutions

- Governance – delays in calling AGM or General meeting
- Conflicting roles executive and management
- Poor record keeping
- Poor financial management
- Low source of income for the cooperative/association  
e.g membership, shares
- Inadequate skills especially financial skills
- Not easy to assess past financial performance e.g not using the bank accounts



## **Lessons learned from cooperatives should**

- Start the process at least a season earlier**
- Involvement of the office of the District Commercial Officer**
- Do Profitability analysis before considering getting loan**
- Requirements for reporting (computerized template from Bank) so access to computer is key**
- Regular preparation of financials accounts**



- Clustering of groups for ease of monitoring field performances**
- Request disbursements in tranches based on activity i.e. inputs, weeding harvesting to avoid accruing interest on idle funds**
- Each individual farmer having an account in bank for reduction in cash risks**
- Individual appraisal at farmer level is key**
- Commit cooperatives/associations to specific targets-for measurement of outcomes**



## Risks in Financing the oil seeds value chain

- Scattered small farm holdings
- Poor records management by the farmers
- Knowledge gap
- Limited outreach of financial institutions in rural areas regional disparities esp. Northern and Eastern parts being least served.(new districts not served )
- Unsuitable agricultural products (shorter repayment periods, commercial lending rates, limited borrower education). Knowledge gap in FI
- 63.7% unregulated financial institutions but also limited in terms of liquidity



## Cont....Risks

- The rural input markets are not yet adequately developed. and farmers in many parts of the country are unable to find improved farm inputs.
- Medium to long term finance is also largely still low for financing whole agribusiness chain.
- The cost of borrowing has remained too high (ranges 2.5 % to 20% interest per month). Not inclusive of other fees
- Agricultural insurance still un developed; due to the limited infrastructure e.g un reliable weather data



# THANK YOU



## CONTRIBUTION OF VODP2 TO OILSEEDS SUB-SECTOR DEVELOPMENT

### FARMER LEARNING PLATFORM INPUTS DISTRIBUTION

Period		Season 'A' and 'B' 2013							Season 'A' 2014						
Region	District	Farmer Learning Platform (FLP) Seed delivered to farmer groups				Soil Amendments		Pesticide (Litres)	Farmer Learning Platform (FLP) Seed delivered to farmer groups				Soil Amendments		Pesticide (Litres)
		Sunflower	Soybean	Sesame	G. nuts	Inorganic fertilisers (Kgs)	Inorganic fertilisers (Kgs)		Sunflower	Soybean	Sesame	G. nuts	Fertiliser	Rhizobia	
Busoga	Jinja	0	0	0	0	0	0	0	0	200	0	0	0	14	6
	Iganga	0	0	0	0	0	0	0	100	150	150	0	0	30	2
	Bugiri	40	200	0	100	100	0	0	100	360	0	0	100	24	15
	Kamuli														
	Mayuge														
	Namutumba														
	Buyende														
	Kaliro														
Namayingo															
Karamoja	Nakapiripirit														
Teso	Amuria	387	122	22	22	150	7	7	148	275	0	0	0	0	0
	Bukedea	220	140	0	50	0	0		130	160	0	0	150	24	10
	Kaberamaido	387	122	22	22	150	7	7	340	250	0	0	0	0	0
	Serere	387	122	22	22	150	7	7	140	200	0	0	0	0	0
	Soroti	387	122	22	22	150	7	7	140	200	0	0	0	0	0
	Kumi	320	150	0	120	100	0	0	120	200	0	100	200	34	4
	Katakwi														
	Ngora														
West Nile	Arua	143	50	0	0	30	9	4	180	600	130	0	200	22	11
	Koboko	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Nebbi	171	50	0	0	30	10	4	0	0	0	0	0	0	0
	Yumbe	123	0	0	60	30	10	4	171	75	0	0	100	6	3
	Zombo	607	50	0	0	30	10	3	105	0	0	0	0	0	0
	Moyo	143	60	0	80	30	8	4	117	350	0	0	150	23	6



