Ethiopia

Agricultural Risk Assessment Validation Workshop
Addis Ababa, Ethiopia

Volume 2 Presentations
December 2015
AGRICULTURAL RISK ASSESSMENT STUDY
VALIDATION WORKSHOP

16-17 December, 2015 | Addis Ababa, Ethiopia

VOLUME II

PRESENTATIONS
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BY
ZENA HABTEWOLD

MINISTRY OF AGRICULTURE AND NATURAL RESOURCES

PAPER PRESENTED AT NATIONAL STAKEHOLDERS WORKSHOP ON AGRICULTURAL RISK MANAGEMENT, 16-17 DEC, 2015 ADDIS ABABA

Overview of CAADP

• A program of the African Union
• It is fully owned and led by African governments
• An integral part of national efforts to promote agricultural sector growth and economic development
CAADP's goal

Eliminate hunger and reduce poverty
Through:
- increasing public investment in agriculture by a minimum of 10% of their national budgets
- maintain average agricultural growth at least 6% per annum

THE CAADP PILLARS

PILLAR 1
LAND AND WATER MANAGEMENT

PILLAR 2
TRADE AND MARKETING INFRASTRUCTURE

PILLAR 3
FOOD AND NUTRITION SECURITY

PILLAR 4
AGRICULTURAL RESEARCH AND TECHNOLOGY ADOPTION

6% ANNUAL SECTOR GROWTH
The Development process of Ethiopia’s PIF (The National Agricultural Investment Plan)

- Sept, 2008 – CADDP Study (Stocktaking) began
- July 2009 - the 1st comprehensive CAADP study reports were produced
- August 2009 – the CAADP Compact was signed
- August 2010 – the draft PIF was finalized
- September 2010 - the completed PIF produced which included the implementation Roadmap and 1st year action plan
- January 2011- PIF implementation began

Policy and Investment Framework (PIF)

- A national level strategic planning framework
- Guides the prioritization, planning and implementation of current and future investments that contribute to overall agricultural growth, food security, and rural development
- Investment framework to help mobilize additional global, regional and national resources for Ag Sector investments
PIF’s Goal and Objectives

- **THE GOAL OF THE PIF IS TO** “CONTRIBUTE TO ETHIOPIA’S ACHIEVEMENT OF MIDDLE INCOME STATUS BY 2025”.

- **THE DEVELOPMENT OBJECTIVE IS TO** “SUSTAINABLY INCREASE RURAL INCOMES AND NATIONAL FOOD SECURITY”.

### PIF Thematic Areas and Strategic Objectives (SOs)

<table>
<thead>
<tr>
<th>Policy Alignment</th>
<th>Thematic Area</th>
<th>Strategic Objectives (SOs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase agricultural sector productivity and production. (CAADP Pillar IV)</td>
<td>Productivity and Production</td>
<td>SO1: To achieve a sustainable increase in agricultural productivity and production.</td>
</tr>
<tr>
<td>Increase farmers’ incomes from agriculture and rural enterprises. (CAADP Pillar II)</td>
<td>Rural Commercialisation</td>
<td>SO2: To accelerate agricultural commercialisation and agro-industrial development.</td>
</tr>
</tbody>
</table>
### Thematic Areas and Strategic Objectives (SOs)

<table>
<thead>
<tr>
<th>Policy Alignment</th>
<th>Thematic Area</th>
<th>Strategic Objectives (SOs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manage, conserve and utilise natural resources sustainably (CAADP Pillar I)</td>
<td>Natural Resource Management</td>
<td>SO3: To reduce degradation and improve productivity of natural resources.</td>
</tr>
<tr>
<td>Disaster Risk Management and Food Security (CAADP Pillar III)</td>
<td>Disaster Risk Management and Food Security</td>
<td>SO4: To achieve universal food security and protect vulnerable households from natural disasters.</td>
</tr>
</tbody>
</table>

### Current status of PIF implementation

- 3 PIF Review has been undertaken and identified the challenges and gaps for improvement
- Nutrition, climate change and gender issues has been identified to be further mainstreamed in the second PIF
- The second PIF road map is on the process to be developed
Intuitional support for PIF Implementation (RED&FS SWG)

- Officially established within the context of Paris Declaration on Aid Effectiveness by GoE and DPs in 2008 to effectively support Gov development objectives
- The apex platform that brings together GoE and DPs under the four thematic Technical Committees; namely:
  - AG
  - SLM
  - DRMFS
  - Livestock Development

Thank You
Background

National Stakeholder Workshop on AGRICULTURAL RISK MANAGEMENT
Addis Ababa | 16-17 December 2015

PARM Strategic Partnership with NEPAD

- PARM: A G20 Initiative
- Mainstreaming ARM on Agricultural Policies / Investment plans: CAADP

Policy Forum
November 2014

- Organized by the MoA ATA, NEPAD, FAO, AFRACA PARM
- Engagement on Agricultural Risk Management

ARM Workshop
December 2015

- Risk Assessment Study
- Looking for most appropriate ARM tools / investments
National Stakeholder Workshop on AGRICULTURAL RISK MANAGEMENT

ARM | A Holistic Approach to Agricultural Risk Management

Addis Ababa | 16-17 December 2015

Jesus Anton, PARM Senior Programme Manager

OUTLINE

1. Rationale & Goals of ARM
   - Role and rational of ARM
   - Risks, constraints and Opportunities

2. Why A Holistic approach to ARM?
   - Linear vs. Holistic Approach
   - Risk Assessment and Risk layering

3. (P)ARM approach & strategic challenges
   - The PARM approach and strategy
   - Challenges and opportunities
**The Rationale of ARM**

- **Risk is crucial in Agriculture**
  - Returns dramatically depend on climate and prices in the context of Climate Change

- **Farmers need to manage risk**
  - Welfare of the household & competitiveness of their farms
  - To uptake investment opportunities & access to credit

- **Countries need to manage agriculture risk**
  - Risks can threaten food security
  - Risks can crowd out investment in the agro-food value chain

- **Managing Risk ≠ Just reducing risks**
  - ARM is a way of thinking and doing business

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**Risks: damage or opportunity?**

**DAMAGE**
Crops or livestock can be lost, prices can fall, livelihoods at risk

**OCCUPORTUNITY**
Risk and higher returns as driving forces of good entrepreneurship and innovation
RATIONALE AND GOALS OF ARM

The role of ARM

Governments

Donors

ARM

Rural Communities

Farmers

ARM Service Providers

Reduction in Rural Poverty

Improve Food Security

Economic and social opportunities

WHY A HOLISTIC APPROACH TO ARM

Agricultural Risks

• RISK: a combination of the likelihood of an occurrence of a hazardous event and the severity of injury or damage that can be caused.

• AGRICULTURAL RISKS: are those that significantly affect agriculture, with implications for farmers’ livelihoods and local or national economy and food security
  • The occurrence of a risk event is in many cases the result of an underlying constraint.
  • The presence of risk often constitutes a constraint, or aggravates an existing one.
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

### Risk Assessment | Characteristics of Risks

#### Risk ≠ Uncertainty
- Known Risk vs Unknown (cognitive failure)
- Farmers know what is in their farms (Asymmetric Information)

#### Correlation
- Low production ⇒ High price
- High/low prices for several commodities

#### Idiosyncratic / Systemic
- Local risk in a farm (hail)
- Systemic risk for all farms at the same time

#### Catastrophic Risk
- Low frequency, High losses, Systemic
- Vulnerability, ability to cope
WHY A HOLISTIC APPROACH TO ARM

Risk Assessment | Instruments and strategies

**EX ANTE**

<table>
<thead>
<tr>
<th>Risk Reduction</th>
<th>Farm / Household</th>
<th>Market</th>
<th>Community / Informal</th>
<th>Government</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Avoiding risk</td>
<td>• Training on risk management</td>
<td>• Crop sharing</td>
<td>• Microeconomic policy</td>
<td></td>
</tr>
<tr>
<td>• Household size</td>
<td></td>
<td></td>
<td>• Disaster prevention</td>
<td></td>
</tr>
<tr>
<td>• Income diversification</td>
<td></td>
<td></td>
<td>• Prevention of animal diseases</td>
<td></td>
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<tr>
<td>• Low-risk, low-return cropping patterns</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Production techniques</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>• Climate-smart Agriculture</td>
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</tbody>
</table>

| Risk Mitigation | | | |
|-----------------|------------------|--------|----------------------|------------|
| • Diversification in production | • Futures and options | • Common property resource mgmt | • Tax system income smoothing |
| • Savings in the form of liquid assets (crops) and buffer stocks | • Insurance | • Social reciprocity | • Social Protection |
| • Crop diversification | • Vertical integration | • Intra-risk pooling | • Counter-cyclical programmes |
| • Inter-cropping | • Production/marketing Contracts | • Rotating savings/credit | • Border and other measures in case of contagious disease outbreak |
| • Plot diversification | • Spread sales | • Disaster and market failure | |
| • Borrowing from neighbours/family | • Diversified financial investment | Governments (and Donors) | |
| • Intra-cropping charity | • Off-farm work | | |
| | • Warehouse Receipt systems | | |

**EX POST**

<table>
<thead>
<tr>
<th>Risk Coping</th>
<th>Farm / household / community</th>
<th>Markets</th>
<th>Governments (and Donors)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sale of assets</td>
<td>• Sale of assets</td>
<td>• Disaster relief</td>
<td></td>
</tr>
<tr>
<td>• Reallocation of labour</td>
<td>• Transfers from mutual support networks</td>
<td>• Cash transfers</td>
<td></td>
</tr>
<tr>
<td>• Reduce consumption</td>
<td>• Off-farm income</td>
<td>• Food Aid</td>
<td></td>
</tr>
<tr>
<td>• Borrowing from relatives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Migration</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Risk Characteristics</th>
<th>Layer of Risk</th>
<th>Level of Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>High frequency &amp; low severity</td>
<td>Retention</td>
<td>Farm / household / community</td>
</tr>
<tr>
<td>Medium frequency and severity</td>
<td>Transferable</td>
<td>Markets</td>
</tr>
<tr>
<td>Low frequency and high severity</td>
<td>Disaster and market failure</td>
<td>Governments (and Donors)</td>
</tr>
</tbody>
</table>

Source: OECD (2011)
The need for a neutral facilitator

- Governments
- Donors
- Rural Communities
- Farmers

ARM Service Providers

Economic and social opportunities

Reduction in Rural Poverty
Improve Food Security

The (P)ARM Approach to ARM System

- Building on existing initiatives in the country
  - Working with the governments. NEPAD /CAADP
  - Engaging stakeholders in a holistic approach process
    - FAO, WFP, AU, World Bank and FARM-D, IFC, IFAD,
    - Regional and bilateral donors and service providers and Private sector

- Holistic approach
  - Comprehensive view of risks, tools and strategies
  - Risk layering: defining Layers of risk and Levels of responsibility

- Demand driven and Evidence based
  - Tailored to the local needs / Avoiding crowding out of local strategies
  - Based on rigorous studies and empirical evidence

- Promoting a diverse set of tools
  - Diversification, technical innovations
  - Crop sharing, informal poling, rotating savings-credits
  - Insurance, contracts, futures
  - Policies: emergency reserves, disaster relief, social

- Enhancing ARM capacities and Information systems
(P)ARM APPROACH AND STRATEGIC CHALLENGES

PARM Process / CAADP process of NEPAD

Ethiopia’s process as part of its Agricultural Transformation

Where Do we Operate?

PARM is currently focusing on sub-Saharan Africa but may expand its geographical scope to other regions in the future.

The main selection criteria are based on:
- Commitment of the government to Agricultural Risk Management (ARM) and the status of the Comprehensive Africa Agriculture Development Programme (CAADP) implementation
- Diversity in agro-climatic zones, language, block, and socio-economic standing.

The current selected countries are: Gabon, Senegal, Benin, Ethiopia, Liberia, Mozambique, Nigeria, Senegal, The Gambia, and Uganda.
Risk assessment and Prioritization
- Characteristics of production and market risk (size, correlation, seasonality...)
- Available risk management strategies at individual farm and community level
- Risk layering
- Priorities to feasibility studies

Defining and building a Risk Management System with shared views
- Policy choices
- Market instruments
- Farms / household empowerment: capacity and responsibility

THANK YOU
Please share your knowledge and experience

www.p4arm.org
parm@ifad.org
Managing food and agricultural risks: Some country experiences and implications for Ethiopia

Mulat Demeke
Addis Ababa, Ethiopia
16-17 December 2015

Outline

1. The problem
2. Managing catastrophic risk – drought risk management strategies
3. Approaches to managing normal risks – on-farm and off-farm activities
4. Strategies to manage ag risks through public, private or PPC actions (transferable risks)
5. Conclusions
1. The problem

- Agricultural risks
  - Agricultural risks and uncertainties are caused by
    - Weather variability,
    - Natural disasters,
    - Price uncertainties,
    - Unexpected institutional and policy changes,
    - Personal risks, etc.
- Climate becoming a major factor
  - Global warming - greenhouse gas emissions
  - Rising temperature, unpredictable climate change and variable rainfall
1. The problem ...

- Types of risks
  - Types based on sources of risks – market, production, human and personal, institutional and policy
  - Types based on frequency and intensity of agricultural risks – normal, transferable and catastrophic
    - Normal risks – less frequent and less damaging – commonly managed by farmers
    - Transferable risks – intensity and frequency low to high but manageable through transferring, sharing or pooling by service providers
    - Catastrophic risks – low or high frequency but very large losses, affecting a large area (region) or the country

- Intensity and frequency of risk
  - Normal
  - Transferable (shared or pooled)
  - Catastrophic

- Farmers  Service providers  Government
1. The problem ...

<table>
<thead>
<tr>
<th>Unmanaged risks can:</th>
</tr>
</thead>
<tbody>
<tr>
<td>lead to a cycle of 'shock, (partial) recovery, shock', eroding capital and natural resources</td>
</tr>
<tr>
<td>Significantly disrupt supply chains.</td>
</tr>
<tr>
<td>Adversely impact ag and national GDP</td>
</tr>
<tr>
<td>Farm incomes 30% higher if farmers had the option of effectively mitigating risks (Minot, 2010).</td>
</tr>
<tr>
<td>Production and price shocks compromise food and nutrition security of poor consumers</td>
</tr>
<tr>
<td>Total loss estimated at 16.5% of GDP in 2009 for Ethiopia</td>
</tr>
<tr>
<td>No ag or economic transformation without managing risks</td>
</tr>
</tbody>
</table>

2. Managing catastrophic risks –

**Drought risk management**

- Drought in Ethiopia - cyclical phenomenon and is associated with
  - Desertification
  - Climate change
  - El Niño effects

<table>
<thead>
<tr>
<th>Several aggravating factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land degradation and deforestation</td>
</tr>
<tr>
<td>High population growth – declining farm size</td>
</tr>
<tr>
<td>Limited use of irrigation</td>
</tr>
<tr>
<td>Inadequate technology –</td>
</tr>
<tr>
<td>Cultivation of fragile areas – steep slopes</td>
</tr>
</tbody>
</table>
2. Managing catastrophic risks ..

2. Managing catastrophic risks ...

[Image of a person using a tool with cattle, likely for agriculture or cultivation]
2. Managing catastrophic risks ..

- Australia and the US most affect by drought
  - Australia
    - Australia is the driest continent outside of Antarctica
    - Major drought every decade since records began in 1791
    - 1997–2009 ‘Big Dry’ - worst since first European settlement
  - US
    - North America affected by drought for thousands of years
    - droughts in the 1930s (Dust Bowl era)
    - Droughts in almost every decade: 1940s, 1950s, 1960s ..
    - Exceptional drought in 2011 affected 9% of the nation

2. Managing catastrophic risks ..

- Responses  US and Australia
  - From crisis management (reactive approach) to risk management and proactive approach - increased
    - Conservation practices
    - Irrigation
    - Farm sizes - consolidation
    - Agricultural diversity
    - Federal crop insurance
    - Aid programs (social protection) – ensure food insecurity
    - Reservoirs and improved domestic water systems
    - Removed most sensitive ag lands from production
    - Diversified regional economy – reduced dependence on ag.
2. Managing catastrophic risks ..

- Diversification away from ag - US experience
  - In 1945, ag. 16% labor force and 6.8% of the GDP
  - In 2000/02, it accounted for 1.9% and 0.7% respectively
  - In 1945, 27% of farmers worked off farm, in 2002 93%

- Ag production and productivity increased
  - Be/n 1948 and 1999, growth in ag productivity averaged 1.9% annually, compared to 1.3 p% annually in manufacturing sector.

- Implications for Ethiopia
  - Draw lessons from past – M&E past interventions
  - Design long-term strategy to outrun drought
  - Linking science and policies – centre of excellence?

3. On-farm and off-farm actions to manage normal risks

- Farmers mitigation and coping options to manage normal risks
  a. Risk Mitigation/Adaptation – reduce the likelihood of an adverse event or reduce the severity of actual losses.
    - Climate-smart agriculture
      - Irrigation,
      - use of resistant seeds, and
      - better agronomic practices – CA, IPM
3. On-farm and off-farm ...

b. Diversification – nutrition perspective, not just risk management and environment
   • Income diversification – off-farm employment
   • Crop diversification – vegetables
   • Livestock diversification and fisheries – poultry, apiculture
   • Agroforestry
     • Combat desertification
     • Use of trees that give high feed yields all year round, every year, even where grasses cannot grow.

3. On-farm and off-farm ...

• Risk coping – this involves improving resilience of households to cope with events, through ex-ante and ex-post preparation.
   • Social safety net programmes,
   • buffer funds,
   • savings, strategic reserves,
   • Relocation, etc
3. On-farm and off-farm ...

- **Help farmers make right decisions** (stepping in, stepping out or hanging in)
  - ‘Stepping up’ – investing in farming to raise productivity and output, consolidating /expanding;
  - ‘Stepping out’ – spending more time on non-farm activities, including migration, selling/leasing out land;
  - ‘Hanging in’ – continue producing staple foods to meet part of household needs, but depending on other activities as well.

4. Strategies to manage ag risks through public, private or PPC actions (transferable risks)

- **Several ARM strategies – different experiences**
  1. Market & price stabilization and support policies
     - Causes of market instability and price spikes
       - Weather and climate change
       - Stock levels
       - Exchange rates
       - Growing demand – rising per capita income
       - Trade restrictions – Both export and import restrictions
     - Responses
       - Grain stocks (strategic or buffer)
       - Commodity exchanges
       - Warehouse receipts systems
       - Market information systems and early warning system
       - Intra-regional trade
       - Contract farming
4. Strategies to manage ag risks ...

- Country experiences – market and price stabilization/support
  - In Asia, major economies maintain strategic grain reserve and/or buffer stocks – price support increasing over time
    - China, India, Bangladesh, Indonesia, the Philippines, Thailand, etc.
  - India has been raising minimum support price (MSP)
    - Procured grains are used for distribution to poor consumers or for export at times of surplus.

2. Approaches to managing production, price and food security risks

- Many Asian and some African countries expanded their strategic grain reserve
  - China – grain stocks (state secret) - support producers
    - wheat 57 million and rice 50 million tonnes 2013-14.
  - India – over 90 million wheat and rice (2013) – support both
  - Saudi Arabia (Gulf Sates) – expanding to support consumers
  - Nigeria – (consumers – emergency)
  - Zambia – (producers)
  - Malawi and Ethiopia (consumers/emergency)
- Greater interest in public stocks in countries with large population, heavily dependent on food import or landlocked
  - But managing stocks is expensive and distort markets - PPP and WRSs
2. Approaches to managing ...

