Roundtable on Resilience and Market Systems

**Moderator:**
Gregory Collins, USAID

**Panelists:**
Tanya Boudreau, Food Economy Group (FEG)
Gabriela Alcaraz, Chemonics International
Ryan Vroegindewey, USAID
Building Resilient Livelihoods with Targeted Market Support

Evidence from Malawi, Tanzania, Ethiopia, and Kenya

*Tanya Boudreau FEG*
As long as the pathways between households and the market systems they rely on are clearly mapped out, we can employ market-systems level interventions, rather than direct household level interventions, to increase household resilience.
Household Interventions vs Market-Led Approaches

DIRECT HOUSEHOLD INTERVENTIONS

- Fish farming
- Apiculture
- Seeds and Tools
- Irrigation
- Dairy development
- Poultry/goat raising

Pre-intervention income

Resilience

Milk income
Household Interventions vs Market-Led Approaches

What happens at the household level if we ....

... build a better transportation infrastructure?

... improve links between urban and rural markets?

... increase the efficiency of agricultural inputs markets?

... reduce entry barriers for women in the livestock market?
A Brief Word on Resilience

Not just about increasing absolute income...

...It’s about increasing net income in a hazard year.
A Market-Led Approach to Resilient Livelihoods

Northern Karonga Livelihood Zone

Northern Maasai Pastoral Livelihood Zone

Oromia - Northeastern Agropastoral Livelihood Zone
Sources of Food: Poor Households

- **Malawi** - cropping
  - Non-staple food market
  - Staple food market
  - Labor market
  - Agricultural inputs market

- **Tanzania** - pastoral
  - Non-staple food market
  - Staple food market
  - Vet inputs market
  - Agricultural inputs market

- **Ethiopia** - agropastoral
  - Non-staple food market
  - Staple food market
  - Veterinary inputs market
  - Agricultural inputs market

Legend:
- ⬠ own milk/meat
- ⬠ own rice
- ⬠ own cassava
- ⬠ payment in kind
- ⬠ purchased cassava
- ⬠ purchased oil
- ⬠ gifts
- ⬠ green maize
- ⬠ own sorghum
- ⬠ own sweet potatoes
- ⬠ purchased maize
- ⬠ purchased beans
- ⬠ purchased fish
- ⬠ Food aid
- ⬠ own maize
- ⬠ own peas
- ⬠ own bananas
- ⬠ purchased sorghum/wheat
- ⬠ purchased sugar
- ⬠ purchased vegetables
Sources of Cash: Poor Households

Malawi - cropping
- Informal trade market
- Labor market
- Food commodity Market
- Livestock market
- Milk market

Tanzania - pastoral
- Informal trade market
- Labor market
- Livestock market
- Milk market

Ethiopia - agropastoral
- Informal trade market
- Labor market
- Food commodity Market
- Livestock market
- Milk/egg market

Legend:
- Milk sales
- egg sales
- maize sales
- sorghum sales
- rice sales
- cattle sales
- goat sales
- chicken sales
- sweet potato sales
- banana sales
- agricultural labor
- sesame sales
- cassava sales
- petty trade
- construction labor
- land rental
- guarding labor
- safety nets
Sources of Cash: Better Off Households

- Malawi - cropping
  - Informal trade market
  - Food commodity Market
  - Livestock market
  - Milk market

- Tanzania - pastoral
  - Livestock market
  - Milk market

- Ethiopia - agropastoral
  - Food commodity Market
  - Livestock market
  - Milk/egg market

Milk sales, chicken sales, sorghum sales, cassava sales, egg sales, pig sales, rice sales, sweet potato sales, cattle sales, camel sales, bean sales, goat/sheep sales, maize sales, sesame sales, banana sales, trade
Reference Year Total Income: Poor Households
Total Income: Drought Year

Without food aid and cash transfer

% of minimum annual calorie requirements

Malawi - Cropping
- Own crops consumed
- Own crops sold
- Livestock sales
- Food aid
- Livestock product sales
- Casual labor
- Self-employment
- Small Business
- Other

Tanzania - Pastoral
- Livelihoods Protection Threshold
- Own crops consumed
- Own crops sold
- Livestock sales
- Food aid
- Livestock product sales
- Casual labor
- Self-employment
- Small Business
- Other