## OILSEEDS STAKEHOLDER LINKAGES TO MARKETS AND SOURCES OF CREDIT

### Lira Hub Stakeholder Linkages

District	Farmer Organisation	Approached market off-takers	Involved Finance Institution/SACCO	Micro	Actions and outcome of linkages
Masindi	Pakanyi Farmers' Cooperative Society	Crown Matt Ltd. NileAgro Ltd., Lira Shiva Millers, Lira	ECLOF UDBL		- Held joint discussions and introduced the farmers' cooperative to crown matt. However, the miller was not committal on minimum buying price per kilogram. Over 5 Ha is maturing
Oyam	Acwec Mio	NileAgro, Ltd., Mukwano	UDBL		- UDBL financed production of simsim sunflower and soya bean during season B over 261 acres. - An off -taking contract signed with Nile-Agro who committed on a minimum price (UGX 1,000 Shs for hybrid seed). And VODP2 is witness to the contract.
Kole	Alito Farmers' Cooperative	NileAgro, Ltd., Lira Mukwano	UDBL		- Has received funding for oil seed production from UDBL. VODP2 has assisted the Cooperative in revision of the terms of the agreement, i.e. aligning the period to start repayment to crop's gestation period and postharvest activities.
Oyam	Oyam Farmers Groups	NileAgro, Ltd., Lira Shiva Millers, Lira	Alutkot SACCO		- SACCO has capacity to finance its members for required agro-inputs through Farmers Centre (U) LTD in oyam district
Oyam	Note en Teko	NileAgro, Ltd., Lira Shiva Millers, Lira	UDBL		- Participated in 2013 farmer learning platforms, now moving on to commercial production of sunflower and soybean. - VODP2 supported them to submit their application to UDBL for loan amount of 293 million to cultivate over 1068 ha of sunflower and simsim; and helping the association with season B planting plans, putting in place bulking plans, stores management plans, and marketing plans

Kaberamaido	<p>Acan Tami Farmers Group</p> <p>PUR Ber Farmer's Group</p> <p>Omwony Farmer Filed School</p>	Meena Industries	Opportunity Bank willing to finance and provide financial literacy to the actors	<ul style="list-style-type: none"> <li>- VODP2 introduced sunflower growing as alternative to cotton and is organizing the groups form an association for commercial production units around the mill – Meena industries.</li> <li>- With cotton production on a downward trend, Meena Industries diversified into sunflower milling and buying simsim. The farmer groups are being linked to the mill, which will provide an assured market at an agreed upon minimum price of quality grain.</li> <li>- During the 2013 season 'B', he had stores full of sunflower crushing material an evidence of increased production.</li> </ul>
Soroti	Katine Joint Farmers' Cooperative Society Ltd.	TOFA Products, Soroti	UDBL	<ul style="list-style-type: none"> <li>- Farmer Cooperative composed of 68 groups with total membership of about 700.</li> <li>- Farmer Coop. has its own agro-input shop.</li> <li>- VODP2 facilitated meeting between farmer cooperative and TOFA Miller who recently installed a new 10 ton/day mill with co-funding from Private Sector Foundation. VODP2 initiated discussion with UDBL to finance miller with off-taking credit.</li> </ul>

### Gulu Hub Stakeholder Linkages

District	Farmer Organisation	Potential market off-takers	Involved Micro Finance Institution/SACCO	Actions and outcome of the linkages
Lamwo	10 farmer groups in Lamwo district.	St. Francis Sunflower Press	Kitgum SACCO willing to provide financial services	<ul style="list-style-type: none"> <li>- The Mill is run as a service to the community, with farmers bringing their grain and they share the oil extracted.</li> <li>- Farmer groups engaged in Farmer Learning Platform jointly with the miller with intention to re-orient their approach to take-on oil seed production and milling as a business.</li> <li>- Miller linked to purchase sunfola from Equator seed with was extended on credit to the 10 farmer groups to produce and supply the mill, VODP2 is helping to draft agreement between the farmers and the miller</li> </ul>
Gulu	35 farmer groups in Gulu district.	Louise Enterprises.	Centenary Bank and DFCU willing to provide financial services (some of the groups have opened bank accounts with these banks) .	<ul style="list-style-type: none"> <li>- Miller used to buy crushing material from as far as Lango sub region.</li> <li>- In 2013, he had stores full by buying from farmers in and around Gulu at a price of UGX 1,000 – 1,200/=.</li> <li>- VODP2 strengthening the groups in record keeping for production and sales</li> <li>- VODP2 is helping to draft formal agreement between the farmers and the miller</li> </ul>
Amuru	Acwera Farmers' Association Amuru/Nwoya	Global Trust Traders Ltd.	UDBL Centenary Bank	<ul style="list-style-type: none"> <li>- The association linked to new mill recently installed with capacity of 15 tons/day in Gulu town.</li> <li>- VODP2 helping the group to formally register at district and as commercial producing cooperative. Discussion and guidance held with the group to plan production of 100 acres of sunflower during season 'B', 2014. Seed demand also established and group being linked to seed suppliers</li> </ul>