- In Latin America and Caribbean (RLC), price support schemes are less popular
  - But Brazil uses food reserves to stabilize prices of staple crops
    - Buys grain at guaranteed minimum prices from family farms
    - The grain donated through local food-security related organizations
  - **In LAC, commodity exchange systems as market-based price stabilization instruments are more developed** than Asia or Africa – working for commercial farmers
    - Market information systems and EWS also more developed
    - Regional trade works in some cases, e.g. the Central American Common Market (MCCA)

ii. **Input support measures**
- In Asia, input subsidies were a major part of the green revolution packages
  - Input subsidies expanded – manage input price risks
  - China, India, Indonesia and the Philippines have massive input subsidy programmes
- In LAC, input subsidy interventions are relatively less popular and ad-hoc
- Input support may need to promote sustainable and diversified agr
  - Promoting cereals production in marginal may not be a good idea
2. Approaches to managing …

- Input support needs to give
  - Greater attention to livestock (poultry), vegetables, fishery, agroforestry – risk management and nutritional benefits
  - Feed production and supply
  - Conservation agriculture (CA)
  - Integrated pest management (IPM)
  - Sustainable integrated farming systems (SIFS)
- Improve efficiency of fertilizer use – environment and cost
  - Organic and inorganic fertilizer

iii. Agricultural insurance and disaster risk management

- Incidence of agricultural insurance and disaster risk management is higher in LAC
  - In LAC, state-owned agricultural insurance companies have gained popularity but operate alongside private insurance companies, offering special services such as
    - Reinsurance or
    - Insurance coverage to catastrophic risks
2. Approaches to managing ...

- Brazil relies on public-private partnership that includes the government, private insurance sector, agro-industries and cooperatives
  - Market-based private insurers compete with public firms for underwriting agricultural insurance in LAC
  - Premium subsidies are also widely applied and have attracted increased budgetary allocations in LAC
  - Government based post-disaster relief programmes are common in countries prone to disaster (e.g. Caribbean countries)

- In Asia, reforms have led to the emergence of a combination of public, private, and public-private models of agricultural insurance along with government-based natural disaster risk management programmes.
  - India is administering the world’s largest crop insurance programme – the National Agricultural Insurance Scheme annually insures approximately 18 million farmers
  - China relies on public agricultural insurance companies but has promoted private insurance companies
2. Approaches to managing ...

iv. Agriculture finance provision – long term investment

- Improving access to credit is considered as a major instrument to address the risk of market failure in agricultural finance
- Very popular in both LAC and Asia – nearly all countries have programmes to improve access to credit
- Major credit approaches adopted to support producers:
  (i) special programmes to increase flow of credit to agriculture (e.g. lower interest rates),
  (ii) measures to reduce the risk of agricultural credit (credit guarantee schemes, CGS), and
  (iii) measures establishing or sustaining agricultural financial institutions.

2. Approaches to managing ...

- CGS are more widely available in LAC – important in expanding agricultural credit
- Specialized agricultural banks more common in Asia
  - India has several government schemes
    - Also, Reserve Bank of India requires commercial banks to direct 18% of their credit to agriculture and allied sectors
  - Indonesia - Bank Rakyat Indonesia (AgDB) revolutionized rural finance
    - One of most successful providers of rural finance
    - high interest rates on savings and loans,
    - rewards to borrowers for on-time repayment
    - good governance.
2. Approaches to managing ...

v. Social protection (SP) measures

- SP programmes have elements of risk coping, risk transfer or risk mitigation mechanisms
- Smooth food consumption and
- Manage production risks better - engage in more profitable livelihood and ag activities
- Cash-based transfer (CT) programmes implemented in over 90 percent of the Asian or LAC countries
  - CT schemes are preferred instruments against poverty and food insecurity in LAC
    - Implemented mainly as conditional cash transfers (CCT)

2. Approaches to managing ...

- Major advantages CT schemes is cost-effectiveness due to low transaction costs
- A growing number of countries are also institutionalizing CT as well as cash-for-work programmes
- Linking social protection to developing productive capacity – e.g.
  - Productive Safety Net Programme of Ethiopia,
  - CCT in LAC – education and health to build the productive capacity of future generation.
5. Conclusions

- Long term strategy (20/30 years) - integrated or holistic risk management to outrun drought
- Supportive policy environment
  - Help farmers step out of marginal areas – non-farm
  - Encourage service providers - PPP
- Develop agricultural risk assessment and management capacity.
  - Partner with academia and research organization
    - Training activities – at all levels
    - Research and analytical works – generate knowledge

THANK YOU
I.2. WEREDA DISASTER RISK PROFILE

Wereda Disaster Risk Profile

- WHAT IS WDRP?
- DATA COLLECTION
- PROCESS
- DIGITAL LIBRARY
- OUTPUTS
What is WDRP?

Establishes an extensive information system about disaster risk

No bulky reports, but a user-friendly database

Provide all necessary information on disaster risk elements (information about the hazard, vulnerability and capacity)

It will help decision makers to be better informed about the factors that make people, livelihoods, environments, infrastructure and political system vulnerable to disasters

Forms the basis for designing Disaster Risk Management strategies

Risk Assessments for answering:
- Where are the hazards present?
- Why are they present there?
- Who gets affected?
- What makes them vulnerable to these disasters?

Wereda Disaster risk Profile
What is WDRP?

- Fully government led and operated programmed
- Most information comes from community/kebele level (community based)
- Developed in urban and rural weredas

Weredia Disaster Risk Profile

- WHAT IS THE WDRP?
- DATA COLLECTION
- PROCESS
- DIGITAL LIBRARY
- OUTPUTS
Data collection - Methodology

- **Detailed indicators** were developed to capture information on all risk components (hazards, vulnerability and capacity)
- All possible **Secondary Data** collected relevant to these indicators (LIU, SERA Project, Risk baseline...)
- **Primary Data** for remaining indicators:
  - Both quantitative and qualitative information
  - Study Instruments:
    - Household Questionnaires – statistically significant number of households
    - Focus Groups Discussions: One per kebele
    - Problem Tree Analyses – to see the cause and effect of disasters (with communities)
    - Key Informant Interviews: with major wereda level government and non-government actors

Wereda Disaster Risk Profile

- **WHAT IS THE WDRP?**
- DATA COLLECTION
- **PROCESS**
- DIGITAL LIBRARY
- OUTPUTS
Streamlined training of government staffs:
- Around 2400 government staffs at federal, regional, zonal, wereda and kebele levels trained in data collection, 45 federal staffs in data entry while 25 federal staffs have been trained in analysis and profile development

Data Collection
- Done at stakeholders (households & community) and actor (key informants & community) levels

Data Entry, Analyses and Profile Development
- Centralized in federal DRMFSS (plan to decentralize in future)

Validation (per wereda or the wereda drr planning process)

When was the data collection done in your wereda?
Who participated?
Werda Disaster Risk Profile

- WHAT IS THE WDRP?
- DATA COLLECTION
- PROCESS
- **DIGITAL LIBRARY**
- OUTPUTS

I.1. Wereda Disaster Risk Profile

**DIGITAL LIBRARY**

- All information is analyzed and then converted into an informative **database and digital library**

- Output (digital library) is **simple and user-friendly format and** enable easy access to all relevant information for that district

- The database and digital library will be shortly uploaded on a **web-based platform** for wider access
Werida Disaster Risk Profiling

Disaster Risk

- Hazard
  - Biological
  - Geological
  - Hydro-meteorological
  - Social
  - Technological
- Vulnerability
  - Physical
  - Economic
  - Environmental
  - Social
- Capacity
  - Health status
  - Coping Strategies
  - Access to Credit
  - Institutional Development

Who has already seen the WDRP?
WHAT IS THE WDRP?
DATA COLLECTION
PROCESS
DIGITAL LIBRARY
OUTPUTS

OUTPUTS
- Data base with diverse indicators about the disaster risk in the wereda
- Two pages summary of the profile
- Templates that will be used during the Wereda DRR Planning Process
I.1. Wereda Disaster Risk Profile

- Analyses of underlying causes of disasters
- Management of factors of disasters (from WDRP)
- Analyse trends and adapt to Climate Change
- Informing Development plans/programmes for Disaster Risk Mitigation/Adaptation
- Improved preparedness for adverse events
- To assign roles and responsibilities for the wereda emergency response management

MAYOR OUTPUTS

- Early Warning Systems
  - Monitoring hazard situation based on/comparing with baseline (WDRP)
  - Location-specific EWS according to the main risks of the area
  - Facilitates timely response at a wereda

- Disaster Risk Mitigation/Adaptation Planning
  - Management of factors of disasters (from WDRP)
  - Analyse trends and adapt to Climate Change
  - Informing Development plans/programmes for Disaster Risk Mitigation/Adaptation

- Contingency Planning
  - Improved preparedness for adverse events
  - To assign roles and responsibilities for the wereda emergency response management

OUTPUTS
WEREDA DISASTER RISK PROFILING

NATIONAL DISASTER RISK MANAGEMENT CORDINATION COMMISSION
Engdawork Minass
WDRP Coordinator
WFP/NDRMCC
16 DECEMBER 2015

Background of the Risk Profile

- The first step towards mitigating the effect of disasters is to have an information system that enables disaster risk reduction.
- In line with the shift from reactive crises management to proactive risk reduction (DRM revised policy)
- Programme of the DRM SPIF
- Indicator of the GTP
Background of the Risk Profile….

- Cited by GFDRR as the top-priority programme in Ethiopia
- **Supported** by a series of donors and development partners
- Government-owned programme
- **Supported** by a series of donors and development partners
- High level of **disaggregated sectoral analyses** based on community interactions

Background Continued...

- Hyogo Framework of Action, where **Vulnerability**, **Hazard** and **Capacity to cope** are the three elements of disaster risk.
- Gives answer to:
  - What and where are the hazards?
  - Why are they present?
  - Who gets affected?
  - What makes them vulnerable?

- This **will help decision makers** at all level to be better informed about the nature, magnitude and key factors that render people, livelihood, environment and infrastructure vulnerable to disasters.
Process of the Disaster Risk Profile

Wereda Disaster Risk Profile

| Training | Data collection | Data Entry and profile analysis | Validation |

Methodology – Data Collection

Household Questionnaires

Focus Groups Discussions:

Problem Tree Analyses:

Key Informant Interviews:

→ High number of different Primary Data validates the veracity of the data in the different kebeles of the wereda
Disaster risk elements in WDRP

Disaster Risk

- Hazard
  - Biological
  - Geological
  - Hydro-meteorological
  - Social
  - Technological

- Vulnerability
  - Physical
  - Economic
  - Environmental
  - Social

- Capacity
  - Health status
  - Coping Strategies
  - Access to Credit
  - Institutional Development
  - Preparedness measures

General Output Cont’d...

Information Captured:
- Demographic characteristics
- Social characteristics
- Economic characteristics and poverty levels
- Exposure to disasters and coping strategies adopted
- Agricultural ownership and problems
- Livestock ownership and problems
- Accessibility
- General quality of life
- Interventions desired
Disaster risk elements in WDRP

List of categories

- Hazard related characteristics
- Physical characteristics
- Socio-demographic characteristics
- Environmental characteristics
- Occupation, source of food and PNSP
- Crop production
- Livestock production
- Access to market and credit
- Health characteristics
- Coping mechanism
- Preparedness measures
- Community suggestions and perceptions
- Others (like PSNP, source of food, etc)

General Output

- Provide baseline information to help design risk reduction programs and development programs
- Identifies the risk elements in each wereda (Hazard, vulnerability and capacity)
- Contain information that can be used by major sectoral offices in each wereda
- Helps NGOs in saving their time in preliminary assessment of intervention areas
Use of Indicators and Relevance to Sectors

- Major disasters in each kebele of the wereda are identified
- The causes and effects of each disaster
- Time of occurrence, frequency and severity of each disaster
- Major coping and preparedness mechanisms adopted by households and interventions desired
- The capacity of the community and other socio economic and infrastructure issues are assessed
## Wereda Disaster Risk Profile

**Disaster Risk Management and Food Security Sector (DRMFSS)**

### Region: 

#### Zone: 

<table>
<thead>
<tr>
<th>Region</th>
<th>Zone</th>
<th>Area</th>
<th>Selected Indicator</th>
<th>Biological Hazards of the Wereda</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIRRUMIGIZI</td>
<td>ANIGA</td>
<td>AMHIL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIDEBA</td>
<td>AMHIL</td>
<td>AMHIL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Selected Indicator: Household Exposure to Hazards

<table>
<thead>
<tr>
<th>Disaster Type</th>
<th>General Exposure</th>
<th>Last Five Years Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Droughts</td>
<td>6.14</td>
<td>6.15</td>
</tr>
<tr>
<td>Floods</td>
<td>0.73</td>
<td>0.52</td>
</tr>
<tr>
<td>Landslides</td>
<td>0.14</td>
<td>0.02</td>
</tr>
<tr>
<td>Crop diseases</td>
<td>23.02</td>
<td>27.47</td>
</tr>
<tr>
<td>Livestock diseases</td>
<td>28.40</td>
<td>59.11</td>
</tr>
<tr>
<td>Human diseases</td>
<td>12.78</td>
<td>11.13</td>
</tr>
<tr>
<td>Storms / Cyclone / Rainstorm</td>
<td>7.79</td>
<td>7.29</td>
</tr>
<tr>
<td>Frost / Cold waves</td>
<td>0.16</td>
<td>0.17</td>
</tr>
<tr>
<td>Conflicts</td>
<td>0.24</td>
<td>0.00</td>
</tr>
<tr>
<td>Eradicate / Pests</td>
<td>3.78</td>
<td>4.38</td>
</tr>
<tr>
<td>Forest Fires</td>
<td>5.74</td>
<td>4.38</td>
</tr>
<tr>
<td>Road Accident</td>
<td>0.09</td>
<td></td>
</tr>
<tr>
<td>No Disaster</td>
<td>2.03</td>
<td>0.77</td>
</tr>
<tr>
<td>Heavy rain</td>
<td>2.78</td>
<td>2.56</td>
</tr>
<tr>
<td>Heat wave</td>
<td>2.26</td>
<td>2.66</td>
</tr>
</tbody>
</table>

### Biological Hazards of the Wereda

#### Animal Diseases
- Typhus and malaria
  - Cause: Animal death
  - Effects: Loss of animal products
- Contagious Cattle Disease
  - Cause: Loss of livestock feeding
  - Effects: Loss of animal products
- Menanglema (COPM)
  - Cause: Poor livestock management
  - Effects: Loss of animal products
- Lymphocytis
  - Cause: Poor livestock management
  - Effects: Loss of animal products

#### Human Diseases
- Malaria
  - Cause: Loss of productive man power
  - Effects: High mortality, loss of human productivity, increased expenses for medical treatment
- Typhus
  - Cause: Loss of livestock feeding
  - Effects: High mortality, increased expenses for medical treatment
- Typhoid
  - Cause: Loss of livestock feeding
  - Effects: High mortality, increased expenses for medical treatment
- Diarrhoea
  - Cause: Loss of livestock feeding
  - Effects: High mortality, increased expenses for medical treatment
- Cholera
  - Cause: Loss of livestock feeding
  - Effects: High mortality, increased expenses for medical treatment

### Hazard Sub-Type: Crop diseases
- Cause: Poor and short management
- Effects: Crop damage

### Hazard Sub-Type: Plant disease
- Cause: Poor and short management
- Effects: Crop damage
- Rodents
  - Cause: Loss of livestock feeding
  - Effects: Increased expenses for medical treatment
- Bacterial infection
  - Cause: Loss of livestock feeding
  - Effects: Increased expenses for medical treatment
  - Cause: Loss of livestock feeding
  - Effects: Increased expenses for medical treatment

### Data Collected Date: Saturday, May 9, 2015
Crop Production Sector

- Major types of crops produced, landholding issues, production/productivity, access to inputs, soil fertility, land condition and others are assessed
- Major disasters affecting crop production in each kebele of the wereda are identified
- The causes and effects of these disasters, time of occurrence, frequency and severity are assessed
- Major coping mechanisms adopted by households and interventions desired in areas of crop production are identified
- Use of irrigation and access to crop market
<table>
<thead>
<tr>
<th>Selected Indicator</th>
<th>Economic Vulnerability: Crops Grown - Types of crops grown by households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Crop Type</td>
<td>Type of Crops Grown</td>
</tr>
<tr>
<td></td>
<td>Last Year</td>
</tr>
<tr>
<td>Teff</td>
<td>0.56</td>
</tr>
<tr>
<td>Barley</td>
<td>0.68</td>
</tr>
<tr>
<td>Maize</td>
<td>29.92</td>
</tr>
<tr>
<td>Sorghum</td>
<td>35.68</td>
</tr>
<tr>
<td>millet</td>
<td>0.00</td>
</tr>
<tr>
<td>Other grain (specify)</td>
<td>1.20</td>
</tr>
<tr>
<td>Beans</td>
<td>3.92</td>
</tr>
<tr>
<td>Peas</td>
<td>0.16</td>
</tr>
<tr>
<td>Other pulses</td>
<td>1.84</td>
</tr>
<tr>
<td>Noug</td>
<td>1.12</td>
</tr>
<tr>
<td>Groundnut</td>
<td>1.36</td>
</tr>
<tr>
<td>Sesame</td>
<td>17.36</td>
</tr>
<tr>
<td>Other oiled seed</td>
<td>0.24</td>
</tr>
<tr>
<td>Vegetables</td>
<td>5.60</td>
</tr>
<tr>
<td>Trunks</td>
<td>0.16</td>
</tr>
<tr>
<td>Other cash crop</td>
<td>0.72</td>
</tr>
</tbody>
</table>
Livestock Production and Veterinary Sector

- Major types of livestock reared, availability of pasture and water, production/productivity, access to veterinary services, major livestock diseases etc.
- Major disasters affecting livestock production in each kebele of the wereda are identified.
- The causes and effects of these disasters, time of occurrence, frequency and severity are assessed.
- Major coping mechanisms adopted by households and interventions desired in areas of livestock production are identified.
- Access to livestock market.
Outputs of Risk Profiling

- Facilitates timely response at a wereda
- Monitoring hazard situation based on/comparing with baseline (WDRP)
- Location-specific EWS according to the main risks of the area
- Management of factors of disasters (from WDRP)
- Informing Development plans/programmes for Disaster Risk Mitigation/Adaptation
- Improve preparedness for adverse events
- To assign roles and responsibilities for the wereda emergency response
- Use WDRP as baseline info to design development plans/programmes
Who has already seen the WDRP?

Thank You

I.1. Wereda Disaster Risk Profile
Objectives of study

The purpose of the RAS is to provide a rigorous and holistic assessment of the risks related to agriculture in Ethiopia. The study aimed to identify and prioritise main agricultural risks and risk management gaps and needs.

Our two presentations aim to share and discuss the five main components:

1) Country context
2) Identification of agricultural risks
3) Mapping of existing agricultural risk management tools and initiatives
4) Analysis and evaluation of risks
5) Prioritisation of risks and risk management needs
Definitions

1. **Risk**: Risk is the effect of an uncertain event (potential situation or scenario) involving exposure to danger or loss of something of value. A risk can typically impede the achievement of the objectives of individuals or organisations (ISO 2009).

2. **Agricultural risk**: Agricultural risk is a risk that involves a (potential) loss or damage affecting agricultural production, farm household income, or access to food (PARM 2014).
   a) **Idiosyncratic risks**: those risks that usually affect only individual farms (e.g., illness in family, plant pests, animal diseases)
   b) **Covariate risks**: those risks that affect many farmers simultaneously (e.g., fluctuating market prices, major droughts or floods).

3. **Challenges/constraints in agriculture** are known systemic bottlenecks which hamper optimisation farm output and incomes.
   - Not focus of the RAS


Methodology adopted in RAS Ethiopia (1)

1. **Literature review**: including publications, reports and other documents sourced from public institutions, private sector organisations, donor missions, research institutions and organisations representing various actors in the agricultural value chains in Ethiopia as well as online.