### West Nile Hub Stakeholder Linkages

District	Farmer Organisation	Potential market off-takers	Finance Institution/ SACCO involved	Actions and outcome of linkages
Moyo	Amatura P&MCS	Adokibo Mission Farm	UDBL Moyo SACCO	<ul style="list-style-type: none"> <li>- Growing soybean and sunflower.</li> <li>- VODP2 is preparing them for presenting to UDBL for loan access.</li> </ul>
	Obongi Cooperative Society	Adokibo Mission Farm	Moyo SACCO UDBL	<ul style="list-style-type: none"> <li>- VODP2 is preparing them for presenting to UDBL for loan access.</li> </ul>
	Lefori Multipurpose Group	OLAM, Yield Uganda Adokibo Mission Farm	Moyo SACCO	<ul style="list-style-type: none"> <li>- Engaged in sesame production using local varieties. Improved varieties Sesim 1 and Sesim 2 have been introduced.</li> </ul>
Arua	Ovuocaku Wendi Farmers Group	OLAM, Yield Uganda AFARD	Centenary Bank	<ul style="list-style-type: none"> <li>- Using farmer learning platforms, introduced improved sunflower and simsim varieties for commercial production.</li> </ul>
	Azikoa Farmers Group, Cinya Farmers Group Okumani Farmers Group Ulupi Elders' Farmer Grpoup NyioAyavu Farmers Association	AFARD	-	<ul style="list-style-type: none"> <li>- Using farmer learning platforms, introduced improved soybean varieties for commercial production.</li> </ul>
Yumbe	Farmers Group	Adokibo Mission Farm		<ul style="list-style-type: none"> <li>- Introduction of improved sunflower varieties to increase production of crushing material available for the mill.</li> </ul>
Zombo				<ul style="list-style-type: none"> <li>- Introduced improved sunflower varieties for commercial production.</li> </ul>

### Eastern Uganda Hub Stakeholder Linkages

District	Farmer Organisation	Potential market off-takers	Involved Micro Finance Institution/SACCO	Actions and outcome of linkages
Tororo	Tororo Multipurpose Agribusiness Training Association	Essence of Africa	Opportunity Bank, Mbale Branch.	- Farmer Group visits with Opportunity Bank and Essence of Africa are on-going.
Mayuge	Bunambutye Farmers' Group			
Budaka	Budaka District farmers Association			
Busia	Busia Women Farmers Society			
	Bukhalu ACE			
Iganga	Iganga District Farmers Association	Nile Agro Ltd., Jinja	UDBL	- Loan application submitted and loan processing for the four groups is at advanced stage. - A joint meeting held between the four farmer associations , UDBL, Nile Agro and VODP to agree on the soyabean production plans, market/bulking arrangements, and seed source/supply season B
Mayuge	Mayuge District Farmers Association			
Bugiri	Bugiri District Farmers Association			
Jinja	Jinja District Farmers Association			
Jinja	Slum Women Initiative for Development (SWID)		OpportunityBank willing to provide finance and financial services	- Group has been engage in farmer learning platform. They are hoped to go into commercial production of soybean, sunflower and simsim season B.
<b><i>Other potential market off-takers include; SEBA Foods Ltd.; Pride Agro in Tororo and 2 small scale processors in Kamonkori and Atatur , Kumi district.</i></b>				

## 5.5. Promoting Community-based Climate Smart Agriculture Using Farmer Field School

Kennedy Igbokwe, Ph.D.  
Project Manager, FAO Uganda

July 1-2, 2016/ Seminar on Agriculture Risk Management, Kampala Uganda



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## Outline

- Why Climate Smart Agriculture (CSA)?
- Definition of CSA
- What is Farmer Field School Approach?
- Planning for CSA using FFS Approach
- Some few examples of CSA planning process

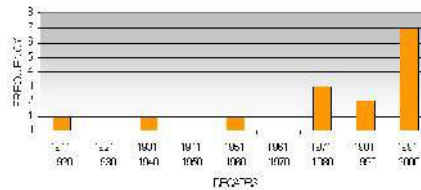


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## WHY CSA?

- Increasing impacts of climate change and variability
  - Increased frequency and intensity of drought leading to crop failure and reduction in grazing potential
  - Increased episodes of heavy rainfall, shifting seasonality, flooding leading to crop loss, soil erosion, land degradation and diseases
  - Increased temperature, heat wave



Frequency of Droughts in Uganda 1911-2000  
Source: Uganda NAPA report 2007



Source: Daily Monitor News  
September 2007

Heavy rains led to water logged soils, and hence crop losses in 2007  
<http://news.dailymonitor.com/2007/09/09/09090701.html>



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## Definition: Climate-Smart Agriculture (CSA)