   Identification of information gaps. Additional information and verification sought through:

2. **Focus group discussions** with farmers and cooperatives (three primary producer cooperatives and one cooperative union in SNNPR).

3. **Key informant interviews and consultations** with various stakeholders including farmers’ representatives, public policymakers and private sector actors.
Methodology adopted in RAS Ethiopia (2)

4. **Analysis of available data** using qualitative and quantitative methods, including the application of statistical tools which generate evidence on incidence/frequency and severity of various agricultural risks (basis for prioritisation of risks).

   - Comparison of production indices (crop, food, and livestock) with occurrences of natural risks (1993-2013)
   - Establishment of severity and frequency of agricultural risks in Ethiopia, including input market risks, weather risks, price variability, postharvest losses, etc.
   - Assessment of impact of, and vulnerability to agricultural risks in Ethiopia. This includes analysis of vulnerability of households, and relative importance of crops at regional level

5. **Risk prioritisation** based on comparison of frequency and severity

6. **Review of existing ARMs** in order to point towards future options which can be explored.

---

Strategic importance of agriculture in Ethiopia (1)

Ethiopia recorded very rapid (10%) growth over past decade:
- Per capita income more than trebled between 2004/05 and 2012/13
- Improvement in social indicators e.g. poverty incidence, illiteracy and provision of education and health services
- Agriculture made major contribution (share of GDP remains significant: 43% in 2013)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2004/05</th>
<th>2012/13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per capita income (US $)</td>
<td>171</td>
<td>550</td>
</tr>
<tr>
<td>Poverty incidence (%)</td>
<td>38.7</td>
<td>26.0</td>
</tr>
<tr>
<td>Illiteracy rate (%)</td>
<td>71.0</td>
<td>53.3</td>
</tr>
<tr>
<td>Primary education coverage (%)</td>
<td>68.5</td>
<td>85.7</td>
</tr>
<tr>
<td>Basic health service coverage (%)</td>
<td>(2005/06) 76.9</td>
<td>(2011/12) 94</td>
</tr>
<tr>
<td>Food poverty (%)</td>
<td>38.0</td>
<td>31.8</td>
</tr>
</tbody>
</table>


---
Strategic importance of agriculture in Ethiopia (2)

Sustained increase in agricultural output and productivity important:
- In maintaining significant contribution to rapid economic (GDP) growth
- Growth is pro-poor – implying continued reduction in incidence of poverty (national and rural)
- Enhanced opportunity for agricultural value addition (agri-based industrialisation) and employment generation
- Sustained macroeconomic stability, including low price inflation (as food inflation represents major component of overall price inflation)
- Accounts for nearly 85% of exports: major forex earner

Main sector features:
- Production dominated by smallholder farmers
- Employs over 80% of the labour force
- Production is predominantly rainfed – only 4.5% of arable land is under irrigation

Overview of Ethiopia’s agriculture sector (1)
Farming systems reflect agro-climatic conditions

Source: CAADP-CGIAR, 2015
Overview of Ethiopia’s agriculture sector (2)

Main grains recorded average growth of 7.8% over past seven years

Annual cereal production, national level (million quintals)

Source: Central Statistical Agency

Ethiopia’s livestock industry

- Livestock population in 2013 and average annual growth rate:
  - Cattle: 54 million – 1.74%
  - Sheep: 28 million – 2.17%
  - Goats: 23 million – 2.79%

- Concentration of livestock:
  - Amhara, Oromia, SNNP and Tigray
  - Accounting for example for 90.6% and 81.56% of sheep and goats populations respectively.

- Livestock exports peaked in 2011:
  - US$ 79.13 million (US$ 74.13 million in 2012)
  - US$ 207.05 million (US$ 135.94 million in 2012)
Yield gap in major cereals in Ethiopia

Source: Author’s calculation based on yieldgap.org

Inputs delivery systems but uptake remains low

- Inputs marketing dominated by public enterprises and cooperatives:
  - The Agricultural Inputs Supply Enterprise (AISE) – main importer/distributor of fertiliser
  - The Ethiopia Seed Enterprise (ESE) – dominant in seed marketing (most private sector actors in the market but often to sell ESE rather than directly to farmers).
  - Cooperatives used to sell inputs to farmers on credit and also recovered loans
  - The Commercial Bank of Ethiopia (CBE) financed with 100% guarantee by regional governments (high loan default rates led to withdrawal of regional governments).
- Uptake remained low!

<table>
<thead>
<tr>
<th>Cereal</th>
<th>Seed use</th>
<th>Fertiliser use</th>
<th>Pesticide use</th>
<th>Herbicide use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Traditional</td>
<td>Improved</td>
<td>Any</td>
<td>Inorganic</td>
</tr>
<tr>
<td>Barley</td>
<td>99.1</td>
<td>1.9</td>
<td>65</td>
<td>41.9</td>
</tr>
<tr>
<td>Maize</td>
<td>80.8</td>
<td>31.9</td>
<td>75.4</td>
<td>44.2</td>
</tr>
<tr>
<td>Sorghum</td>
<td>99.8</td>
<td>0.2</td>
<td>34.8</td>
<td>20.3</td>
</tr>
<tr>
<td>Taff</td>
<td>95.6</td>
<td>8.9</td>
<td>73.7</td>
<td>68.6</td>
</tr>
<tr>
<td>Wheat</td>
<td>88.8</td>
<td>13</td>
<td>79.9</td>
<td>70</td>
</tr>
</tbody>
</table>
Output marketing predominantly unstructured and constrained by following:

**State of rural roads**
- Most rural roads are not all-weather-proof, making transportation and marketing of produce difficult and costly.
- Despite GoE investment in rural road construction – under the Road Sector Development Programme (RSDP) – increasing rural roads (dirt roads) almost five times between 1992 and 2008. Second phase initiated running until 2016 with World Bank support.

**Limited availability of storage facilities**
- Contributes to high postharvest losses
- Review by WFP (2013) noted that a lack of access to reliable storage infrastructure by smallholder producers contributes to high postharvest losses
- Also limits farmers’ options in terms of marketing strategies which optimise household farm incomes (e.g. gains from delayed sale of produce can be reduced if storage occurs in inefficient facilities)
- GoE has initiated programme to assist cooperative unions to invest in storage infrastructure in order to meet about 80 percent of their projected warehousing needs.

**Other constraints:**
- Acute lack of trade finance, creating illiquidity in especially the rural trade
- Lack of independent quality and quantity assurance systems which can reduce transaction costs

---

**Postharvest losses high in Ethiopia**

Postharvest losses are very high, especially for grains

*Source (both graphs): APHlis*
Postharvest losses high in Ethiopia (2)

PH losses costly and concentrated in major grain-producing regions

<table>
<thead>
<tr>
<th>Region</th>
<th>Total Postharvest Losses (USD) per province for grains (Maize, Wheat, Sorghum and Barley) (2005-2012)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total loses (USD)</td>
</tr>
<tr>
<td></td>
<td>100 000 000</td>
</tr>
<tr>
<td></td>
<td>2005</td>
</tr>
<tr>
<td></td>
<td>Annual revenue loss from post harvest loss in Ethiopia (2005-2012)</td>
</tr>
</tbody>
</table>

Source (both graphs): APHLIS

Supporting information systems

Multiple sources exist including:
- The Bureau of Agriculture and Rural Development
- Disaster Prevention and Preparedness Bureau
- Agricultural Marketing Agencies in the regions
- Bureau of Trade and Industry
- Ethiopia Grain Trade Enterprise (EGTE)
- Central Statistical Agency (CSA)
- ECX – covering mainly current and historical prices on traded commodities.
- Famine Early Warning Systems Network (FEWSNET) – facilitates plan actions.
- Livestock Information Network and Knowledge System (LINKS)
  - Lack coordination and access can be problematic (Amha 2014)
Table summarising ESS (2014), CSA and LSMS, World Bank (2015)

<table>
<thead>
<tr>
<th>Type of shock</th>
<th>% of hh surveyed experiencing shock</th>
<th>1st most important</th>
<th>2nd most important</th>
<th>3rd most important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price raise of food item</td>
<td>13.9</td>
<td>9.1</td>
<td>28.7</td>
<td>14.2</td>
</tr>
<tr>
<td>Illness of household member</td>
<td>10.3</td>
<td>27.2</td>
<td>9.9</td>
<td>13.9</td>
</tr>
<tr>
<td>Increase in price of inputs</td>
<td>8.8</td>
<td>6.3</td>
<td>13.7</td>
<td>30.3</td>
</tr>
<tr>
<td>Drought</td>
<td>7.3</td>
<td>17.4</td>
<td>7.4</td>
<td>5</td>
</tr>
<tr>
<td>Other crop damage</td>
<td>3.6</td>
<td>8.1</td>
<td>6</td>
<td>4.5</td>
</tr>
<tr>
<td>Price fall of food items</td>
<td>3.6</td>
<td>5.6</td>
<td>12.8</td>
<td>5.5</td>
</tr>
<tr>
<td>Great loss/death of livestock</td>
<td>3.3</td>
<td>4.7</td>
<td>5.3</td>
<td>7.4</td>
</tr>
<tr>
<td>Flood</td>
<td>2.1</td>
<td>2.4</td>
<td>2.3</td>
<td>5.1</td>
</tr>
<tr>
<td>Death of household member</td>
<td>1.6</td>
<td>3.8</td>
<td>1.4</td>
<td>0.1</td>
</tr>
<tr>
<td>Heavy rains preventing work</td>
<td>1.2</td>
<td>3.3</td>
<td>1.8</td>
<td>3.4</td>
</tr>
<tr>
<td>Loss of non-farm job of household member</td>
<td>0.9</td>
<td>2</td>
<td>0.2</td>
<td>0.6</td>
</tr>
<tr>
<td>Theft/robbery and other violence</td>
<td>0.6</td>
<td>0.3</td>
<td>1.5</td>
<td>1.4</td>
</tr>
<tr>
<td>Violence/conflict</td>
<td>0.3</td>
<td>0.2</td>
<td>1.5</td>
<td>1.6</td>
</tr>
<tr>
<td>Involuntary loss of house/farm</td>
<td>0.3</td>
<td>1</td>
<td>0.2</td>
<td>0.1</td>
</tr>
<tr>
<td>Landslides/avalanches</td>
<td>0.2</td>
<td>0.4</td>
<td>0</td>
<td>0.8</td>
</tr>
<tr>
<td>Fire</td>
<td>0.2</td>
<td>0</td>
<td>0.8</td>
<td>0</td>
</tr>
<tr>
<td>Displacement (due to gov dev project)</td>
<td>0.1</td>
<td>0.3</td>
<td>0.3</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>1.8</td>
<td>4.4</td>
<td>0.8</td>
<td>2.7</td>
</tr>
</tbody>
</table>

Main agricultural risks identified in Ethiopia

<table>
<thead>
<tr>
<th>Source of risk</th>
<th>Main characteristics</th>
</tr>
</thead>
</table>
| Natural risks, including weather | Droughts and floods – most frequent, impact covariant (as in affecting major production regions) and effects on production as well as loss of human lives.  
Hailstorms, temperature variability, earthquakes, volcanic activity – less frequent and effects localised but can be severe |
| Biological risks           | Crop and livestock pests and diseases – frequent and severe impact including high livestock mortality but also high revenue losses due to export restrictions imposed by importing countries |
| Market related risks       | Market access (mentioned by farmers) and volatility in input and output prices, potential changes in demand/supply                                             |
| Policy risks               | Output market interventions (e.g. price uncertainty due to distribution of subsidised imported wheat); change in policy of regional governments and farmers’ inputs uptake capacity |
| Other risks considered     | Health risks, death, accidents affecting farmers/household members; land access uncertainty (e.g. from commercial |
Market-based ARMs: Agricultural insurance

Little appetite in insurance industry to supply agricultural insurance products. Exceptions Nyala and Oromia Insurance Companies offer:

- **Crop and livestock micro-insurance:**
  - Indemnity-based products: Multi-Peril crop insurance; Named peril crop Insurance (premium about 5%)
  - Weather Index Crop Insurance – single peril; varied premium and most heavily subsidised

- **Performance:**
  - Lower-priced indemnity-based product shows potential to be sustainable and scalable
  - Weather index insurance – several pilots but sustainability without subsidies uncertain
  - Further innovation needed; building on lessons and local actuarial capacity

<table>
<thead>
<tr>
<th>Year</th>
<th>Crops affected</th>
<th>Total claims (Birr)</th>
<th>Location/zone</th>
<th>Reason for claims</th>
<th>Claims/Gross premium ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>Maize</td>
<td>560,781</td>
<td>East Showa</td>
<td>Hailstorm</td>
<td>100%</td>
</tr>
<tr>
<td>2011</td>
<td>Wheat</td>
<td>71,755</td>
<td>West Showa</td>
<td>Yellow rust</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>Peas</td>
<td>12,425</td>
<td>South West Showa</td>
<td>Hailstorm</td>
<td>100%</td>
</tr>
<tr>
<td>2012</td>
<td>Soya beans and sesame</td>
<td>514,171</td>
<td>East Wollega</td>
<td>Rainfall deficit (drought)</td>
<td>80%</td>
</tr>
<tr>
<td>2013</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0%</td>
</tr>
<tr>
<td>2014</td>
<td>Chicken peas</td>
<td>58,522</td>
<td>Oromia Special Zone</td>
<td>Excessive rain during harvest time</td>
<td>10%</td>
</tr>
</tbody>
</table>

Output market ARMs: Contract farming

Interesting examples offer following benefits

- **WFP’s Purchase for Progress (P4P)** – In 2012/13 WFP bought a total of 19,000 tonnes of grains from smallholder farmers through contracts involving 29 cooperative unions; just 14 involved when started in 2010. Participating farmers obtained financing of US$ 1,442,105 from CBE using WFP forward contract as collateral.

- **Four breweries including Diageo** – participating in programme involving about 23,000 smallholder farmers. Offering price about 65% of final price (compared to 54% for non-participating counterparts in Arsi). Farmers also able to obtain inputs credit to utilize double the volume of improved seed and fertiliser used by non-participating counterparts.

Need to explore scaling up including EGTE procurement for strategic grain reserves as well as other private formal buyers (buying about 750,000 tonnes of grains per year).
Output market ARMs: Contract farming

The Ethiopia Commodity Exchange (ECX)

- Owned by GoE, which funded US$20 million initial capitalisation. Membership is private – consisting of individual seat-owning trading members and regulated by the Ethiopian Commodity Exchange Authority (ECEA) under Proclamation No.551/2007.
- Reached total traded volume of commodities of 586,164 tonnes in 2013 (within six years of its launch). Trading generated profit before tax of Birr 105 million (about US$ 5.22 million). Value of membership “seats” rose from Birr 50,000 (US$ 5,100) in 2008 to Birr 1.35 million (US$ 80,000) in 2011.
- Volumes dominated by coffee (41%) and sesame (48%) – “mandated crops”.
- Volumes traded of “non-mandated” crops e.g. maize, wheat, teff, barley is negligible; and very low volume of inventory finance attracted (even for coffee)

Need to broaden traded commodities; explore scope for increased inventory financing and for trading futures contracts

- Grains for formal local buyers (e.g. maize, barley, wheat and sorghum) can be good candidates

Reducing agricultural risks: technology and infrastructure

- Some public sector driven, technology-oriented initiatives include:
  - Scaling up small-scale irrigation projects;
  - Promoting adoption of improved planting materials and livestock breeds;
  - Improving inputs supply systems for control of plant and animal health and diseases.
- Technical viability of these solutions need to be complemented by financial innovations and market incentives to ensure uptake
- Strategic infrastructure investments:
  - Public investment in rail transport link with ports – has potential to stabilise prices of imported inputs
  - Investment in storage infrastructure by cooperatives – can help reduce postharvest losses but needs complementary marketing systems
Managing disasters in Ethiopia:

• Important since private insurance has limitations in coping with risks on catastrophic scale; and especially as there is evidence of covariance in impact of the most frequent weather risks (drought and floods) in Ethiopia.

• Ethiopia multi-agency model involves:
  • EGTE procuring and holding food reserves
  • EFSRA managing release of reserves and of relief operations – its actions guided by:
  • DRMFSS (Early Warning System) – collating information for action.

• Reviews including by IFPRI (2011) acknowledge success of model – evidently worth sharing lessons including
  • Linkage between relief interventions and other non-emergency welfare programmes such as the school feeding programmes (noted as having potential to drive formal market demand for commodities).

• Also worth exploring
  • Linking EGTE procurement to ECX trading using WRS and involving cooperatives
  • Transparently combining insurance with the GoE relief programme (to resolve a challenge in the Zambian market where private delivery of insurance to smallholder farmers in making progress)

Thank you for your attention
Introduction

Scope of presentation:
- Brief overview of methodology
- Perceptions of risks, especially among farmers in Ethiopia
- Evidence on agricultural risks in Ethiopia
- Prioritisation of risks and future actions to promote ARMs

Methodology:
- Assessment of frequency and severity of impact of risks – as basis for prioritisation
- Existing ARMs can help define options for future actions
Risk analysis methodology

**Qualitative:**
- Focus group discussions with farmers

**Quantitative:**
- Statistical analysis
  - **Coefficient of variation** to measure inter-annual variability of prices and yields of major crops for the time span 1993-2013, and to provide single commodities risk assessment;
  - **Volatility measure** to determine and compare shorter-term (3 years) variation of prices of major crops;
  - **Correlation coefficients** to determine the significance and the sign of the relationship among variables, represented by risks, meteorological data and socio-economic outcomes.

Risk perceptions among farmers and others

**Farmers’ perception of risks and challenges in Ethiopia's agricultural sector (August 2015)**

- **Weather risks:** cold weather, late/delayed rains and inadequate rainfall during the season. In particular, inadequate rains or drought were reported to increase incidence of plant diseases/pests.
- **Plant diseases:** income opportunities from growing red pepper “are gone” due to plant diseases.
- **Access to affordable inputs** e.g. seeds and pesticides remains uncertain but that is not the case in terms of access to fertiliser which is distributed through the cooperatives.
- **Access to markets** can be uncertain, especially for relatively high value and higher income-generating crops such as vegetables. The uncertainty is made more acute because the marketing chains are less well-established – the combined effects of lack of transport and perishability of some crops (e.g. vegetables) tends to weaken farmers’ bargaining position, especially when there is over-supply.
- Marketing through cooperatives is hampered by the cooperatives’ lack of sufficient working capital.
  - In addition limited staff capacity and human capital
- **Lack of modern equipment** for harvesting and for efficient postharvest management of produce limits marketing options.

Responses are consistent with evidence reported in Amha (2014); also reported in Ethiopia Socioeconomic Survey (ESS) 2014, CSA and LSMS, World Bank (2015)
Ethiopia: agricultural production indices and risks (1991-2013)

Natural risks in Ethiopia

- Flood and drought are the most frequent weather risks
- But other weather risks should not be ignored

Source (both graphs): Authors’ elaboration on EM-DAT data
Economic damage from natural risks in Ethiopia (1906-2013)

% of total economic damage by various disasters

> Economic damage highest for drought but under-reporting may be reducing scale of impact of other risks

Source: Authors’ elaboration based on EM-DAT data

Impact of drought and floods in Ethiopia

Impact across regions and subsectors (crops and livestock)

---|---|---|---|---|---|---|---|---|---|---|---|---
Crop damage (ha) | 0 | 0 | 9,882 | 33,520 | 0 | 67,547 | 1,600 | 106 | 0 | 151,356 | 1,516 | 265,527
Cattle deaths | 325 | 4,700 | 0 | 0 | 326 | 0 | 0 | 2,542,450 | 1,824 | 4,022 | 0 | 2,553,647

Source (both graphs): Authors’ elaboration on EM-DAT data

Source: DRMFSS
Ethiopia’s livestock industry

Drought does not only lead to livestock deaths but also forced sale due to decline in feed availability

Average rainfall and feed availability in Doyogena (highland area)

Incidence and severity of some plant diseases in Ethiopia

<table>
<thead>
<tr>
<th>Crop</th>
<th>Disease</th>
<th>Incidence (%)</th>
<th>Severity (scale 1-9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>Maize leaf rust</td>
<td>63</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Northern corn leaf blight</td>
<td>70</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Maize ear rot</td>
<td>55</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Maize streak virus</td>
<td>30</td>
<td>7</td>
</tr>
<tr>
<td>Sorghum</td>
<td>Anthracnose</td>
<td>100</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Head smut</td>
<td>65</td>
<td>5</td>
</tr>
<tr>
<td>Coffee</td>
<td>Coffee wilt disease</td>
<td>60</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Coffee berry disease</td>
<td>80</td>
<td>3</td>
</tr>
<tr>
<td>Cowpea</td>
<td>Cowpea leaf rust</td>
<td>40</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Anthracnose</td>
<td>30</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: Eshte et al. (2015) and Shibabaw et al. (2013)
In the table below, we can see the incidence and severity of some plant diseases in Ethiopia.