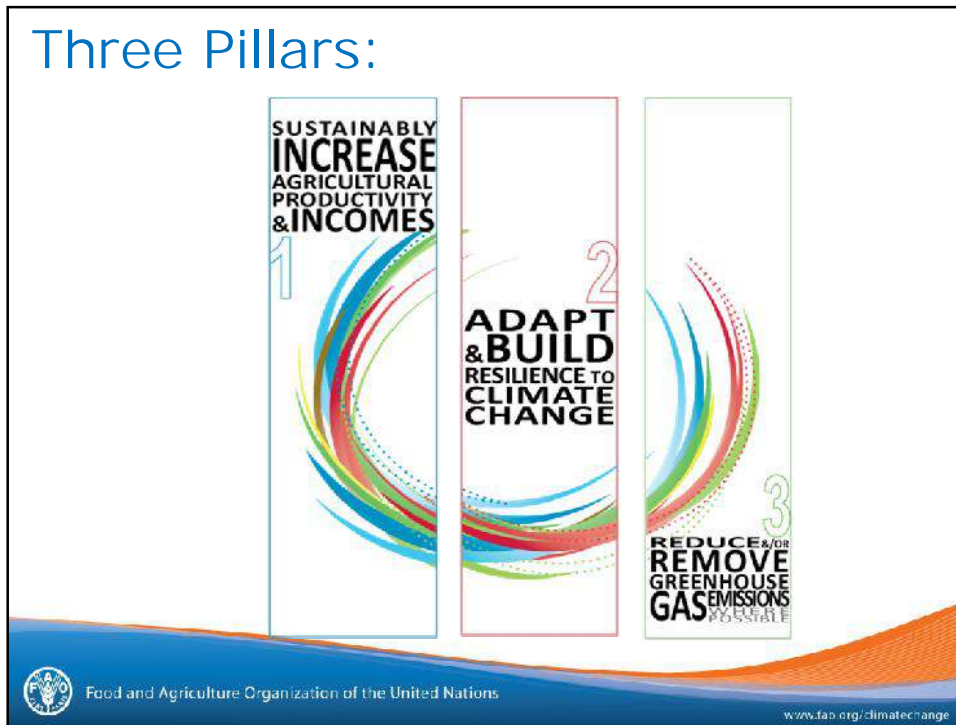
"Agriculture that sustainably increases productivity, resilience (adaptation), reduces/removes greenhouse gases (mitigation), and enhances achievement of national food security and development goals."



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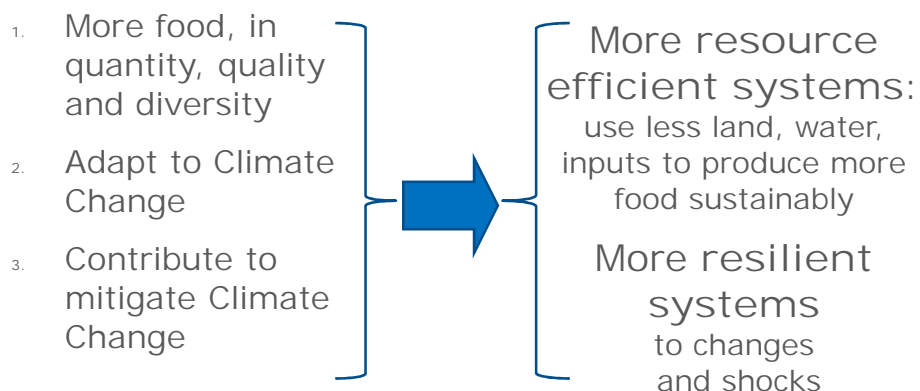
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## Three Pillars:



## CSA Food Systems

More efficient and more resilient



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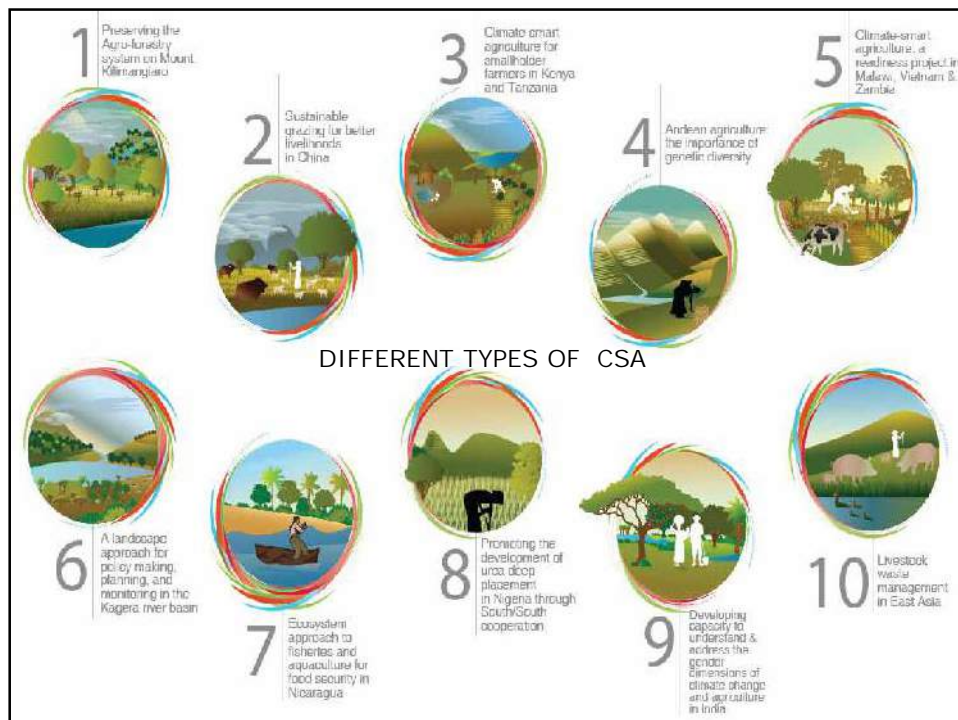
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- CSA is about improving resiliency of agriculture production systems by taking into account variable conditions that will be experienced in over time due to climate change
- CSA is about understanding and tackling of climate risks, enhancing adaptive and mitigation capacities of farmers, and increasing productivity and income to address poverty and vulnerabilities.
- CSA is increasing resilience by promoting (for example) integrated agro-forestry systems to address issues of food security, income, rural energy and ecosystem management.