<table>
<thead>
<tr>
<th>Year</th>
<th>Outbreaks</th>
<th>Cases</th>
<th>Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007/08</td>
<td>158493</td>
<td>47518</td>
<td>4852</td>
</tr>
<tr>
<td>2008/09</td>
<td>167054</td>
<td>21373</td>
<td>4024</td>
</tr>
<tr>
<td>2009/10</td>
<td>122899</td>
<td>13397</td>
<td>3976</td>
</tr>
<tr>
<td>2010/11</td>
<td>77153</td>
<td>14864</td>
<td>2669</td>
</tr>
</tbody>
</table>

Livestock disease outbreaks sometimes lead to export ban resulting in export revenue loss – over $200 million per year from 2000 to 2005 due to outbreak of Rift Valley Disease.

### Livestock Disease

<table>
<thead>
<tr>
<th>Animal</th>
<th>Number affected</th>
<th>Percentage treated (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>7,286,463</td>
<td>46</td>
</tr>
<tr>
<td>Sheep</td>
<td>4,996,616</td>
<td>25</td>
</tr>
<tr>
<td>Goats</td>
<td>4,052,056</td>
<td>20</td>
</tr>
<tr>
<td>Horses, donkeys and mules</td>
<td>859,663</td>
<td>38</td>
</tr>
<tr>
<td>Camels</td>
<td>73,272</td>
<td>24</td>
</tr>
<tr>
<td>Poultry</td>
<td>13,093,874</td>
<td>8</td>
</tr>
</tbody>
</table>

Source: CSA (2003-12)

---

### Volatility of Commodity Prices in Ethiopia

- Inter-year prices for grains have been more volatile since 2008.
- Inter-year volatility higher than intra-year.

![Inter-annual price variation (2000-2014)](source: FAO food Price Monitoring and Analysis Tool (FPMA))

![Source: Author’s calculation based on FAO FPMA]
Volatility of commodity prices in Ethiopia (2)

- Commodities with the highest level of price volatility include the staple grains – hence have significant food security implications
- Variability of yield is low for these crops despite high price volatility

Inputs risk in Ethiopia

- Inputs quality variability – no evidence suggesting originates from the market (as is the case in Uganda) but low uptake
- Rise in inputs prices impact on uptake (see table):
  - Analysis shows low impact of global price volatility (e.g. of cost of urea, phosphate and crude oil)
  - Transport cost from port (70% of wholesale price) the most critical
- Uptake influenced by:
  - Output price volatility which impacts on profitability of inputs use (e.g. changing VCR for fertiliser), implying relevant of output market prices; and
  - Access to finance (e.g. withdrawal of regional governments from issuing loan guarantees affected provision of inputs credit)
### Value cost ratios for fertiliser in Ethiopia (1992-2008)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teff:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shewa</td>
<td>3.96</td>
<td>1.67</td>
<td>1.92</td>
<td>1.91</td>
</tr>
<tr>
<td>Gojam</td>
<td>3.66</td>
<td>1.66</td>
<td>2.12</td>
<td>1.99</td>
</tr>
<tr>
<td>Arsi/Bale</td>
<td>3.60</td>
<td>1.63</td>
<td>1.85</td>
<td>1.69</td>
</tr>
<tr>
<td>Across country</td>
<td>3.74</td>
<td>1.69</td>
<td>2.02</td>
<td>1.91</td>
</tr>
<tr>
<td><strong>Maize:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shewa</td>
<td>4.44</td>
<td>1.48</td>
<td>2.30</td>
<td>2.28</td>
</tr>
<tr>
<td>Gojam</td>
<td>4.24</td>
<td>1.41</td>
<td>2.69</td>
<td>2.42</td>
</tr>
<tr>
<td>Walega/Kefa</td>
<td>3.84</td>
<td>1.28</td>
<td>1.81</td>
<td>1.83</td>
</tr>
<tr>
<td>Gamu Gofa</td>
<td>4.13</td>
<td>1.38</td>
<td>1.73</td>
<td>NA</td>
</tr>
<tr>
<td>/Sidamo</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Across country</td>
<td>4.24</td>
<td>1.41</td>
<td>2.12</td>
<td>2.18</td>
</tr>
</tbody>
</table>

Source: IFPRI, 2011

### Summary of occurrence and impact of some agricultural risks in Ethiopia

<table>
<thead>
<tr>
<th>Risk category</th>
<th>Risk</th>
<th>Time interval</th>
<th>Frequency</th>
<th>Probability of occurrence</th>
<th>Human deaths</th>
<th>Economic losses (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Natural disasters</strong></td>
<td>Drought</td>
<td>1965-2013</td>
<td>15</td>
<td>Medium</td>
<td>402,367</td>
<td>92,600,000</td>
</tr>
<tr>
<td></td>
<td>Flood</td>
<td>1968-2013</td>
<td>51</td>
<td>High</td>
<td>1,976</td>
<td>19,200,000</td>
</tr>
<tr>
<td></td>
<td>Landslide</td>
<td>1994-2013</td>
<td>26</td>
<td>Low</td>
<td>26</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Wildfire</td>
<td>2000-2013</td>
<td>1</td>
<td>Low</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Earthquake</td>
<td>1906-2013</td>
<td>7</td>
<td>Low</td>
<td>24</td>
<td>320,000</td>
</tr>
<tr>
<td></td>
<td>Volcanic activity</td>
<td>1977-2013</td>
<td>3</td>
<td>Low</td>
<td>69</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Inputs risk</strong></td>
<td>Inputs price increase</td>
<td>2007-2014</td>
<td>NA</td>
<td>High</td>
<td>NA</td>
<td><em>estimated yield loss</em></td>
</tr>
<tr>
<td></td>
<td>Inputs quality variability</td>
<td>2007-2014</td>
<td>NA</td>
<td>Low</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Biological losses</strong></td>
<td>Maize leaf rust</td>
<td>2000-2013</td>
<td>7</td>
<td>High</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Maize streak virus</td>
<td>2000-2013</td>
<td>7</td>
<td>medium</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Maize ear rot</td>
<td>2000-2013</td>
<td>5</td>
<td>Medium</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Coffee wilt disease</td>
<td>2000-2013</td>
<td>5</td>
<td>High</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Coffee leaf rust</td>
<td>2000-2013</td>
<td>9</td>
<td>High</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Livestock diseases</td>
<td>2003-2012</td>
<td>NA</td>
<td>High</td>
<td>NA</td>
<td>Animal death 14,864</td>
</tr>
<tr>
<td></td>
<td>Export ban due to disease outbreak</td>
<td>1998-2012</td>
<td>3</td>
<td>Medium</td>
<td>NA</td>
<td>311,200,000</td>
</tr>
<tr>
<td><strong>Biological / management</strong></td>
<td>Postharvest losses for grains</td>
<td>2005-2012</td>
<td>8</td>
<td>High</td>
<td>NA</td>
<td>482,550,000</td>
</tr>
</tbody>
</table>

*per annum
Regional incidence of agricultural risks in Ethiopia (1)
Occurrence of severe (>90,000 people affected) droughts and floods from 1965 to 2013, by geographical area.

Source (both graphs): Authors’ elaboration on EM-DAT data

Regional incidence of agricultural risks in Ethiopia (2)
Incidence and impact of risks high in Oromia, Amhara, SNNP and Tigray, which are major producers of cereals, oilseeds, pulses and coffee.

Charts reflect % contribution per region, 2014-2015

Gender dimensions need to be explored in depth

Source: based on Agricultural Sample Survey 2015-2015, CSA
Summary of prioritised risks

Prioritisation based on analysis of frequency and severity of impact of the identified risks

<table>
<thead>
<tr>
<th>No</th>
<th>Type of risk</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Weather risks</td>
<td>high priority not only because of high levels of losses but also evidence of covariance. Other risks which are both infrequent and localised include landslides.</td>
</tr>
<tr>
<td>2</td>
<td>Crop and livestock pests and diseases</td>
<td>data available indicates high frequency and anecdotal evidence suggest high negative impact but dearth of data makes quantification of losses difficult</td>
</tr>
<tr>
<td>3</td>
<td>Price uncertainty</td>
<td>not highlighted in farmers’ surveys. However, evidence shows need to mitigate intra-seasonal and inter-year price variability. Impact not only on household income but also incentives to adopt yield-enhancing inputs.</td>
</tr>
<tr>
<td>4</td>
<td>Inputs risks</td>
<td>uncertainty regarding quality low risk in Ethiopia, largely because of market structure. Domestic inputs price less dependent on volatility in global markets than transport costs, especially from ports. Uncertain access remains a challenge – due more to uncertainty in access to inputs credit</td>
</tr>
</tbody>
</table>

Households risk coping strategies in Ethiopia

Options adopted show need for more robust ARMs

<table>
<thead>
<tr>
<th>Regions participants</th>
<th>First</th>
<th>Second</th>
<th>Third</th>
<th>Fourth</th>
<th>Fifth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oromia (cereal producers)</td>
<td>Faith and prayer</td>
<td>Selling property</td>
<td>Dependence on relatives</td>
<td>Saving</td>
<td>Dependence on government</td>
</tr>
<tr>
<td>Oromia (pastoralists)</td>
<td>Faith and prayer</td>
<td>Social network</td>
<td>Saving and migration</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SNNP (coffee producers)</td>
<td>Iqub and Insurance</td>
<td>Loan from bank</td>
<td>Iddir</td>
<td>Saving</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Ethiopia Socioeconomic Survey (ESS) 2013-14, CSA and LSMS World Bank, 2015
Thank you for your attention
WHAT RISKS?

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

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

**FREQUENCY VS. SEVERITY**

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

**Drought risk:** Farmer John loses 1900 kg in 2014: *low frequency - high severity*

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.
QUESTIONS FOR GROUPS

• Does the RAS capture the situation in Ethiopia?
• What are the risks that should be prioritized in Ethiopia?
• Identify key risk mitigation action
• Which information do you use/need to assess risks in agriculture? And what are the main gaps (to obtain relevant and timely information) ?

THANK YOU
Summary of Prioritisation of Agricultural Risks and linkage to ARM tools in Ethiopia:

National Stakeholder Workshop on Agricultural Risk Management
Capital Hotel, Addis Ababa

16-17 December 2015
Gideon Onumah, NRI

<table>
<thead>
<tr>
<th>No</th>
<th>Type of risk</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Natural risks</td>
<td>Extreme weather events (droughts and floods) but also need to pay attention to variability in rainfall e.g. late onset of rains, excessive rains during harvest, uneven rains during the season. In addition other natural risks: hailstorm, temperature variability and landslides.</td>
</tr>
<tr>
<td>2</td>
<td>Biological and environmental risks</td>
<td>Crop and livestock pests and diseases</td>
</tr>
<tr>
<td>3</td>
<td>Market-related risks</td>
<td>Price uncertainty in output markets</td>
</tr>
<tr>
<td>4</td>
<td>Inputs risks</td>
<td>Including uncertainty in terms of timely availability (e.g. seed); as well as uncertain access due difficulties in obtaining inputs credit</td>
</tr>
</tbody>
</table>
Summary of prioritised risks (2)

Based on comments from plenary and recommendations from Working Groups:

<table>
<thead>
<tr>
<th>No</th>
<th>Type of risk</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Natural risks</td>
<td>Group 4:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Climate change</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Land degradation due to erosion and loss of water bodies (lakes and rivers) with impact on livelihoods</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Loss of biodiversity due to climate change</td>
</tr>
<tr>
<td>2</td>
<td>Policy and institutional risks</td>
<td>From plenary:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• From Subsidies in output markets (e.g. wheat) and uncertainty regarding producer incentives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Land access uncertainty – due to rise in commercial farming and major infrastructure investments</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Impact of earlier disaster management schemes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>From Group 3:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Variable quality of extension information</td>
</tr>
<tr>
<td></td>
<td></td>
<td>From Group 4:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Reliability, timeliness and clarity of weather and related information</td>
</tr>
</tbody>
</table>

Summary of prioritised risks (3)

Based on comments from plenary and recommendations from Working Groups:

<table>
<thead>
<tr>
<th>No</th>
<th>Type of risk</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Market-related risks</td>
<td>Group 2:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Volatility in international trade, in particular with regional trading partners</td>
</tr>
<tr>
<td></td>
<td></td>
<td>From Group 4:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Volatility in exchange rates</td>
</tr>
<tr>
<td>4</td>
<td>Other risks</td>
<td>From Group 2:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Security risks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>From Group 4:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Macroeconomic risks e.g. inflation</td>
</tr>
</tbody>
</table>
Linkage with ARMs (1)

**Market-based systems:**
- Insurance
- Contracting and related structured trading systems
- Expansion of scope of ECX
- Opening up seed market to cooperatives and private companies

**Infrastructure and information systems:**
- Investment in storage facilities
- Improving coordination and delivery

Linkage with ARMs (2)

**Technology-based systems:**
- Irrigation
- Climate-smart agriculture
- Improved water and natural resource management
- Integrated pest management

**Policy:**
- Regional trade-linked relations
- Fostering PPPs
SESSION 3: ARM Tools (Finance)
POLICY FORUM ON INTEGRATING AGRICULTURE AND FOOD RISK MANAGEMENT AND INNOVATIVE FINANCIAL SERVICES IN ETHIOPIA

November 11 – 13, 2014, Addis Ababa, UNECA

SUMMARY WORKSHOP RECOMMENDATIONS

Presented By
John Amimo, AFRACA Programme Coordinator

FORUM OBJECTIVES

- Raise awareness and enhance technical capacity of country and regional experts and policy decision makers, sharing experiences and lessons learnt;
- Assess the main agricultural, market and institutional risks to which the country is exposed;
- Take stock of the existing policies and tools implemented for managing risk in agriculture (production, markets, policies and institutions (including financial ones);
- Discuss and validate the recommendations included in the country risk assessment report.
- Design a Country Roadmap for driving the implementation process (processes for building/strengthening sustainable institutions, and setting-up required coordination mechanisms);
- Discuss and propose the establishment of a National Steering Committee (including policy makers, Producer Associations, decision takers among which parliamentarians, NGOS, local technical and Financial partners) for leadership and ownership of the process at country level with the support of regional and international institutions.
AGENDA DESIGN

• Presentation were structured/delivered around the various risk categories i.e. Production Risk, Market related Risk, Food-related Risk and Price Risk e.t.c.

OPENING SESSION

• Setting the Stage session.

• Focused on the Understanding of risks and the Workshop Expectations

OPENING SESSION: KEY LESSONS SHARED

• Need for a holistic approach to Agricultural Risk Management. Risks can be negative but can also open opportunities if producers are provided with tools and capacities to manage it.
• Need to Prioritize risk areas: Price Risk, credit risk, quality risk, production risk, Political Risk, Catastrophic risk (large scale always requires government intervention.)
• Public-Private partnerships/linkages are also crucial in addressing agricultural risk
• Government should stop addressing risks (‘babysitting’) that can be addressed at farmer level
• Need to harmonize agri-risk tools at macro, meso, micro and farm level and identify appropriate institutions at all levels
Session 2: Production-Related Risk Management

Presentations:
• Weather Index Insurance in Ethiopia: Speaker: Mulat Demeke, FAO
• Piloting Multiple Peril Crop Insurance in Ethiopia (DTMPCI), Speaker: Solomon Nyala Insurance Co.
• R4 Rural Resilience Initiative in Ethiopia: Speaker: Teshome Erkneh
• Risks in financing the Livestock sector: Speaker: Solomon Damte.

Session 2: Key Takeaway Lessons

• Innovative Financial Instruments in Ethiopia (Nyala Weather index insurance, HARITA, Oromia Insurance, Input and technology financing and lease financing) have been developed in Ethiopia, but at a small scale and most of them are at a pilot stage. Need to be up scaled.

• Multi-peril insurance (MPCI) covers a range of risks (more holistic) compared to Weather Index Insurance which addresses only drought risk.

• Agricultural Insurance not lucrative business hence low penetration in Ethiopia-MFI's/Banks/Insurance companies are not active in this area hence the need for incentives or some form of support by government (Public-private partnership area).
**Session 2: Key Takeaway Lessons (Continued)**

- R4 based on 4R's- a) Risk reduction core innovation - Increases access to finance  
  b) Insured farmers encouraged to save to cover against short-term shocks  
  c) Insured farmers save more than uninsured farmers.

- Livestock not considered an adequate collateral hence limited access to finance for pastoralists.

- Lack of capacity among banking institutions to develop demand-driven products (limited understanding of value chains e.g. Livestock)

**Session 3: Market-Related Risk Management**

- ECX as an avenue for access to finance and price discovery, Speaker: Massimo Pera, FAO

- Policy Responses to Price Volatility, Speaker: Assefa Admassie, EEPRI/EEA

- Innovations in Input Markets: The Case of Fertilizer voucher Program, Speaker: Negah Wubneh, ATA.
Session 3: Key Takeaway Lessons

- ECX has had its pros/cons: Pros: assisted in a number of areas; quality assurance (grading), prompt payments to farmers and access to finance due to warehouse receipts pledged with FI’s. Cons: Only focus on export crops-need to integrate more crops.

- Warehouse Receipt Systems Challenges in Ethiopia: Low internet connectivity, need to incorporate, e-money, strengthen cooperation with financial services.

- Contract farming important in managing both production and market risks- Ethiopia lacks an institution to enforce contract farming mechanisms.

Session 4: Food Security-related Risk Management

- The Experiences of Integrated Agrifood Parks in reducing financial and market risks and the framework for their establishment in Ethiopia, Speaker: Filippo Brasesco, FAOSFE

- Disaster Risk Management in Ethiopia, Speaker: Abesha Dejene (DRMSS)

- Targeting Food Security Interventions: The Case of Ethiopia’s Productive Safety Net Programme, Speaker: Alemayehu Seyoum, IFPRI

- Strategic Grain Reserve in Ethiopia: Operational Performance and its impact, Speaker: Mulat Demeke.
Session 4: Key TakeAway Lessons

• DRM policy in place in Ethiopia-more proactive than previous policy-it has a multi-sectoral and multi-hazard approach.

• Food Safety Net Programmes-Design/Structures needs to be well defined and participatory (community involvement). A rigorous selection criteria put in place.

• Grain Stocks/Strategic Reserves/Buffer Stocks- a government response to market failures (price volatility)

• Findings reveal that poor governance mars strategic grain reserve initiatives however it still remains a strategic policy option for governments (particularly land-locked countries) and given the high cost of imports.

Session 4: Key Takeaway Lessons

• Need for concrete solutions to deal with systemic risks linked to agric sector: complementary programme to RUFIP to deal with risks and address critical shortcomings.