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## What is Farmer Field School Approach?

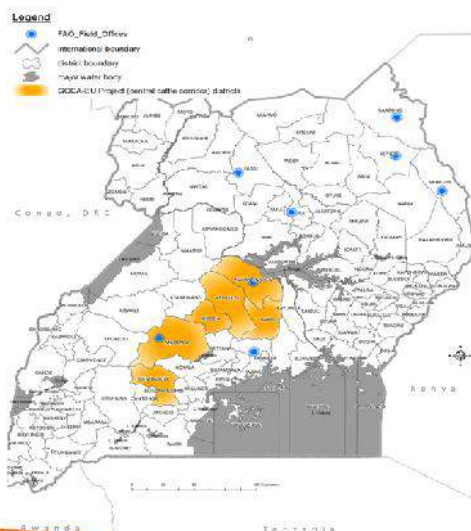
- A community based and practically oriented field study process involving groups of farmers who meet regularly to study the “**how & why**” of a given situation under the guidance of a facilitator



- A forum where farmers make regular field observations related to the ecosystem, combine previous experience and new knowledge, to make appropriate crop/livestock enterprise management decision

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## Global Climate Change Alliance (GCCA) Project, funded by European Union and Kingdom of Belgium



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## Planning for CSA interventions Using FFS Approach



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## Climate Risk

### Climate Hazard

A physically defined climate event with the potential to cause harm

### Vulnerability

Degree to which a system is susceptible or unable to cope with adverse effects of climate variability and change

### Exposure

Number of people or types of assets present in climate hazard-prone zones

### Sensitivity

Degree to which people and assets are affected by climate hazards

### Adaptive Capacity

Ability of institutions, systems, individuals to adjust to potential damage, take advantage of opportunities, or cope with consequences



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# Impacts of Climate Hazards

Climate Hazards	Effects	Impacts (Risks)
1		
2		
3		



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## Vulnerability Assessment – Exposure/ Sensitivity to Climate Hazards

Livelihood Assets	Exposure/ Sensitivity Degree to which livelihood assets are affected (what are the impacts?)	Livelihood condition/ characteristics (What are the characteristics of peoples livelihoods affected)	Policies & institutions (local, regional, national) Which policies or institutions (or lack) contribute to the exposure and sensitive of the assets to climate hazards
Financial Assets			
Natural Assets:			
Physical Assets			
Human Assets:			
Social Assets:			



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## Adaptive Capacity Assessment

SI	Climate Change Hazards	Climate Risks	Current coping strategies	Level of effectiveness			Reason for selected level of effectiveness
				LOW	Medium	High	
1							
2							
3							
4							



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## Adaptation Options for Increasing Adaptive Capacity


Climate Risks Facing Target Community	Proposed Adaptation Options	Potential obstacles that can hinder adaptation by the community



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Climate Risks Facing Target Community	Proposed Adaptation Options	Level of effectiveness		
		low	medium	High
LOSS OF YIELDS/ PRODUCTION	Promoted sustainable land and water management			
1. Water shortage	Develop and implement a water usage plan based on the water available and include maintenance of tanks/dams for water storage			
	Increase water storage capacity by constructing water tanks			
2. Erosion	Plant more trees for securing the soil			
	Care for existing plants and comply with controlled deforestation			

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## KEY COMPONENTS OF COMMUNITY BASED ADAPTIVE CAPACITY

- Learning/ knowledge adaptive capacity
- Institutional adaptive capacity
- Economic adaptive capacity
- Ecosystem adaptive capacity



# Thank you!

For more information, please visit:

[www.fao.org/climatechange](http://www.fao.org/climatechange)

and

[www.fao.org/climate-smart-agriculture](http://www.fao.org/climate-smart-agriculture)



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## CLIMATE CHANGE ADAPTATION FOR COFFEE PRODUCTION

### Why focus on climate change?

Climate change is already affecting coffee production. An assessment carried out revealed the following frequency of farmers' observations: 97% Longer dry periods, 57% Unreliable rain distribution, 74% Reduced rainfall and 71% Higher Temperatures. Livelihoods are threatened by climate change.