• Key success factors Agri-risk management: financial literacy and micro-insurance (gender targeted) (+ use of lease financing)

• Relying on imports is a risky business for most African Countries-there is need for a national and regional grain reserve to cushion against food supply shocks.

• Trade (Intra-African trade) can play an important role as a price stabilization mechanism (price stabilizer).
Key Outcomes and Recommendations

- There were too many ‘pilots’ that are being undertaken in Ethiopia in regards to ARM. Need to be scaled up.

- Participants raised the need to do an assessment of the agricultural risks in Ethiopia as the best approach in prioritizing risks, and the special (but not only) focus on smallholder producers. -(Result is the Risk Assessment Study)

- Establishment of an interim team of ‘champions’ to be constituted to look into the ARM issues while liaising closely with the Ministry of Agriculture and ATA.

THANK YOU!
Key Lessons
from Weather-Indexed Insurance Pilots on
Crop-Livestock Smallholders in Ethiopia

Guush Berhane
(Extracted from three studies on Ethiopia)

‘PARM-ATA-NEPAD National Stakeholder Workshop on Agricultural Risk Management,’ 16-17 December 2015
Capital Hotel, Addis Ababa

Outline of presentation

- What is index insurance? What can it offer to farming in Ethiopia?
  - how does it work?
  - Its potentials?
- Three Pilots in Ethiopia
- Key lessons
- Way forward/suggestions
What is index Insurance?
What can it offer to farming in Ethiopia?

Index-based insurance is one ...

- Managing agricultural risk in rain-fed production systems requires a financial product that:
  - Can handle covariate risk (pay many farmers at once)
  - Is robust to the problem of (fragmentation) monitoring cost.
- Weather index insurance is a unique financial product that fits these needs and provides a realistic solution to managing risk for rural households;
- Providing weather insurance will allow farmers to take risks - undertake investments that carry risk allowing them to escape poverty
What is index insurance & how does it work?

- **Index insurance is a variation on traditional insurance:**
  - links insurance payments to an easily observable index:
    - e.g., rainfall, remotely sensed vegetation index, area average yield, area average herd mortality loss).
  - Payments triggered immediately by an event
  - Do not insure individual losses.
  - Instead insure some “index” measure that is strongly correlated with individual losses.
- The index needs to be:
  - objectively verifiable
  - available at low cost in real time
  - not manipulable by either party to the contract

Unique features index insurance

- By linking insurance payments to an easily observable index, index-based insurance:
- Avoids monitoring and verification problems and no transaction costs of measuring individual losses!
- Contract enforcement is easy – the index decides
  - Preserves effort incentives (no moral hazard) as no single individual can influence index
  - **Adverse selection does not** matter as payouts do not depend on the riskiness of those who buy the insurance;
- Its thus likely to be cheaper –
  - administrative costs are lower – at least no expensive loss assessment or verification costs incurred;
  - Is GENERIC - clients can be not just farmers, but anyone in the village with FEAR of rain failure – also the landless!
The Potential of Index Insurance

• **Index insurance can obviate the problems that make individual insurance unprofitable for small, remote clients**

• Index insurance can perhaps create a **timely, commercially-provided, financially sustainable, self-targeting safety net** to protect smallholders against catastrophic drought shocks.

• Providing weather insurance will allow farmers to take risks - **undertake investments** that carry risk allowing them to escape poverty

Clearly index insurance has a potential

• But challenges remain...

  - **International evidence:**
    Many pilots, little scale up, **UPTAKE is low!**

  - **Key challenges:**
    ‘basis risk’; lack of ‘trust’; lack of local capabilities; lack of data infrastructure, ...
Three Pilots in Ethiopia:

- Linking formal and informal insurance – *iddirs*
  *IFPRI-Oxford-BG/OIC*
- Linking credit with insurance
  UC San Diego – EEA – FAO - Nyala/Dashen
- Insuring livestock in (agro-) pastoralist areas
  Cornel - ILRI- OIC
Linking formal and informal insurance –  
*Working with *iddirs* in *Ethiopia*

*IFPRI-Oxford-BG/OIC*

---

**The pilot – in Oromia region**

- Pilot between 2011 and 2014, IFPRI – Oxford – BG/OIC

- Designed and piloted a unique index-insurance product to farmers in Ethiopia (Oromia region): Dodota, Shashemene, Bako areas

- In a carefully designed *Randomized Field Experiment*, we study how some of the *basis risk* inherent in an index product can be mitigated;

- We explore possibilities if informal insurance groups, like *Iddirs*
  - can be *harnessed* to mitigate basis risk & trust while at the same time become *resilient* to the ever changing climatic and environmental challenges.
Designing the product – engaging the people!

Villages within 15 km radius of weather stations
Quality, untampered, weather station data critical

- Collaborated with NMA to build trust;
- NMA provided guarantee that data is not tampered by second, or third party;
- Installed our own automatic weather stations on the side to monitor this process

Uptake and refinements

- Initially sales were small
- **Product refined** further – consecutive dry spells introduced;
- **Discounts offered** for late season policies (September):
- **Demand increased** (now 13% of target clients);
- There was **payout** in the later season
- Next season sales went up to **1500 hhs** ...
- Payouts help, suggesting **TRUST** is key!!!
- Basis risk still a problem – **Gap insurance** introduced in 2012
Three key **product features**

1) Cumulative rainfall cut-offs

2) Consecutive dry days

3) Crop-cutting – gap insurance

- Overall more than 5,000 farmers bought insurance in 55 sites.
- We had wide variation in penetration rates from less than 1% to 45% in different places and at different times

---

**Key results**

1) Retailing through informal insurance (**Iddirs**) **increased demand** – **Iddirs** can help overcome some (not all!) of the basis risk and trust problems;

2) Insurance improved **access to grants/loans** from the **Iddir** to cover crop loss (strengthening informal insurance);

3) Insurance increased **perceived** ability to finance **emergencies**;

4) Insurance increased risk-taking - **adoption of modern inputs** - use of chemical fertilizers (consistent with other studies);

5) Insurance has also improved welfare – purchase of consumer goods (cloths and mobile phones)
Index-Based Livestock Insurance (IBLI) for Pastoralist

Cornel – ILRI – OIC

Index-Based Livestock Insurance (IBLI)

- IBLI was launched in 2008, pilot in North Kenya in 2010 and in South Ethiopia in 2012.

- IBLI - an effort to develop risk management instruments for pastoralists’ exposure to risk.

- IBLI combines contract design, monitoring and evaluation and impact assessment with capacity development, extension and implementation support and policy and institutional development.
IBLI: pilots in Ethiopia and Kenya

IBLI: Product Features
- Index is calculated using a measure of pasture availability recorded by satellites, called the Normalized Difference Vegetation Index (NDVI);
- The contract transitioned from Asset Replacement to Asset Protection;

- 8 sales windows in four years - Total Policy Sold = 3,312, Total sum insured = ETB 17,226,200, Total Premium collected before discount = ETB 1,483,614 and Total payout = 615,787 (three rounds payment since October 2014).
IBLI: marketing and capacity building

- **Developing and creating demand** - to catalyze informed demand through consumer awareness, education and extension towards market based solution

- **Addressing supply side issues** – building the market, structure and institutions for sales delivery, platforms for providing insurance in a sustainable manner

- **Capacity Development** – building capacity of the service providers, agents, brokers; strengthening capacities of other stakeholders like insurance companies and the pastoralist community

---

**IBLI: Uptake**

- Uptake is significant ... but so is dis-adoptions

- In HH surveys, in Borana (Ethiopia)/Marsabit (Kenya):
  - 47/48% ever purchased IBLI within first 4 sales periods
  - But repurchase rates low: 18-68%/16-27%
  - High rates of dis-adoptions: 20/31% within 2 years
IBLI: Impact

- IBLI Coverage
  - increases investments in **maintaining livestock**; increases total and per TLU income from milk
  - 36% reduction in likelihood of **distress livestock sales**, especially (64%) among modestly better-off HHs (>8.4 TLU);
  - 25% reduction in likelihood of reducing **meals** as a coping strategy, especially (43%) among those with small or no herds
- IBLI appears to provide a flexible safety net, reducing reliance on adverse behaviors

Linking credit with insurance —  
*Working with SACCOS in Ethiopia*

UC San Diego – EEA – FAO – Nyala/Dashen
Rainfall Index Insurance - Amhara

- ‘Interlink’ index insurance with credit for smallholder Ethiopian farmers.

- Worked with private-sector providers of insurance (Nyala) and credit (Dashen) to see if a market-driven approach to WII using initial subsidies could generate durable, sustainable demand at market prices.

- Question of this project: can the right combination of individual price subsidies and interlinking with credit unlock demand for a private market product?

Standalone Insurance:

- Sold through primary (village-level) cooperatives to members at time of purchasing inputs.

- Framed as input insurance, meaning that it would cover cost of inputs if rain fails.

- Payoffs with trigger/exit for each of four crop phases, optimized separately for maize, sorghum, teff, and wheat for each insured station.

- Only households in villages whose center is less than 15km from an insured station offered insurance.
Interlinked Insurance:

- **Cooperative Unions** are used as credit intermediaries.

- Each CU signs single loan contract with Dashen, is made beneficiary of Nyala insurance policy.

- Pushes the CUs into new role, asking them to take collateralized loans with collective assets.
- Premium must be paid up front for either product.
- **Can only get the interlinked loan if insurance purchased**, but can choose standalone product also in interlinked arm.

Uptake and Impact:

- Very little uptake even when subsidized
- Small uptake disappears when subsidy is removed

- No indication that provision of small amounts of free insurance leads to an improvement in fertilizer use, yield or improved seeds.

- **Contrary to others in literature, this study finds that ‘payouts’ are actually a negative predictor of uptake.**

- First year payouts were late, may have depressed demand for insurance in second season for those who were supposed to be paid.
## Key take-aways from the three pilots

<table>
<thead>
<tr>
<th>Pilots in Ethiopia</th>
<th>Key Design Features</th>
<th>Retailed through</th>
<th>UPTAKE</th>
<th>IMPACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional Group/iddir-Based</td>
<td>- Rainfall based</td>
<td>- Group/iddirs &amp; individuals</td>
<td>- Low early on but improved after refinement</td>
<td>-significant impact on input use and mitigated some of the basis risk</td>
</tr>
<tr>
<td>crop Insurance</td>
<td>- Consecutive dry spells</td>
<td>- MFI</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>- Gap insurance</td>
<td>- Insurance Co.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>- Subsidy used</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Iddirs</td>
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<td></td>
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</tr>
<tr>
<td>Credit-Linked Crop Insurance</td>
<td>- Rainfall based</td>
<td>- Coops</td>
<td>- Disappointing</td>
<td>-Very little impact</td>
</tr>
<tr>
<td></td>
<td>- Linked with credit</td>
<td>- Coops Unions</td>
<td>- Very low uptake &amp; disappears when subsidy is removed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Subsidy used</td>
<td>- Banks &amp; Insurance co.</td>
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<tr>
<td>IBLI – NDVI Based Livestock Insurance</td>
<td>- NDVI based</td>
<td>- Insurance Co.</td>
<td>- uptake is low but significant but so is disadoption</td>
<td>-significant impact on distress asset sales &amp; maintenance</td>
</tr>
<tr>
<td></td>
<td>- Asset protection- not replacement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Subsidy used</td>
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## Lessons: key challenges
Major challenges of index insurance

1. **Basis risk** remains a key challenge despite efforts/innovations through product design to minimize it. Basis risk reduces value-for-money of insurance to farmers. It makes it unpredictable – a lottery – risky product itself!

2. **Lack of local capacity to understand risk and design**

3. **Lack of high quality data** (reliable, timely, non-manipulable, long-term) to design/price product and to determine payouts

4. **Trust & lack of informed effective demand** critical, especially among a clientele with little experience with *any* insurance, much less a complex index-based insurance product.

5. **Lack of innovations in product design and low cost delivery mechanisms** for making insurance available for numerous small and medium scale producers

Lessons: what needs to be done for scale up?
Product design-level: address basis risk robustly

- Develop transparent products that minimize basis risk
  - *An index closely correlated with outcomes to be insured!*
    - index must be highly correlated with the loss being insured against over a relatively large geographic area;
  - Start selling in areas of strong client demand;
  - Develop and implement a good marketing strategy, working with local groups where appropriate;
  - Develop with other financial products to manage risk and encourage complementarity, e.g. personal savings or group savings. **Insurance is expensive as a stand-alone product.**

Public-Private-Partnership (PPP):
  “insurance needs smart subsidy”

- How to subsidize in a smart way?
  - Supporting the development and capitalization of an Ethiopian risk pool: a lot of risk can be pooled within Ethiopia.
  - **Innovation incentives** for insurers/reinsurers to design and market a new product and global market to support it;
  - Supporting large investments in farmer training and “learning by buying” in the first years, perhaps an initial subsidy that is then removed.
  - Invest in a regulatory capacity that checks due diligence has been done in the design of products and that there is a public recourse mechanism.
Invest on local infrastructure, capacity & coordination

– Product design is sophisticated, actuarial expertise and other modeling capabilities missing;

– Sufficient (historical) data missing to estimate
  • The probability distribution of the index
  • The link between index and outcome variable

– Favorable legal and institutional frameworks required
  • Neither insurance co. nor MFIs (or coops) can do it alone!
    Transaction cost is high! Marketing platforms needed!
– Policy framework to encourage international reinsurers,

Macro-Meso-Level: possible layering of insurance

– Increase the incentives for local commercial insurance to get involved, possibly, through ‘local reinsurance facility’,

– Products can be synchronized with existing support; e.g., the PSNP and its risk financing schemes can be good entry point for large scale, slow-onset disasters like this year!

– Such designs can take region/woreda-level coverage, but risk pooled nationally.

– Different-layer products maybe needed for Ethiopia, such as ‘Catastrophe Risk Insurance Facility’ experience in Latin America
In sum, five key issues to address for scale-up

- Reducing regulatory uncertainty through developing comprehensive policy and regulatory framework;
- Building local capacity on product designing and clients - broader consumer education;
- Working towards aggregating risk nationally – addressing reinsurance problems – brand it for international markets!
  “Catastrophe risk insurance facility”
- Documenting lessons about effective mechanisms for retailing at scale.
- Investing in insurance infrastructure (Data/CSA, NMA, universities etc).

Thank You
WHAT INSURANCE CAN OFFER TO THE FARMING IN ETHIOPIA: OROMIA INSURANCE COMPANY’S EXPERIENCE
Daniel Negassa Lemu – Head, Microinsurance Department

December 17, 2015
Addis Ababa

Outline

Brief Company Profile  Role of Insurance in Agricultural Development  OIC’s Insurance Products  OIC’s Performance  Challenges
Brief Company Profile

- Est. in 2009;
- Has a very diverse shareholders – Business People, Organizations, Individuals, farmers;
- Insurance Products: Life, Non-Life and Microinsurance;
- Strives to make Microinsurance its flagship product; But WHY?

Role of Insurance in Agricultural Development

- The desire to serve the smallholders – (1.6 million farmers our shareholders);
- We see long-term business opportunity in the agricultural insurance at smallholder level;
- National focus on enhancement of the smallholder farmers’ productivity; - Eg. Agricultural Transformation Agency (ATA)
- The world and country level development agenda – improving access to financial services for the underserved population;
• Risks are everywhere and varied within agriculture and agricultural supply chains;
• Nearly 90% of disasters caused by natural hazards are linked to weather, water and climate related extremes;
• Over the period of 1980-2010 the total economic losses due to natural hazards amounted to US$2.500 billion of which only US$ 600 billion insured (WB-2010 values);
• An estimated 1.02 billion people are hungry in the world, of which 265 million are in sub-Saharan Africa;

• Those Risks in Agricultural Supply Chain – Idiosyncratic or Covariate – Can either be Mitigated (lessening impacts) or Transferred (Potential Financial Consequences to other party) or Retained (enhancing resilience);
• Thus, the farmer (insured) can share the potential loss with an insurer (OIC) through the risk transfer mechanism – Insurance.
1. Multi Peril Crop Insurance/Named Peril Crop Insurance
2. Weather Index Crop Insurance
3. Multi Peril Crop Insurance
4. Index Based Livestock Insurance

**Multi Peril Crop Insurance (MPCI)**

It covers crop loss due to:

- Fire and Lightning
- Hail and Storm
- Excessive rainfall
- Drought
- Frost
OIC is marketing the product since 2010

Objective: To compensate policyholder for crop loss and ease the economic burden one may suffer;

Area of coverage: Jimma, Wollega, West Showa, South West Showa, West Showa, East Showa,

Target: smallholder farmers organized under cooperative unions and cooperative unions themselves;

Distribution Channel: Cooperative Unions

Reinsurer: Africa Re

Crops Insured: All cereals, pulses, oil crops, vegetables, fruits, stimulants and industrial crops

Specific Conditions

- The minimum hectare in order to qualify for insurance is 0.25 hectares;
- The insured farms on which the insured crop is planted should be assessed prior to policy issuance;
- Crops planted within 50 (fifty) meters of medium and big trees will not be accepted as part of the insured land;
Procedures for MPCI

Emergence test

On field inspection

Threshing

Sample

Summary of MPCI Premium Production & Claims

<table>
<thead>
<tr>
<th>Year</th>
<th>Premium</th>
<th>Claims</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-2011</td>
<td>942,322.46</td>
<td>632,536.00</td>
</tr>
<tr>
<td>2011-2012</td>
<td>514,196.00</td>
<td></td>
</tr>
<tr>
<td>2012-2013</td>
<td>1,072,876.96</td>
<td>526,596.00</td>
</tr>
<tr>
<td>2013-2014</td>
<td>646,048.84</td>
<td>58,522.00</td>
</tr>
<tr>
<td>2014-15</td>
<td>800,346.00</td>
<td>0.00</td>
</tr>
<tr>
<td>2015-16</td>
<td>1,231,300.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5,207,090.26</strong></td>
<td><strong>1,217,654.00</strong></td>
</tr>
</tbody>
</table>
MPCI Production Vs Claims Trend

![Graph showing MPCI Production Vs Claims Trend]

Reason for Indemnity

<table>
<thead>
<tr>
<th>No</th>
<th>Type of Crop Damaged</th>
<th>Reason for damage/Indemnity</th>
<th>Location (Zone)</th>
<th>Amount</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Maize</td>
<td>Hailstorm</td>
<td>East Showa</td>
<td>560,781.00</td>
<td>2010</td>
</tr>
<tr>
<td>2</td>
<td>Wheat</td>
<td>Yellow rust</td>
<td>West Showa</td>
<td>71,755.00</td>
<td>2011</td>
</tr>
<tr>
<td>3</td>
<td>Pea</td>
<td>Hailstorm</td>
<td>South West Showa</td>
<td>12,425.00</td>
<td>2012</td>
</tr>
<tr>
<td>4</td>
<td>Soyabean &amp; Sesame</td>
<td>Rainfall deficit</td>
<td>East Wollega</td>
<td>514,171.00</td>
<td>2012</td>
</tr>
<tr>
<td>5</td>
<td>Chickpea</td>
<td>Excessive rain – during harvest time</td>
<td>Oromia Special Zone</td>
<td>58,522.00</td>
<td>2014</td>
</tr>
</tbody>
</table>
2. Weather Index Crop Insurance

- Insurance policy based on an independent measure of weather (rainfall) for a season; Makes use of:
  - Local weather station's daily rainfall;
  - Satellite based Rain Fall data can be obtained from satellite
- Compensates policyholders in the face of rainfall deficit;
- Partnering with Japan International Cooperation Agency (JICA) the project is underway at West Arsi, East Showa, South West Showa, West Showa;

Weather Index Crop Insurance

- The product is designed in such a way that it generates Rainfall data for 10 km x 10 km pixel;
  - Daily Rainfall data for the season is measured being caped at 10mm - anything beyond that is ignore;
  - Each contract window has what is called a “trigger” or “strike” that decides the payment for the period;
  - Any rainfall total below the trigger will result in a payout. Payments will increase for each millimeter (mm) of rainfall below the trigger, until a maximum payment is reached;
  - The maximum payout point is called “exit”. In other words, if the total rainfall for the contract dates is above the trigger, the policyholder will receive no payment.
  - If the rainfall is between the trigger and exit, policyholder will receive a partial payment. If the rainfall is below the exit, policyholder will receive a full payment.
The contract has two seasons of:

- Planting – germination phase;
- Flowering – Grain- filling phase;

- Both periods are of the potential payout periods under which farmers/policyholders may be compensated;
Maize Farmers Cropping Calendar

Maize yields are particularly sensitive to rainfall during the tasseling stage and the yield formation stage; rainfall during the latter phase determines the size of the maize grain.