### Effects of climate change on coffee production



Fig. 1: Coffee wilting



Fig. 2: Moisture stress on coffee trees



Fig. 3: Coffee berry borer



Fig. 4: Coffee twig borer

### Implementation approach

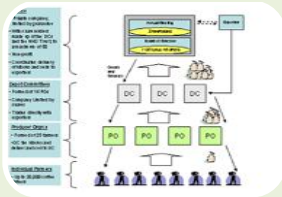


Fig. 5: Farmer organisation structure



Fig. 6: Training of farmer group facilitators



Fig. 8: Awareness creation & Development of action plan



Fig. 7: FFS session

### Selected adaptation techniques used by farmers to adapt to climate change variability



Fig. 9: Bottle irrigation to improve coffee seedling survival & growth rate during dry spells



Fig. 10: Water harvesting structure for supplementary irrigation during dry spell



Fig. 11: Mulching to improve soil moisture conservation



Fig. 12: Cover crop to improve moisture conservation

### Adoption of field adaptation practices for coffee

Adaptation practices	% of farmers practicing		Net change
	Before	Now	
Shade trees	66	73	7
Pruning of plants	36	64	28
RWH trenches	11	46	34
Compost production	9	42	34
Mulching of fields	8	39	31
Irrigation	0	59	59
RWH & storage	0	26	26



Fig. 13: Trenches to retain run off & improve water infiltration



Fig. 14: Nursery for improved coffee seedlings & shade trees





## 5.6. Warehouse Receipt System as a Risk Management Instrument

1<sup>st</sup> & 2<sup>nd</sup> July 2015

Lillian Bazaale



### Outline



- About EAGC- Vision, Mission, Programs
- Warehouse Receipt System
- Features of WRS
- The regulated WRS Model
- Benefits of WRS
- WRS & Risk Management
- WRS in Uganda
- Challenges
- Recommendations



## EAGC -Who we are



- Regional Organization for Grain Value Chain
- Membership based
- Not for Profit Company
- Limited by Guarantee
- Members include
  - Farmers/Producers, Associate organizations,
  - Traders, Handlers, Warehouses
  - Processors/Milling Companies
- Membership Categories
  - Active
  - Affiliate
  - Associate



## EAGC's Vision & Mission



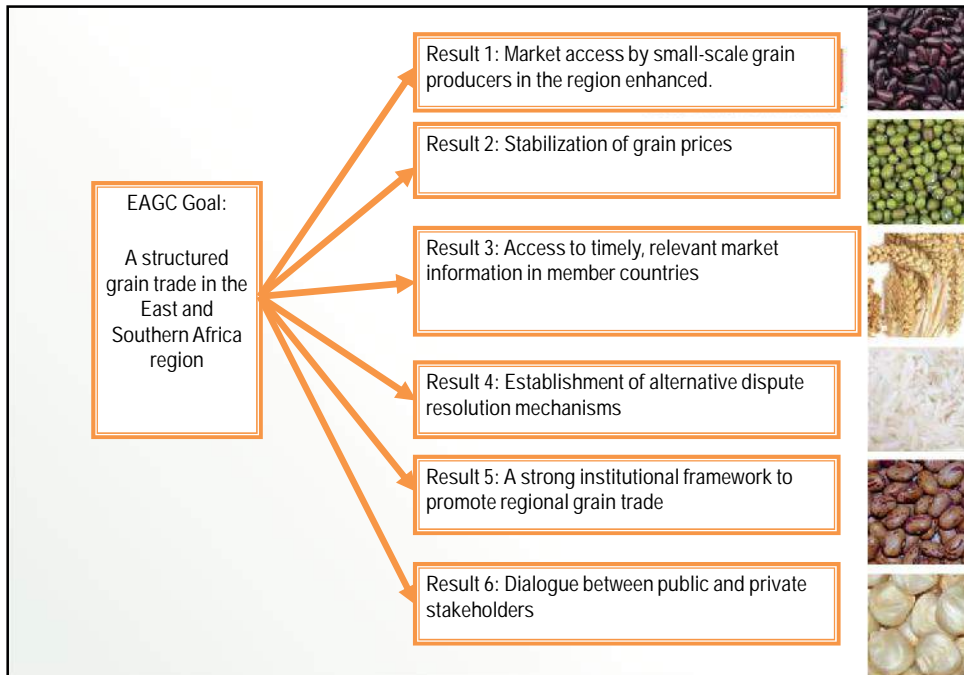
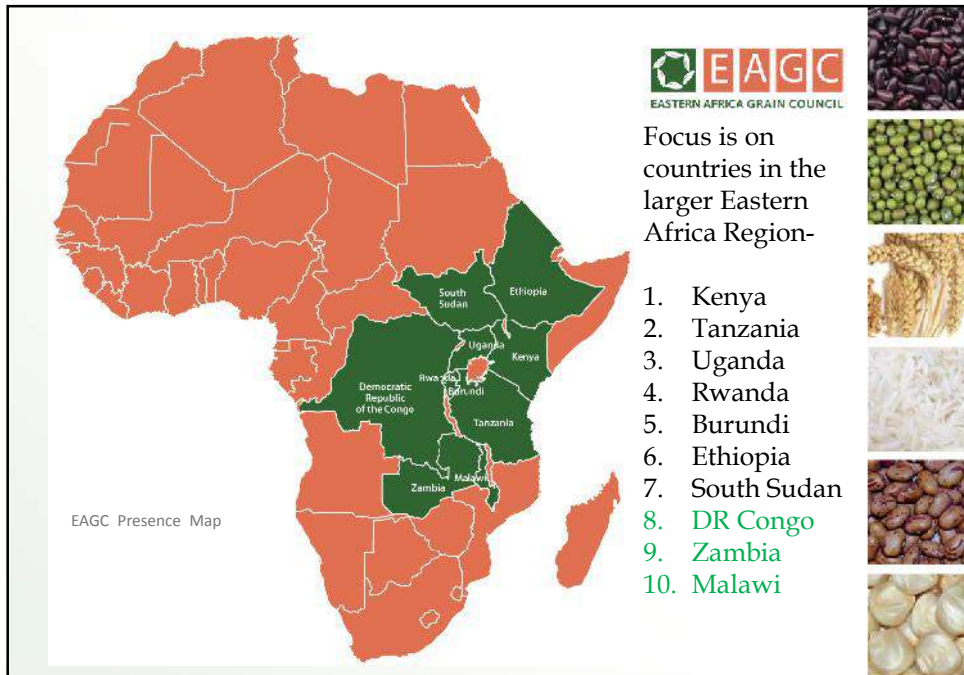
### Vision:

"To be the leading voice of the grain sector in Africa"

### Mission:

"To advocate for an enabling environment and promote structured grain trade for optimal stakeholder benefit"

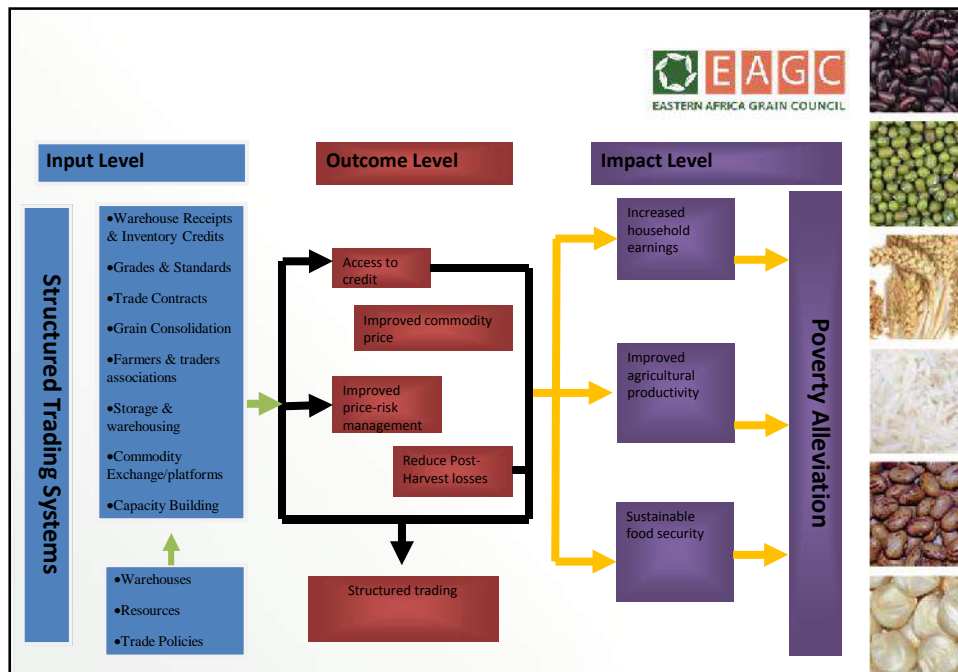




## Key EAGC Initiatives



<b>Structured Trading Systems (STS)</b>	<b>Grades and Standards</b> Promote Storage and warehousing <ul style="list-style-type: none"> <li>• Warehouse Receipt System,</li> <li>• Grades and Standards</li> <li>• Standard trade contracts</li> <li>• Arbitration mechanisms</li> <li>• Financing Systems -Inventory Credits -Collateral Management</li> <li>• Commodity Exchange</li> </ul>
<b>Market Information Systems (MIS)</b>	<ul style="list-style-type: none"> <li>• Regional Agricultural Trade Intelligence Network (RATIN)</li> <li>• Electronic Grain Trade (EGT Africa) which is under construction</li> </ul>
<b>Capacity Building</b>	<ul style="list-style-type: none"> <li>• Training on WRS, Grades and Standards, Structured Commodity trade Finance, MI sourcing and dissemination ,trade contracts, rules of trade and arbitration</li> </ul>
<b>Trade Policy</b>	<ul style="list-style-type: none"> <li>• Policy Dialogue</li> <li>• Regional harmonization of Trade Policies</li> <li>• Regional Food Balance Sheet</li> <li>• Removal of Trade barriers</li> </ul>



## The Warehouse Receipt System



### What is a Warehouse receipt?

- A document issued by warehouse operators as evidence that a specified commodity of stated quantity and quality, has been deposited at particular locations by a depositor.
- Depositors may be producers, farmer groups, traders, exporters, processors or even individual or corporate body
- The warehouse operator holds the stored commodity in safe custody; implying he is legally liable to make good any value lost through theft or damage, but has no legal or beneficial interest in it



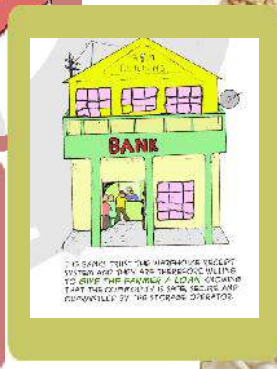
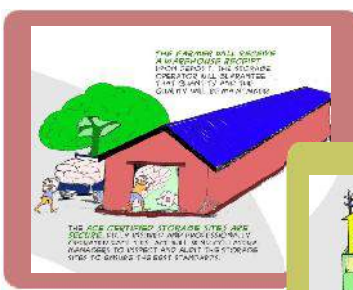
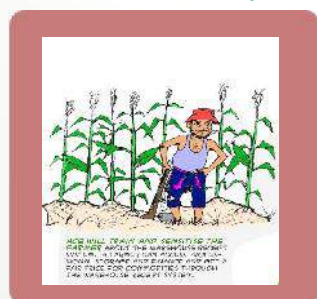
## Cont'd



- The receipt may be transferable, allowing transfer to a new holder – a lender (where the stored commodity is pledged as security for a loan) or a trade counterparty – which entitles the holder to take delivery of the commodity upon presentation of the WR at the warehouse.



## Essential features of the Warehouse Receipt System (WRS)



## The regulated WRS Model



### Parties;

- A network of private or public warehouses
- A regulator e.g. the Warehouse Receipt Systems Authority (e.g. UWRSA-formerly UCE)

### Process:

- Warehouse applies for license to operate WRS
- Undergoes robust inspection & certification process
- Certified/licensed warehouse staff receive training in grades & Standards, warehouse management
- System of transferable eWRS is established
- Private sector: depositors, banks, collateral managers, Insurance play



## WRS benefits



- The receipt is a certificate of ownership; its tradable and transferable
- WRS offers access to secure/proper storage for produce
- Allows farmers to define the most favourable time to sell without being blackmailed by the traders
- Increased storage reduces post harvest loss & moderates seasonal price variability
- Loss reduction = increased income to farmers
- Enhances marketing efficiency in Ag.Markets through transparency in trade & reduction in distribution chains
- Increases access to finance, receipt used as collateral
- Multiple protection of depositors, ensuring the quality and quantity of the goods placed on store



## More benefits



- Increased liquidity of the agricultural system in absence of land or other assets as collateral,
- Provides a platform for integration of domestic markets into regional and world markets
- Provides basis for financial derivatives market development e.g. COMEX
- The System enables the banking sector to enter a broader market at a smaller risk (high level of collateral protection)
- Food security



## WRS & Risk Mitigation



- Market Risk; level of market certainty, price stabilization
- Minimizes loan default risk
- Collateral risk; commodity is verified for quantity, quality and ownership
- Minimizes storage risks; access to proper, suitable storage & improved commodity quality
- Risk of loss; Onsite security, Insurance along WRS & collateral management
- Reduces need for government intervention in agricultural markets and reduce the cost of such intervention
- Food security with adequate storage capacity



## The warehouse receipt system in Uganda



- Formulated in 1995/96 upon the realization that one of the main constraints in commodity trade was lack of a system that enables access to trade finance using commodities as collateral
- Initially focused on coffee/cotton quality assurance services
- Has since grown to include commodities such as maize and beans
- Regulated under the former Uganda Commodity Exchange, now the Warehouse Receipt Systems Authority -MTIC
- Currently about 6 warehouses: WFP Gulu, MSGGL, AgroWays, Nyakatonzi and KACOFA.



## Challenges



- Inadequate funding
- Inadequate human resources & skills gaps among inspectors
- Gaining commitment of various stakeholders
- Inability to find markets on time while loan interest & storage costs accrue
- Lack of policy support
- Limited participation by banks, insurers & potential depositors
- Farmers not well organized to take advantage of the system
- High interest rates & non-flexible finance products
- Diseconomies of scale
- Limited number & distribution of warehouses
- High costs e.g. cost of energy, handling, collateral management
- Infrastructural challenges & maintenance



## Recommendations



- Increase awareness of WRS
- Adequate resourcing and capacity of inspectors/regulators
- Business model
- Increase support –public & private
- Increase distribution of warehouses to strategic locations
- Consideration of food safety issues
- Increase investment in other storage facilities
- Increased WR Finance and other innovative finance products
- Control interest rates
- Subsidize the cost of energy for WRS/alternative cheaper sources of energy
- Market development; local, regional and international
- Need for some regulation for commodity markets





Thank you!

END

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