- Sowing and establishment period is also critical to crop survival.

<table>
<thead>
<tr>
<th>Year</th>
<th>HH</th>
<th>Premium</th>
<th>Claims</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-13</td>
<td>1,286</td>
<td>146,350.00</td>
<td>0</td>
</tr>
<tr>
<td>2013-14</td>
<td>5,623</td>
<td>575,600.00</td>
<td>773,250.00</td>
</tr>
<tr>
<td>2014-15</td>
<td>2,839</td>
<td>313,500.00</td>
<td>105,110</td>
</tr>
<tr>
<td>Total</td>
<td>9,748</td>
<td>1,035,450.00</td>
<td>878,360.00</td>
</tr>
</tbody>
</table>
3. Multi-Peril Livestock Insurance

- It covers death of animals due to diseases or accidents;
- Target groups: Dairy cooperatives, Ranch owners, MSEs;
- Area of coverage: nationwide;
- Distribution channel: Cooperatives or individuals,
- Dairy cows, Fattening Steers, Transit

Eligibility criteria

- Age ranges from 2-8 years for dairy cows;
- Vaccination for at least three communicable diseases of the area. It may be Anthrax, Black leg or pasteurellosis;
- Distinctive natural mark and ear-tagging are made;
- Photograph shall be taken for high value animals from three dimensions;
- Healthy and free from any injury;
- Absence of pre-existing diseases;
- Zero-grazing in urban and can be field grazing in rural;
- Insurance period are: 3 months, 6 months and 12 months;
Premium Production Vs Claims

<table>
<thead>
<tr>
<th>Year</th>
<th>Premium</th>
<th>Claims</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>263,000.00</td>
<td>325,000.00</td>
</tr>
<tr>
<td>2013</td>
<td>425,625.00</td>
<td>450,000.00</td>
</tr>
<tr>
<td>2014</td>
<td>426,949.00</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>1,115,574.00</td>
<td>775,000.00</td>
</tr>
</tbody>
</table>

Claims Procedure

Policyholder → Claims payment to Intermediary
Index Based Livestock Insurance (IBLI)

- Uses a measurement such as forage scarcity (the Index) based on a reading provided by an international agency to determine if a payout should be made.
- Payment is made automatically to all policy holders (clients) living in the area who have insured their livestock.
- The policy doesn't cover livestock mortality but deviation of forage availability from what is called normal for the past 15 years.

NDVI Data & Standardized NDVI
• The Borena Zone is classified into 24 ecological zones known as Kebele clusters/IBLI units;
• The kebele clusters minimize the basis risk that may arise from the aggregation of a larger area into an average;

IBLI Asset Protection Contract

• Pays out at the start of the two dry seasons IF the level of forage at the end of the rainy season is below a set level;
• Payout is based on the amount required to keep an animal alive during a time of severe forage scarcity;
• Payout amount depends on the number of livestock insured and the level of forage scarcity;
The benefits of the IBLI Asset Protection contract?

- Funds are made available before a drought so policy holders can buy fodder or take other measures to keep their animals alive rather than being paid after they die;
- OIC makes pay out when the Index reading gets to an agreed upon low level called the ‘trigger’;
- The premium amount is less as compared to previous asset replacement;

<table>
<thead>
<tr>
<th>Year</th>
<th>Premium</th>
<th>Claims</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>104,440.00</td>
<td>0</td>
</tr>
<tr>
<td>2013</td>
<td>170,607.00</td>
<td>0</td>
</tr>
<tr>
<td>2014</td>
<td>361,265.00</td>
<td>569,887.00</td>
</tr>
<tr>
<td>2015</td>
<td>291,943.00</td>
<td>48,080.00</td>
</tr>
<tr>
<td>Total</td>
<td>1,483,614</td>
<td>617,967.00</td>
</tr>
</tbody>
</table>
Sales Trend

- Scarcity of resources
- Area of operations in accessibility
- Understanding and willingness of the target clients in risk management at ex-ante level
- Less/misunderstanding of the nature of microinsurance among all stakeholders
- Lack of knowledge, information and experience in new product development.
- Premium affordability
• Awareness issue - convincing farmers
• Liquidity problem – Farmers;
• Lack of follow up & supervision – Government;
• Lack of capacity in executing, controlling and monitoring – Insurer;
• Reluctance – Stakeholders;
• Considering as profitable business – stakeholders.

Thank You
Microfinance services as risk management tools: 
**ACSI’s experience in Amhara Region**

**ACSI Objectives**
- Promote agricultural and non-agricultural economic activities
- Increasing clients' income and asset position
- Poverty alleviation and stimulating the region's economic growth,
- Promoting sustainable MF services
ACSI financial services

– Credit services
  • Group guarantee and lending model
  • Individual/association lending models
– Savings (both voluntary & compulsory )
– Local Money Transfer
– Micro (credit life) insurance Services
– Fund Management (pension payments, community development funds, and salaries, etc )

Performance Status-Brief Overview

• Number of Active borrowers
  ➢ 1,379,353
• Outstanding Loan amount
  ➢ Birr 8.6 Billion
• Total Saving accounts
  ➢ 3,653,484
• Total Net Savings
  ➢ Birr 7.3 Billion
• Total Staff ~9000
• Total Branches: (401 branches+817 satellite branches)
Risks in agriculture & MFI role on Mitigation Measures

• Agriculture is a risky business
• Prices are volatile and unpredictable, drought or pests/diseases can hit any time, products are perishable, farmers face challenges to mitigate disasters
• Risk management by the MFI in agriculture is very challenging because when disaster strikes most likely all borrowers and savers are involved

Risks in agriculture & MFI role on Mitigation Measures...

• One of the main risks for agricultural production is weather condition: droughts or excessive rains.
• ACSI can play a role in mitigating the risk that farmers cannot repay their loans due to failed harvest because of weather conditions: How?
  – Provide loans for irrigation systems
  – Use weather forecasts and consequently act carefully in financing options, also provide the information to clients
  – If possible, link farmers to existing providers of insurance
Risks in agriculture & MFI role on Mitigation Measures...

- Timely provision of sufficient volumes of **quality inputs** (seeds and fertilizers)
  - This risk currently is practically low. However, *yields and thus income can be much higher* with on-time supply of good quality seeds and fertilizer.
  - **The current collaborative work** with BOA and Cooperatives can help to reduce this potential risks
  - ACSI could collect information on demand for seeds and fertilizers through its loan applications. In this case however, the **loan application procedure should be started much earlier than it is done** now to allow time for aggregation of data, inform the cooperative unions/BOA

- Ethiopia has an extensive system of **agricultural extension services**
- However, the quality and quantity of the services remain limited.
- ACSI can play a role to stimulate improvement of the services **among its clients** through **coordination with Extension service agents**
- Another possibility however is that ACSI provides more agricultural advice itself through its Credit Relations Officers (CROs), field staff.
  - *Farming as business*: **promoting best practice farming** linked with financial management
  - **Currently working to introduce this education program, with possible linkage at FTC level**
Risks in agriculture & MFI role on Mitigation Measures...

• For an optimal performance and to minimise risks, **good communication is extremely important**.
• Through their extensive branch and satellite network, ACSI can (and already does) play a role in the aggregation of information from farmers to the BOA, and other key stakeholders and vice-versa to the farmers.
• **Examples referrals:**
  – To BOA: occurrence of pests/diseases (also for livestock) and insects (early warning);
  – To farmers: treatment of pests and diseases; Etc.

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Risks in agriculture & MFI role on Mitigation Measures...

• Low profit margin for producers due to **low market price** of some agricultural products. Especially after the harvest, prices are low
  – **Introducing warehouse receipt financing system can help farmers to mitigate this risk**
  – **Through loan product diversification, ACSI has a role in supporting farmers involved in staggered farming**
Risks in agriculture & MFI role on Mitigation Measures...

MFI specific gaps exacerbating agriculture risk:

- Risk that products (savings or loan) do not perform well
- Human resources/People gaps  Risk that product fails because of poor screening, staff capacity in promoting products properly,
- We may end up missing opportunities/loosing positive impact/ up on the farmer
- Institutional capacity (including staff capacity) has always been given special attention and more work in this area is also needed.

Risk Management through MF Services

Coping with risks is negatively affected by:

- Lack of opportunities, capabilities,
- Vulnerabilities to external shocks.

- Microfinance is proving its clear impact on these variables by positively affecting the household economic portfolio
Risk Management through MF Services...

• **Expansion of opportunities** through financial services includes
  – The number of poor people reached
  – the employment generation,
  – greater improvements on household income, assets, sources of income, enterprise growth, etc.

Risk Management through MF Services...

• **Improved capabilities** imply improving human capital that enables people to maintain/raise living standard.

• One of the **objectives of microfinance** is to help the target household to **improve capability**: enhancing the "human capital" within the household through **better nutrition, education, skill acquisition, health improvement**, etc.
  – ACSI level surveys revealed that clients were able to have improved situation in these variables.
**Risk Management** through MF Services...

- **Reducing vulnerability** refers to improving the capacity of an individual/household to deal with a risky event.
- **There is high level of repeated risks and shocks** (climatic, market, etc) in rural areas where formal insurance mechanisms are absent,

**Risk Management** through MF Services...

- ACSI microfinance services play a protective role by helping to accumulate physical assets, increase expenditures on housing, and strengthen women’s role in collaborative economic decision making.
- However, some of the potential impact in this arena are mainly dependant on the external environment, e.g availability of BDS, skill training, marketing (particularly the ability to ‘diversify’ income sources).
- **ACSI has a good achievement in terms of instilling the culture of modern saving, reducing the high propensity to spend economic surplus on social and religious activities in pursuit of more efficient utilization for income expansion and poverty reduction activities.**
**Risk Management** through MF Services...

- Microfinance can thus play a big role in reducing vulnerability of the poor by availing suitable saving products, and enhancing *self-insurance*.
- As reported above, apart from the 1,379,353 active credit clients that are ‘automatically’ savers with ACSI, there are another 2,274,131 ‘voluntary’ savers, with a combined average saving of about Br. 2000, *which guards them against some risks and shocks*.

---

**Risk Management** through MF Services...

- ACSI microfinance services can *reduce vulnerability by helping micro-entrepreneurs diversify their sources of household income*, increase their savings, expand their options for credit, and improve household money management.
Challenges

• Absence of formal insurance mechanisms in the agriculture sector and hence challenges to link farmers to providers of crop other Agricultural insurance in the region
• Absence of multiple collateral options for agricultural value chain financing
• Need for increased financial literacy
• Saving account productivity issues among farmers: we have said savings are guards against some risks and shocks.

Next Steps at ACSI

• Support and promote diversification of sources of household income, through helping (SHF in particular) increase their savings, expand their options for credit, and improve household money management
• Collaborative work towards of BDS, skill training, marketing (particularly the ability to ‘diversify’ income sources)
• Maximize account usage and cross-selling of products
• Improve further access to the Financial services
Next Steps at ACSI...

• Product development and diversification...also introduce collateral options for agric financing such as Warehouse Receipt financing, use of Second Level Land certificate, use of psychometric scoring, etc
• Initiate and support the development and successful implementation of micro insurance services in Agr. Sector
• Institutional capacity (including staff capacity) has always been given special attention and more work in this area is also needed.

Next Steps at ACSI...

• Insurance as a ‘Superior’ alternative—thinking beyond self-insurance
• ACSI is thinking big and shall work together with collaborators
• Spinning off a separate subsidiary so that address insurance service gaps in rural areas with specialized and capable organizational structure
Thank You!
SESSION 4 | ARM Tools (Contracting mechanisms)
Purchase for Progress (P4P/WFP)
Connecting Farmers to Markets

“P4P Activities in Ethiopia”

PARM-ATA-NEPAD National Stakeholder Workshop on Agricultural Risk Management

Addis Ababa, 16th - 17th December 2015

Time Required : 20 Minutes

P4P General Overview

- It was a pilot programme that was elapsed on 31st Dec. 2014.
- It was funded by BMGF.
- It had 3 pillars
  - Procurement
  - Capacity building
  - Learning and sharing
- Now WFP is mainstreaming P4P under regular programmes.
- If you want to know more about P4P, visit: http://go.wfp.org/web/purchaseforprogress/lessons-learned
**P4P in Ethiopia**

- **Area of intervention:**
  - Amhara – 5 CUs
  - Oromiya – 16 CUs
  - SNNPR – 15 CUs
  - Somali – 1 CU Gode Integrated Project

- **Commodity** – WFP Ethiopia food basket; with main emphasis on **Maize and Red Haricot Beans**

- **Procurement Modality:**
  - Pro-smallholder Competition (Soft Tender)
  - Direct Procurement (DP)
  - Forward Delivery Contract (FDC)

---

**P4P Ethiopia Indicators**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2010 - 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Participating Cooperative Unions</td>
<td>37</td>
</tr>
<tr>
<td>Food procured &amp; received (MT)</td>
<td>118,300</td>
</tr>
<tr>
<td>No. of farmers that supplied to P4P</td>
<td>295,000</td>
</tr>
<tr>
<td>Number of Farmers Trained (cumulative)</td>
<td>&gt;300,000 incl trained by ATA</td>
</tr>
<tr>
<td>Total value of storage &amp; equipment support by WFP and Partners</td>
<td>&gt;$3.7 million</td>
</tr>
</tbody>
</table>
P4P in Ethiopia

- From the beginning of the pilot (2010) to date, P4P has purchased 158,300 tons of food from: SHF (93%), SS Traders (3%) & ECX (4%), valued at US$47.5 million

- Pro-smallholder Competition: 9%
- Direct Procurement: 13%
- Forward Delivery Contract: 78%

Price Discovery Mechanism (PDM) - FDC

- Floor Price:
  - Forecast using 12 months CMA for central location (Nazareth)
  - Lowest possible price minus transpiration to respective CUs

- Final Purchase Price - Considerations:
  - 3 months average prevailing market price
  - Quantity prorated over the 3 months (30% preceding month, 50% for current month (price adjustment month), & 20% of succeeding month).
  - 50% of the market price of 100Kgs bags used for aggregation.
  - Market price of marked bag with 2% additional bags
  - 2% wastage on cleaning
  - Labour cost for cleaning
  - Labour cost for loading/unloading
  - Storage & Fumigation costs
  - Profit margin 5%
**Enabling Environment - P4P is about Partnerships**

- Under the leadership of ATA, we developed **strong coordination with the Government**.
- Solid partnerships (**Maize Alliance**)  

**Other enabling environment**

- Achieving high figures of P4P in Ethiopia was possible thanks to four critical factors:
  
  i) **Conducive environment**: well established CU system, surplus production, availability of supply-side partners, stable security situation, Government commitment, etc.

  ii) **Strong commitment** from WFP management and Functional Units.

  iii) **The competitive prices** of local cereals (maize) & Pulses vis-à-vis IPP.
### Achievements

**Values**

<table>
<thead>
<tr>
<th>Procurement Type</th>
<th>Activity</th>
<th>Target Group</th>
<th>COMMODITY</th>
<th>QTY MTN.</th>
<th>TOTAL QUANTITY DELIVERED</th>
<th>Quantity Defaulted</th>
<th>TOTAL OUTSTANDING</th>
<th>Total Value (Excluding Default) in US$</th>
</tr>
</thead>
<tbody>
<tr>
<td>#POFC</td>
<td>Tender</td>
<td>CU</td>
<td>BEANS</td>
<td>1,341.000</td>
<td>1,041.00</td>
<td>300.00</td>
<td>-</td>
<td>587,943.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MAIZE</td>
<td>5,682.370</td>
<td>4,562.37</td>
<td>1,120.00</td>
<td>-</td>
<td>1,109,122.22</td>
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<tr>
<td></td>
<td>ECX</td>
<td></td>
<td>MAIZE</td>
<td>5,050.630</td>
<td>3,950.63</td>
<td>-</td>
<td>-</td>
<td>942,563.73</td>
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<tr>
<td>#POFW</td>
<td>FDC</td>
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<td>MAIZE</td>
<td>135,300.000</td>
<td>82,812.75</td>
<td>12,487.25</td>
<td>40,000.00</td>
<td>37,061,423.12</td>
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<tr>
<td></td>
<td>DP</td>
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<td>BEANS</td>
<td>4,000.000</td>
<td>2,262.85</td>
<td>1,737.15</td>
<td>-</td>
<td>1,150,528.56</td>
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<td>MAIZE</td>
<td>18,790.000</td>
<td>17,808.40</td>
<td>981.60</td>
<td>-</td>
<td>5,253,342.48</td>
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<tr>
<td></td>
<td>Gode Project</td>
<td></td>
<td>MAIZE</td>
<td>4,200.000</td>
<td>1,200.00</td>
<td>3,000.00</td>
<td>-</td>
<td>440,000.00</td>
</tr>
<tr>
<td>Grand Total</td>
<td></td>
<td></td>
<td></td>
<td>178,644.000</td>
<td>118,168.00</td>
<td>20,476.00</td>
<td>40,000.00</td>
<td>47,477,741.49</td>
</tr>
</tbody>
</table>

**Achievements**

- Contributed toward increased smallholder farmers’ production and marketing capacity through linkage with WFP’s sizeable demand for food

![Graph showing contract and delivery percentages and quantities from 2013 to 2016](image-url)
Achievements – Access to Finance

- **Increased access to output financing** with high repayment rate – building trust

In 2014/15, 30 CUs required 142 million birr to aggregate 30K tons of maize. 22 CUs received ~79 million ETB from CBE with concessional (7.5%) interest rate & without collateral. The remaining 8 CUs decided either to use their own fund or cannot fulfill the minimum requirements. *Repayment rate is 100%.*

Output finance requested and disbursed

<table>
<thead>
<tr>
<th>Year</th>
<th>Requested (ETB millions)</th>
<th>Disbursed (ETB millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012/13</td>
<td>94.7</td>
<td>35.2</td>
</tr>
<tr>
<td>2013/14</td>
<td>195</td>
<td>110</td>
</tr>
<tr>
<td>2014/15</td>
<td>141.8</td>
<td>79.2</td>
</tr>
<tr>
<td>2015/16</td>
<td>205.5</td>
<td></td>
</tr>
</tbody>
</table>

Achievements – PHH Equipment

<table>
<thead>
<tr>
<th>Type of Equipment</th>
<th>Sum of Quantity</th>
<th>Average of Unit Value in USD</th>
<th>Sum of Total Value in USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forceps</td>
<td>15</td>
<td>9</td>
<td>134.40</td>
</tr>
<tr>
<td>Fumigation Sheet</td>
<td>127</td>
<td>948</td>
<td>116,281.98</td>
</tr>
<tr>
<td>Knapsack Sprayer</td>
<td>65</td>
<td>148</td>
<td>9,998.84</td>
</tr>
<tr>
<td>Moisture Meter</td>
<td>200</td>
<td>741</td>
<td>148,631.94</td>
</tr>
<tr>
<td>Portable Bag Stitching Machine</td>
<td>83</td>
<td>380</td>
<td>31,551.71</td>
</tr>
<tr>
<td>Portable Sample Divider</td>
<td>7</td>
<td>359</td>
<td>2,509.71</td>
</tr>
<tr>
<td>Probes or Spears</td>
<td>15</td>
<td>285</td>
<td>4,278.00</td>
</tr>
<tr>
<td>Set of Sieves</td>
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<td>Weighing Scale</td>
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<td>Multicrop Grain cleaner</td>
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<td>Maize Sheler</td>
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<td>155,059.16</td>
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<td>16,380.16</td>
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<td>20,765</td>
<td>647,431.60</td>
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<td>17</td>
<td>289</td>
<td>4,905.00</td>
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<td>HP CE505A BLACK TONER</td>
<td>34</td>
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<td>3,170.00</td>
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<td>APC SMART UPS 750VA</td>
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<td>201</td>
<td>3,414.00</td>
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<td>Prefabricated Warehouse</td>
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<td>269,102</td>
<td>1,345,512.41</td>
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<td>Blue Box</td>
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<td>81,060.00</td>
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<td>DESKTOP COMPUTER</td>
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<td>1,159</td>
<td>19,710.00</td>
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<td>5,000Mt Capacity Warehouse</td>
<td>2</td>
<td>451,317</td>
<td>902,633.30</td>
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<td><strong>Grand Total</strong></td>
<td></td>
<td></td>
<td><strong>3,749,321.20</strong></td>
</tr>
</tbody>
</table>
Achievements – Infrastructure

- Infrastructural development
- Storage facilities to minimize PHL

21 Rubb-halls and 5 Prefab warehouse
Infrastructural support by partners

- 10 Rubhalls by ATA
- 500Mt capacity w/h by JICA
- Six 5,000Mt capacity & one 2,500Mt warehouses constructed by ACDI-VOCA

Achievements – Trainings & Linkage

- Trainings have been given to more than 300,000 CU leaders, extension workers, farmers, Gov’t staff, etc. on:
  - Quality control & commodity management
  - Post-harvest handling
  - Managing Agri-business enterprises
  - Business skill development
  - Recordkeeping, etc.
- Improved **business skills & contract management**.
  E.g. Big improvement in respecting delivery schedule
  - 36% performance in 2013
  - 35% performance in 2014
  - 93% performance in 2015
- **Quality improvement**: quality was 93.5% Vs. 87.5% - 2014/15
- Created **linkage between P4P CUs** and other demand sinks (institutional buyers) like **HGSF**,
Achievements - Gender

- Gender awareness and **empowerment of women farmers** ('in Ethiopia, Gender goes beyond numbers')
- P4P gender began with 3 CUs (9 PCs) out of which 8 are women only cooperatives
- It increased women membership by more than 1051 in the selected PCs and CUs.
- Considering best practices, now it is scaled-up to 12 CUs (27 PCs).
- There are 16 Community Conversation groups – periodic discussion on social & cultural issues
- Different trainings for women were provided (BBS, general and specific IGA, Community facilitators training/CC manual
- Women PCs Delivered 110.2 Mts of maize and 18.2 Mts of beans in 2014

P4P Challenges

- Limited institutional capacity of CUs (planning, training, record keeping, **business skill**, etc.).
- Less attention to output marketing, gender, etc.
- Quality is still an issue, especially infestation.
- Recurrent drought vs. limited agricultural insurance options.
- Discovering competitive purchase prices.
- Need more time and strategic move to bring about behavioral and cultural changes.
- Blockage of fund for longer period to implement Forward Delivery Contract (FDC).
Way Forward

- Scale up Pro-smallholder procurement: 40,000Mt in 2015/16
  - 5 CUs in Amhara Region to supply 10,500Mt of maize
  - 14 CUs in Oromia Region to supply 18,200Mt of maize
  - 13 CUs in SNNPR to supply 11,300Mt of maize

- Introduce competitive procurement process.

- Markets access of CUs beyond WFP – E.g. SGR, SF, Traders

- Strengthening institutional capacity of CUs to ensure their competitive engagement.

- Strengthening/sustaining access to finance.

- Linking farmers and/or CUs with crop insurance through Agricultural Risk Resilience Initiative (R4).

- Introduction of modern membership tacking systems.

- Promoting Food Safety & Quality, and reducing postharvest losses – infrastructure – both Hardware & software

- Continue empowering Rural Women.

Thank You!!
Role of Commodity Exchange in Agricultural Marketing in Ethiopia

Addis Ababa, December 2015

Agendas

I. Overview of ECX and its journey
   • Background

II. Exchange as a risk management tool
   • Managing market risk in ECX

III. ECX in the way forward
Agenda

I. Overview of ECX and its journey
   - Background

II. Exchange as a risk management tool
   - Managing market risk in ECX

III. ECX in the way forward

Background

➢ Ethiopia Commodity Exchange (ECX) was established in the year 2008 with the vision to revolutionize Ethiopia’s tradition bound agriculture value chain through creating a new marketplace that serves all market actors.

➢ The Ethiopia Commodity Exchange (ECX) is a new initiative for Ethiopia and the first of its kind in Africa.

➢ Spot market
➢ Started with open outcry
➢ Integrated end-to-end system
ECX value proposition to the market

To build
- Structured
- Orderly
- Transparent
- Reliable
- Efficient and
- A zero default market

Role to play
- Market Integrity
- Market balance
- Price discovery
- Market transformation

It is member based Exchange

ECX has two permanent and one temporary membership classes:

Permanent Members
- Trading Members (IM)
- Intermediary Members (TM)

Temporary Membership Class
- Limited Membership
Commodities in the market

- Maize, 2008
- Wheat, 2008
- White Pea beans, 2009
- Coffee, December 2009
- Sesame, October 2010
- Green Mung Bean, December 2014
- Red Kidney bean, September 2015

The Exchange today

- **Membership**: has 346 Members (32 Agri Coop unions), 14,422 clients. 10% farmers cooperative unions – reached out to 2.6 million smallholder farmers.

- **Trading**: 2.8 million tons of commodities (coffee, sesame seed, pea bean & Green Mung bean); 108 billion Birr trade value;

- **Clearing**: has 11 partner banks; settled by 11 am next day (T+1); processed 79,700 pay-in and 121,319 pay-out instructions to banks.

- **Warehousing**: has 19 delivery sites; 5.7 million bags/year graded, handled, stored, and delivered, 300,000 tons storage capacity

- **Laboratory**: has 19 laboratories at all delivery sites
ECX today

Open out cry
- Has space limitation
- Noisy and chaotic
- Has time barrier
- Has physical interaction
- Hand shake is mandatory
- Difficult for monitoring & surveillance

Electronic Trading
- No space barrier
- Efficient and time saving
- Remotely accessible
- Convenient and easy
- No physical contact required
- Easy to monitor and market surveillance

Agendas

I. Overview of ECX and its journey
   - Background

II. Exchange as a risk management tool
   - Managing market risk in ECX

III. ECX in the way forward
II. Exchange as a risk management tool

Market risk is the possibility of experiencing losses due to factors that affect overall performance of the market.

- Exchange is one risk management tool in agricultural marketing.
- It is a place where buyers and sellers come together to trade, assured of quality, quantity, delivery and payment.
- It brings integrity, security, and efficiency to the market thereby creating opportunities for unparalleled growth in the commodity sector.
- It also links various industries, such as transport and logistics, banking and financial services, warehouse operators and quality certifiers and others.

Major risks in agricultural marketing in the context of Ethiopia: particularly to the commodity market

<table>
<thead>
<tr>
<th>Transactional risk</th>
<th>Market operation risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price volatility</td>
<td>Unreliable supply</td>
</tr>
<tr>
<td>High logistics cost</td>
<td>Assorted quality consignments</td>
</tr>
<tr>
<td>Poor market information</td>
<td>High contract default</td>
</tr>
<tr>
<td>Payment default</td>
<td>Unregulated market actor</td>
</tr>
<tr>
<td>Uncoordinated market</td>
<td>Substandard storage facilities</td>
</tr>
<tr>
<td></td>
<td>Scant infrastructure</td>
</tr>
<tr>
<td></td>
<td>Infestation, spillage and losses</td>
</tr>
</tbody>
</table>
Role of Commodity Exchange

Structure market
- Introduce structured commodity movement and shorter value chain
- Establish contract based trading

Market transparency
- Uphold price discovery
- Convergence of local and international price
- Create reference market for all

Supply streamlining
- Reliable sourcing of commodities, better redistribution
- Better commodity supply/demand information

Convert the informal to formal
- Facilitate the formation of legal small trading businesses
- Transaction transparency and broadening national income
- Reduce market abuse

Establish accountability and rule of law
- Inbuilt market surveillance system and rule enforcement mechanism
- Internal Business Conduct Committee and Arbitration Tribunal

Facilitate access to finance
- Assures payment with (T+1)
- Facilitate warehouse receipt financing (WRF)

Reduce price volatility
- Reduce price risk (price volatility)
- Balance seasonal pressure
- Useful to hedge market risks

Develop and structure market actors
- Anonymity of market actors
- Develop the capacity of traders

Market inclusion
- Create a platform for all: smallholders, cooperatives, commercial farmers, traders, exporters, processors etc...

Market Information dissemination
- Create asymmetry of market information
- Boost the bargaining power of the producers (small holder farmer)

Standardization of agricultural commodities
- Introduce standard quality parameters
- Give independent quality and quantity assurance

Data management
- Establish reliable data warehouse
- Instill technology driven data management

.....Role
Tools used by Exchange to manage market risk

Risk areas
- Price volatility
- Quality variability
- Contract default
- Payment default
- Market manipulation
- Market dominance

Available tools
- Price filter (Price Range)
- Third party quality assurance system
- Rule based enforcement mechanism
- Third party guarantee payment term
- Market surveillance
- Asymmetry of market information

Agendas

I. Overview of ECX and its journey
   - Background

II. Exchange as a risk management tool
   - Managing market risk in ECX

III. ECX in the way forward
Way forward

✓ Diversification of commodities:

More Agricultural commodities will be incorporated to the exchange portfolio.

✓ Traceability

The diagram below provides a high-level process flow of the envisaged traceability business process when fully implemented:

- Coffee Processed at Wash or Hauling Station
- Each Bag Leaving Processing Station will be tagged
- Coffee Sampled, Capped, & Bagged Stored (GRN issued)
- Traceable (Tagged) Coffee Tracked at ECX Trading Floor
- Traceable (Tagged) Coffee picked up by Buyer
- Traceable (Tagged) coffee processed at Buyer WH
- Roasters Receive Coffee Traceability Report (Digital Passport)
Developing the market

Accessible trading facilities
- Building more e-trading centers:
- The first three - at Hawassa, Hummera, Lekempti

Mobile trading facility
- Trading from any where
- Easy access to market information

MIK (Market Information Kiosk)
- Market data dissemination tool
- Interactive information kiosks

THANK YOU!!!
SESSION 5 | ARM Tools (Information System)
ATA Agro Met Advisory Project on reducing agricultural risk of the small Holder Farmers to Climate Variability

PARM-ATA-NEPAD National Stakeholder Workshop on Agricultural Risk Management
16-17 December 2015
Addis Ababa (Ethiopia)

Content

1. Introduction
2. Agro Met Advisory
3. Project Overview
4. Current Updates
5. Agro Met Stakeholder Platform
6. Monitoring and Evaluation/Challenges/Mitigation
7. Conclusion and the Way Forward
1. Introduction

- Ethiopia is largely dependent on traditional, rain-fed agriculture.
- Model predictions for Ethiopia indicate not only a substantial increase in mean temperatures and an increase in rainfall variability but also a higher frequency of extreme events such as flooding and drought.
- The increased variability with respect to the timing of the onset of the rainfall season, the timing of the cessation of the rainfall season and the length of the rainfall season can be considered as the major unknown variables which have increased the risk faced by the farmers in the centuries if not thousand years old rain fed agricultural system in Ethiopia.

The long term value/mean for the February to May season of the Belg season and the long term value/mean of the Kiremt seasonal rainfall over the country can greatly mislead a long term planner unless the variability has also been also addressed.
The standard deviation of the mean onset of the growing season

The standard deviation of the mean cessation of the growing season

Rainfall Trend

Trend (left) and significance (right) of historical ensemble mean annual precipitation from 1975 to 2005 from fourteen CMIP5 models. The rainfall trends are determined by linear regression from each model data with 95% confidence.
Mean annual rainfall over Ethiopia from 1975-2099

2. Agro met advisory

- Agro met advisory can be considered as one important climate change adaptation tool for the small holder farmer depending on rain-fed agricultural system to manage weather and climate risks.

- The Basic principle of An agro Met advisory should be to address the major constraints posed by Climate change and Climate variability on Farm activities, where proper delivery of user tailored agro meteorological advisory can be used to reduce the agricultural risks on the rain fed Agriculture system.

- If the rains do not come on time, that is on thousand years old/centuries based traditionally fixed times, this means that information on seasonal climate and medium forecasts can become a more dependable source than the traditional one for the farmer to undertake farm level decisions.

- Seasonal climate forecasts can greatly help the small holder farmer to decide the type of inputs that he can decide to use based on the characteristics of the coming season.
2.1 Communicating Agro Met advisory

• It is not enough to develop the agro-met advisory but also should the farmer in a more understandable and applicable one for the farmer to use it as a management tool. Thus there is a need to develop closer interaction among the small holder farmers, the agricultural development agents and the meteorological forecaster, through awareness creation and a series of trainings.

• The mechanism through which the farmer gets this advisory and information can also be very important, since a delay in the communication of the advisory can result in reducing the value of the advisory, and thus the need to implement state of art of the IT system in the form of IVRS-SMS system is by now gaining more ground in the Agro Met communication system.

3. ATA agro met advisory Project Overview

• Title of the Project:- *Enhancing Agrometeorological Information Advisory services*

• Project Goal: To enhance the ability of the extension system and NMA to more effectively support the agronomic decisions of smallholder farmers by developing systems for generating and disseminating reliable and relevant climate information and promoting key technologies and communications.

• Major Collaborative institutions in the Project: MoA, NMA and ATA.
3.1 Expected outcome of the Project

- The reduction of agricultural losses (say for example un timely (un-seasonal) rainfall due to the out- break of weather related crop diseases, the occurrences of extreme weather events such as an elongated dry or wet spell through the delivery of a timely delivered down scaled agrometeorological advisory.

- Increase of the outreach/ the coverage of the FTCs/Woredas/percentage of farmers with user tailored and down scaled agro-meteorological advisories.

3.2 Short to Medium Term Targets of the Agro Met Advisory Project

- Piloting of the Agro met Information advisory communication and Feedback system will be undertaken over all the Agricultural Commercialization Cluster (ACC) Woredas, from the present 50 pilot Woredas and 4000 Das will be trained.

- At least 200,000 household farmers trained (Female and Male) by trained experts.

- Operational Agro-Met information advisory communication and feedback system is put in place. Small Holder Households in the target project area will be able to have access to near real time, short term, medium term, monthly, mid seasonal and seasonal agro met advisories through Mobile-SMS and IVRS system.

- The necessary institutional mechanism and capacity building of the key stakeholders(NMA, Agricultural extension both at the Federal, zonal and Woreda level) will be built so as to insure the sustainability of agro-meteorological packages in the agricultural extension service so as to ensure smooth transition from the piloting stage to operational stage.
3.3 Project Deliverables

1. **NMA capacity building**
   1) **Generation capacity**: Procurement and installation of 50 AWS—increase AWS footprint
   2) **Improve accuracy**: Enhance NMA’s provision for higher resolution forecasting tools
   3) **Dissemination capacity**: Support NMA to disseminate forecasts in a timely manner—develop effective dissemination and communication system for climate information and feedback
   4) **Human capital**: Assist NMA to maintain high quality staff in sufficient number

2. **Extension capacity building**
   1) Build interpretation and analysis capacity through various trainings
   2) **Awareness creation**: Education programs for experts and farmers to demonstrate the need for and benefits of agro-met advisory services
   3) **Mainstreaming**: Embed agro-met advisory into regular extension work
   4) Support integration of agro-met within extension packages

3. **Stakeholder coordination**
   1) Support the establishment of a national multi-stakeholder agro-met platform for future coordination and data sharing
   2) **Link NMA and agricultural extension service** (for joint interventions, services and research) by holding stakeholder different workshops forums.

3.4 Agro met information advisory communication and Feedback system

- At NMA
- At MoANR & BoAs
- At RNMAs
3.5 Geographical Target

- The major preliminary criteria used for the identification of the intervention Woredas for the Agro met Project are that they coincide with the Agricultural Commercialization Cluster Woredas of the ATA.
- The total numbers of the Woredas that are considered to be targeted are 50, where an agro-meteorological automatic weather station will be installed at each woreda at a representative site, 15 Woredas for Oromia, 15 Woredas for Amhara, 10 Woredas for Tigray and 10 Woredas for SNNPR.
- The selection of the Woredas at this stage has also incorporated the inputs and consultations with the regional cluster secretariats, and agro-ecological perspectives.

3.6 Project Background

The first phase of the ATA agro met project was on 28 Woredas of the four regions of the country. The major activities during that time was:

- Training of agricultural Development Agents and model farmers on the use of weather and climate information.
- During the first phase, more than 1000 experts and agricultural development agents were trained.
- Introducing the use of plastic rain gauges for supporting farm level decision along with the necessary short term training.
- Introduction of woreda based down scaled seasonal outlook, in collaboration with the National Meteorological Agency and thus through a down scaled agro-met advisory workshop in each of the four regions, reach the small holder Farmers.
4. Current Updates on the three major components of the Agro met advisory Project

- **The procurement of the 50 AWS is being finalized** and the project is in transition to the work of the installation at the selected FTCs in the selected 50 ACC Woredas, after the delivery of the AWS in collaboration with the National Meteorological Agency.

- **Establishment of the Agro met information advisory communication and Feedback system**, where the procurement process through National bidding and the stage of the technical and financial assessment of the Tender proposals is in progress.

- **Implementation of training and technical capacity building programs across the Meteorological-agricultural extension-agricultural research-Farmer continuum**, awaiting the final report of the consultant contracted for this task.

5. Agro met Stakeholder Platform

- Experience with in the last few years has shown that the success of the application of the agro met advisory by the small holder farmers requires the development of a team work among the major partners, that is Meteorology-Agricultural Extension-Agricultural Research-Farmer continuum.

- ATA through the agro met project had given technical and also logistical support for facilitating the success of the **Federal Agro met technical Task Force**, which was established in May 2015 by the Ministry of Agriculture and Natural Resources.

- The members of this agro met technical task force were selected from the Ministry of Agriculture Extension Directorate, the National Meteorological Agency, Agricultural Research and Agricultural Transformation Agency.
5.1 Federal Agro Met Technical Task Force

- **The major tasks of the agro met Technical task force** has been to prepare agro met advisories and information at ten daily, monthly, mid seasonal and seasonal basis and disseminate these advisories to Regional agricultural Bureaus so that the Regional agricultural bureaus can integrate this advisory together with the existing regional data and environmental conditions, and disseminate it to the Zonal and Woreda agricultural bureaus and where they would monitor that the advisories have been applied at the framers household levels.

- **The operational part of this task force**, such as taking of minutes, finalizing the agro met advisory prepared by the task force in a format that can be disseminated to the regional agricultural bureaus, sending the advisory, receiving the feedback, arranging meeting programs etc.. Is being managed by a senior Project Officer assigned by the ATA to the Ministry of Agriculture and Natural Resources Extension Directorate in collaboration with agro met team recently set up in the agricultural extension Directorate to oversee these activities.

5.2 Lessons from the brief working time of the Federal Agro Met technical task force

- There was a stake holder Workshop, in November 2015, assessing the performance of the Federal Agro met Technical Task Force activities during its activities from May 2015 to November 2015.

- Some of the lessons during these exercises was that the impact of these exercises greatly varies from place to place. Some areas have greatly benefited from advisories on the implementation of different types of moisture conservation structures and choice of more drought resistant and short cycle crops. There were also areas where these types of advisories did not reach the intended target.
5.3 Recommendations

• The major recommendation reached is that these agro met technical task forces should be implemented not only at the Federal level, but also at the regional, zonal and Woreda level and up to the Kebele (village level), in order to enhance the capacity of the agricultural extension system to incorporate more the mainstreaming of agro met advisories in the agricultural extension system.

• More over other recommendations also include the need to appoint a focal person, from the regional, zonal and woreda agricultural bureaus for this very purpose, where various activities are being undertaken by now to ensure the implementation of these recommendations from the stakeholder workshop.

6. Monitoring and Evaluation/Challenges/Mitigation

• Terms of Reference has been prepared to develop base line data for the target Woredas so as to measure the impact and outcome of the project.

• Major challenges is that this project involves different stakeholders and thus the proposed mitigation measures has been enhancing a set of activities that lead to more cohesion and team work among the partners.

• Thus the formation a wider forum in the form of an agro meteorological stakeholder platform is planned.
7. Conclusion and the way forward

- Experience of the Agro met advisory project has indicated the great interest shown by farmers for user tailored and location specific agro met advisory and the demand set by the small holder farmers has clearly indicated that if there is a commitment by the major stakeholders and partners in the provision and delivery of agro met advisories, the time will not be far when millions of farmers can greatly benefit from this type of agro met advisory program.
- Thus, one lesson that has been gained for the improvement of the quality and effectiveness of the agro met advisories is not only the involvement of the major stakeholder institutions but also the feedback and the involvement of the farmers in the agro met advisory system.
- Thus the next challenging task of the way forward would be ensuring the active participation of farmers in the agro met information advisory system.
Micro Insurance Initiative

a payments and digital finance services provider

who we are

OUR VISION
To make a contribution to simplifying & improving the lives of people by making transactions simple, affordable, secure and within reach.

OUR MISSION
Create an integrated scalable technology based financial services infrastructure that provides payment services and enables access to financial and non-financial transactions.

@ a glance
Established in: 2010 | operational in 2013
Employees: 566 total
159 at Head Office
Technology: 3 Technology Platforms
Infrastructure: High availability Data Centre & DR Network Operations Centre
Customer Services: 50 seat Customer Care Centre
what we do

**Payment Services**
- Aggregate payments thru our Lehulu Payment Service and shift to Digital Channels
- Enable Small Merchant Payments

**enable Digital Financial Services**
- Enabling Rural Financial Services
- Enable MFIs to provide branchless banking services to small holder farmer thru satellite branches or cooperatives
- Develop Micro insurance products & enable delivery leveraging digital channels thru cooperatives
- Enable MPCs accept digital small merchant payments and provide agent services to MFIs or Banks

---

**innovative technology enabling micro insurance**

Amongst the main challenges for micro insurance to address the needs and demands of small holder farmer:
- Designing appropriate products: need and demand driven design
- Scalable and sustainability product: use of technology that could reach scale
- Affordable product to be within reach: use of technology with little administrative and service cost

**Satellite [Remote Sensing] Technology**

**Micro Insurance Local Cloud Platform Technology**

**Digital Financial Services Technology**
kifiya micro-insurance ecosystem

Products envisaged:
- Crop Insurance
- Livestock Insurance
- Community Based Health Insurance
- Digitize & bundle traditional insurance products

first product: NDVI index based crop insurance

- NDVI data for the last 16 years analyzed
- Ethiopia categorized into 60 different Crop Production System (CPS) zones: each is a relatively uniform ecological zone with similar change in vegetation with respect to drought
- Each zone is divided into uniquely identifiable grids of 1 km X 1 km
- NDVI data for each grid arranged into percentile ranges from 1 to 20, 25 and 50. These percentile values identify the thresholds of onset of drought for each of these grids.
- Based on these values for each grid we define:
  - Trigger point: The value of NDVI reading in a 1 km X 1 km grid below which drought starts to affect the crop and the insurance payout is to be made
  - Exit point: The Value of NDVI reading in a 1 km X 1 km grid at, and below, which the drought becomes severe and totally affects the crop and hence total sum assured is paid
- Working on automatic weather stations for data control points
Thank You!
Impacts of El Niño on the Current Food Security Situation in Ethiopia

PARM-ATA-NEPAD National Stakeholder Workshop on Agricultural Risk Management

December 17, 2015

Outline

- Introduction to FEWS NET
- Current El Niño Intensity?
- Impacts of El Niño on 2015 Seasonal Rains
- Impacts of El Niño on Soil Moisture
- Impacts of El Niño on Agricultural Performance
- Food Security Outcomes
- Key Messages
The FEWS NET World – Since 1985

- FEWS NET covers 20 presence, 10 remote monitoring countries and has Regional offices in Bamako, Pretoria, Nairobi and Guatemala City

The Purpose of FEWS NET

- To prevent famine and mitigate food insecurity by providing decision makers with information that is accurate, credible, timely, and actionable.
- To strengthen the ability of FEWS NET countries and regional organizations to provide timely early warning and vulnerability analysis.

Partnership

CORE PARTNERS
- Chemonics International
- Evidence for Development
- Overseas Strategic Consulting
- Action Against Hunger

NETWORK MEMBERS
- World Food Program (WFP)
- Food and Agriculture Organization (FAO)
- National Government Ministries
- Price/Market Information Systems
- Meteorological Centers
- Non-governmental organizations (NGOs)
- Other UN agencies (UNICEF, UNHCR)

- USGS
- NOAA
- USDA
- NASA
- Kimetrica
Current El Niño Intensity

NINO3.4 is at +2.4 °C, remains very strong, but, less than peak monthly anomaly value reached during either 1982 or 1997 (+2.8 °C and +2.7 °C respectively).

Anonymous oceanic and atmospheric conditions in equatorial pacific that influences all around the world

Causes drought in:
- Central America
- Caribbean
- Ethiopia
Current El Niño Intensity

*El-Nino likely (75-90%) to influence the Belg-rains and transition into neutral (55%) conditions during (June – Sept)*
  * Expected to cause flooding in the horn of Africa*
  * Drought in Southern Africa*

---

**Impacts of El Niño on 2015 Seasonal Rains**

- Feb-May 2015 rainfall as a % of the 1981-2014 average
- Jun-Sep 2015 rainfall as a % of the 1981-2014 average

*Source: USGS/CHIRPS*
Impacts of El Niño on 2015 Seasonal Rains

March to September rainfall in central/eastern Ethiopia (1960-2015)

Source: FEWS NET/USGS, Florida State University

*Defined as the area within the blue outline

Impacts of El Niño on Soil Moisture

Elidar, Gewane, Mille, Dulecha, Amibara, Awash Fentale woredas

Poorest soil moisture conditions on record
Also below normal last year

Source: USGS/USB
Impacts of El Niño on Soil Moisture

Amhara region: Ziquala, Habru, Kobo, Argoba, Bati, Dewe, Berehat, Minjar

Worst on record: About the same as 2002

Source: USGS/USB

Impacts of El Niño on Soil Moisture

Eastern and Southern Tigray, Wag Hemira, North and South Wollo, Oromiya, and North Shewa Zones


Source: USGS/USB
Impacts of El Niño on Soil Moisture

Northern Somali - Shinele, Ayisha, Erer, Afdem, Jijiga

Only 1984 was worse

Source: USGS/USB

Impacts of El Niño on Soil Moisture

Gamogofa+Woyalita (good), Kambata Tamboro+Guraghe (bad)

Source: USGS/USB
The Kiremt rain started late and the total amount of rains were much below normal in:
- Northeastern parts of Amhara and Tigray Regions
- Central and eastern Oromia
- Lowlands in SNNPR along the rift valley

In Most of these areas normal Kiremt rains started mid-August.

In July, the time where the rains are normally higher, most of the above mentioned areas remained unusually dry.
- This has affected the Meher agricultural activities including land preparation and planting.
- In most of these areas, planting of Meher crops delayed by more than five weeks
- Farmers were forced to replant for more than two times.
- Long cycle crops planted in May and Meher crops planted in June in these areas completely wilted due to moisture stress.

The much below normal March to May Belg rains affected the Belg harvest and the total national level Belg production is estimated to be much below normal.
- This has caused households in Belg producing areas to currently face a significant consumption gaps.
The much below March to May Sugum/Dirac rains followed by the late onset, below average and erratically distributed June to September Karma/Karan rains further deteriorated pasture and water in most parts of Afar and northern parts of Somali Region.

In particular in southern parts of Afar and Sitti Zone of Somali Region, the unusual dryness in June/July caused:
- Massive livestock deaths.
- Unusual outward migration for search of water and pasture intensified.
- Livestock body conditions and production declined.
- Further caused households income and food access from livestock to significantly decline and nutritional conditions to deteriorate.

Impacts of El Niño on Seasonal Agricultural Performance

Amhara

- Except for few long cycle crops planting in May, Meher planting delayed by more than month.
- Planting is 99% of the plan.
  - about 3.5 million ha of land planted.
- Season characterized by two to three times of replanting.
- Most crops in the eastern lowlands are either wilted, did not germinate or suffered high yield reduction.
- In some mid and highland areas, crops are mostly at grain filling and maturing stage and harvesting started in lowland areas.
- Zones with significantly lower production compared to average include; Waghimra (21%) North Wello (34%) and Oromia (55%), South Wollo (54%)
Impacts of El Niño on Seasonal Agricultural Performance

East and West Hararghe

- 24% of the agricultural land used for Meher production remained fallow
- Most crops aborted during germination - majority of the remaining survived crops wilted and dried
- Deteriorated pasture and water availability caused livestock body conditions and productivity to be much below normal
  - More than 900 livestock, mainly cattle, are dead in some lowland areas in the last two months
- Unlike normal time, staple (maize and sorghum) prices are steadily increasing since May
- Much below average body conditions of livestock resulted in low demand and decline in prices
- Severe water shortage reported in the lowland areas - water trucking underway for some areas
- In June/July 2015 - GAM = 14.3%, 10.10% in Meisso and Midaga Tola woredas
- TFP admissions in Oromia increased by 131% in August 2015 (27,929) compared to same month of 2014 (12,080) from which 63% of SAM cases are in EW Hararghe
- OTP admissions in East Hararghe – 6,229 (Sep 2015) is doubled compared to 3,886 (Aug 2015)

AFAR

- No/very little pasture and browse available, especially in southern Afar
- Typical common grazing areas like Alta, Lhalidagi, iyasis, Molale and Kelo remained dry
- Massive livestock deaths reported
- Livestock body conditions and production is poor and herd size declined
- Unusual livestock migration occurred beginning May to distance places such as:
  - Bordede in Oromia
  - Ankober in Amhara
- Livestock in Amibara woreda returned to harvested cotton farms
Impacts of El Niño on Seasonal Agricultural Performance

Southern Afar
- HH milk access contribution reduced from 26.1% to 1% compared to RY
- Camel milk reduced by 60% and cattle milk by 75%
- Camel, cattle, and shoat herd declined by 10%, 30%, and 25% respectively
- Both irrigated & rain-fed crops failed (80 to 100% damage)
- Water scarcity were severe
- Livestock prices decreased and that of staple food increased
  - In Sept 2015
    - Shoat price declined by about 58 and 25% in Berhale and Amibara
    - Staple food price increased by about 29 and 56% in Berhale and Awash Fentale
- Food from purchase declined from 53 to 7.8% compared to RY
- OTP admission from January to August 2015 was 16 and 14% higher than same period of 2013 and 2014 respectively
- In June 2015 - GAM = 15%, 12.4%, 12.3% in Addar, Abala, & Hadelila woredas respectively
- Survival deficit of poor HH in Amibara, Awash Fentale and Gewane of Afar is about 45, 19 and 32% respectively

Impacts of El Niño on Seasonal Agricultural Performance

Sitti
- HH milk access contribution reduced from 13% to 5.7% compared to RY
- Heard size declined by about 75%
- more than 200,000 heads of livestock died
- Unusual migration to Djibouti
- Livestock prices decreased and that of staple food increased as a result
  - Capacity to purchase food declined from 71 to 42% compared to RY
- Mobile health team report – out of the total 498 under five children measured in two Kebelles of Afdem Woreda, about 104 we SAM and the rest were MAM
- In August 2015 – GAM = 19.2% (15.4 - 23.7) in Dembel with SAM of 3%
- Survival deficit of poor HH was about 20% in most woredas in June, Currently, expected to be more
IDPs in Sitti

• Following loss of livestock households moved to closer to urban settlements/water points with the expectations that they may find humanitarian assistance.

<table>
<thead>
<tr>
<th>Woreda</th>
<th>No.IDP centers</th>
<th>No. of HH displaced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erer</td>
<td>8</td>
<td>5,297</td>
</tr>
<tr>
<td>Afdem</td>
<td>5</td>
<td>1,661</td>
</tr>
<tr>
<td>Hadhagala</td>
<td>4</td>
<td>2,950</td>
</tr>
<tr>
<td>Ma’ayso</td>
<td>8</td>
<td>1,232</td>
</tr>
<tr>
<td>Shinile</td>
<td>2</td>
<td>2,420</td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>13,560</td>
</tr>
</tbody>
</table>

Source: Sitti Zone Karan Assessment Report

• About 34 percent of the population in Erer woreda displaced
• About 26 percent of the populations in Hadhagala and Shinile woredas have been displaced.

IDPs in Sitti

• The IDPs are in destitute conditions highly depending on humanitarian assistance.
Eastern Amhara and Tigray Regions
- Much below normal Kiremt rains (e.g., 33-50% of last year’s rains in Ofila and Samre of S/Tigray)
- Only about 15 to 20% Belg harvest obtained
- Crops are either wilted or dried, so that only 33 and 41% of normal Meher harvest is anticipated
- Livestock production and productivity declined
- Income from livestock sale and agricultural labor declined
- Livestock prices declining (by 40% or more) where are that of staple food price increasing (by 25% or more) compared to last year
- Nutritional status deteriorating
- In these two regions, mainly in their eastern parts, OTP admission increased in the range of 9% to 24% from last year
- In June/July 2015, GAM rate ranges from 11.3% to 13.3% in Amhara and from 4.7% to 10.3% in Tigray

Areas along Rift Valley in SNNPR and Central Oromia
- Belg crop production declined (by about 30-40%) and delayed
- Below average Meher production anticipated due to below average area coverage
- Significant reduction in coffee production expected in Sidama and Gedeo resulted in declined labor income
- Milk yield declined
- OTP admission increased from last year
- In June/July 2015, GAM rate ranges from 4.7% to 13.9% in some lowland woredas of SNNPR and central Oromia

Southern Shebelle (Kelafo, Mustahil, and Faro Woredas) and lowlands in South Omo Zone in SNNPR
- Early depletion of pasture and water during the July–September dry period
- Early livestock migration started
- No maize and sorghum harvest due to below-average March-May 2015 rains
- Imported food prices remain stable but high
- Prices of staple food from local supply increased (by about 11-15%) from last year whereas livestock price declined by about 15% or more
- Repeated flood incidence reported in these areas last year and flooding is also anticipated from October–December 2015

Projected Food Security Outcomes

October to December 2015
- Areas marked in red indicate a high risk of food insecurity
- Areas marked in yellow indicate a medium risk of food insecurity

January to March 2016
- Areas marked in red indicate a high risk of food insecurity
- Areas marked in yellow indicate a medium risk of food insecurity

Source: FEWS
Key Messages

• The presence of El Niño this year made June to September seasonal rains to perform much below normal in most eastern half of the country
  – This has affected the seasonal agricultural activities in crop producing areas therefore a much below Meher harvest is likely in these areas.
  – Massive loss of livestock assets occurred in pastoral areas is affecting pastoralists’ food and income access from livestock.

• Following the worst drought in more than 50 years, a major food security emergency is ongoing in central and eastern Ethiopia.

• The Ethiopian Government Ethiopia currently estimates that 10.2 million people will require humanitarian assistance.

• Already, significant populations in northern Somali region and southern Afar are in Emergency (IPC Phase 4),

• Sustained, large-scale, multi-sectoral emergency assistance is required immediately to save lives and livelihoods.
Content

1. Why info systems IS are crucial for agricultural risk management ARM?
2. What is the scope and method of the study by CEIGRAM+VISAVET for PARM?
3. What are the preliminary results on RM-IS Ethiopia?
4. What kind of insights can be obtained on comparisons of Ethiopia with other countries?
5. Next steps: insisting that this is preliminary and you are checking with local experts.
1. Why info systems are crucial for agricultural risk management (ARM)?

- ARM is a circular process

```
Implementation → Status
Policy ↓ Revision → Testing
Evaluation ←
```

1. Why info systems are crucial for agricultural risk management (ARM)?

- ARM tests are based on:
  - Who uses it, who benefits from it
  - How efficient they are in avoiding/mitigating impacts
  - Reducing cognitive dissonance
  - Preparedness when a disaster/crisis occurs
  - Recovery after a disaster/crisis occurs
1. Why info systems are crucial for agricultural risk management (ARM)?

ARM’s potential rests on:
- The analysis of historical data and facts
- Capacity to relate processes
- Establish and discover causalities
- Capacity to model processes
- Capacity to gather probabilities
- Capacity to evaluate costs of events

2. What is the scope and method of the study by CEIGRAM+VISAVET for PARM?

8 Thematic Blocks // 7 African countries

<table>
<thead>
<tr>
<th>Blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
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<td>4</td>
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<td>5</td>
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<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>8</td>
</tr>
</tbody>
</table>
2. What is the scope and method of the study by CEIGRAM+VISAVET for PARM?

Method

- **IGAP**, Information Generation and Assessment Process;
- **Bchmk-ARM-IS**

3. Preliminary results on RM-IS Ethiopia

<table>
<thead>
<tr>
<th>Blocks</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Meteorological and climate information</td>
</tr>
<tr>
<td>2</td>
<td>Satellite image information &amp; Communications</td>
</tr>
<tr>
<td>3</td>
<td>Prices of commodities and inputs, and timely access to information about markets, transportation and input availability</td>
</tr>
<tr>
<td>4</td>
<td>Production levels and yields, Plant health</td>
</tr>
<tr>
<td>5</td>
<td>Animal and human health</td>
</tr>
<tr>
<td>6</td>
<td>Policy</td>
</tr>
<tr>
<td>7</td>
<td>Socio-economic and sectorial info</td>
</tr>
<tr>
<td>8</td>
<td>Integrated systems of information</td>
</tr>
</tbody>
</table>

- **Deficiency** (A) – A Deficiency indicates that information sources and the IS of a Thematic Block fails to meet the minimum requirements
- **Weakness** (B) – A Weakness indicates that the IS of the Thematic Block lacks the strength to provide sufficient information and inputs
- **Concern** (C) – A Concern indicates that an IS currently satisfies the minimum requirements; however, the potential exists for the situation to change
- **Findings of Observation** (D) – offered to assist the institution in its continuing efforts to improve its IS
5. Preliminary report: experts’ judgement needed

- Very strong platform initiatives
- Good design, foundations and political determination
- Detailed/disaggregated databases
- Risk assessments already undergoing
- Very strong PPPs and private initiatives
5. Preliminary report: experts’ judgement needed

• Very strong platform initiatives
• Good design, foundations and political determination
• Detailed/disaggregated databases
• Risk assessments already undergoing

Some critical points:
• Monitoring the movement of animals is required to develop risk models
• Data quality checks should be part of the process

5. Preliminary report: experts’ judgement needed

• However,

  • Progress is incremental and piecemeal
  • The perfect architecture is hardly found in the first round
  • Finding the most insightful way to present the information is tricky, especially for the general public
Thank you!

Alberto.garrido@upm.es

www.ceigram.upm.es

www.visavet.es