Ethiopia – Agro-pastoral
- Livelihoods Protection Threshold
- Own crops consumed
- Own crops sold
- Livestock sales
- Food aid
- Livestock product sales
- Casual labor
- Self-employment
- Small Business
- Other
Drought Year with Rice Market Support

Livelihoods Protection Threshold

% of minimum annual calorie requirements

- Malawi - Cropping: 161%
- Tanzania - Pastoral: 154%
- Ethiopia – Agro-pastoral: 156%

- Own crops consumed
- Own crops sold
- Livestock sales
- Casual labor
- Food aid
- Cash transfer
- Milk consumed
- Self-employment
- Livestock product sales
- Small Business
- Other
Drought Year with **Goat and Sheep Market Support**

- **Malawi - Cropping**: 161% of minimum annual calorie requirements
- **Tanzania - Pastoral**: 154% of minimum annual calorie requirements
- **Ethiopia - Agro-pastoral**: 156% of minimum annual calorie requirements
Livelihoods Protection Threshold

Drought Year with Sorghum and Sesame Market Support

Malawi - Cropping

- 27% Own crops consumed
- 40% Own crops sold
- 16% livestock sales
- 5% Cash transfer
- 2% Food aid

161% Livelihoods Protection Threshold

Tanzania - Pastoral

- 26% Own crops consumed
- 40% Own crops sold
- 16% livestock sales
- 5% Cash transfer
- 2% Food aid

154% Livelihoods Protection Threshold

Ethiopia – Agro-pastoral

- 42% Own crops consumed
- 40% Own crops sold
- 16% livestock sales
- 5% Cash transfer
- 2% Food aid

156% Livelihoods Protection Threshold

% of minimum annual calorie requirements
Drought Year with Customized Market Support

- **Malawi - Cropping**: Rice market support
  - % of minimum annual calorie requirements: 161%

- **Tanzania - Pastoral**: Goat and sheep market support
  - % of minimum annual calorie requirements: 154%

- **Ethiopia – Agro-pastoral**: Sorghum and sesame AND goat market support
  - % of minimum annual calorie requirements: 156%

**Livelihoods Protection Threshold**

- **Livelihoods**
  - Own crops consumed
  - Own crops sold
  - Livestock sales
  - Food aid
- **Protection**
  - Casual labor
  - Cash transfer
  - Self - employment
  - Small Business
  - Other

**Livelihoods Protection Threshold**

- Own crops consumed
- Own crops sold
- Livestock sales
- Food aid
- Casual labor
- Cash transfer
- Self - employment
- Small Business
- Other
Customized Market Support and Safety Net

Sorghum and sesame AND goat and sheep market support with Food aid/Cash transfer

Livelihoods Protection Threshold

Ethiopia – Agro-pastoral

% of minimum annual calorie requirements

0%

50%

100%

150%

200%

156%
Sequencing of Livelihoods and Market Analysis

The Kenyan Financial Sector Deepening Trust (FSD), with support from FEG, piloted safety net graduation projects in two pastoral areas of northern Kenya using this approach.
Step 1  Develop HEA baseline to understand income profile of poor households
Step 1 Develop HEA baseline to understand income profile of poor households

Step 2 Run HEA Outcome Analysis to model effects of a typical drought on total income (excluding external assistance)
Step 3  Business plan development, to determine income, expenditure and net profit from each income generating activity

<table>
<thead>
<tr>
<th>Income Generating Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Camel milk trading</td>
</tr>
<tr>
<td>2) Honey production</td>
</tr>
<tr>
<td>3) Honey trading</td>
</tr>
<tr>
<td>4) Fodder production</td>
</tr>
<tr>
<td>5) Goat trading</td>
</tr>
<tr>
<td>6) Irrigated vegetable production</td>
</tr>
<tr>
<td>7) Urea multi-bricks</td>
</tr>
<tr>
<td>8) Poultry rearing</td>
</tr>
</tbody>
</table>

### Camel Milk Sales

<table>
<thead>
<tr>
<th>L/month</th>
<th>Price/L</th>
<th>Cash/mth</th>
<th># of mths</th>
<th>KES/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money from Sales</td>
<td>45</td>
<td>60</td>
<td>2,700</td>
<td>5</td>
</tr>
<tr>
<td>Gross Profit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Recurring Costs

<table>
<thead>
<tr>
<th>Item</th>
<th>Annual estimate/camel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less Triquin</td>
<td>1,260</td>
</tr>
<tr>
<td>Less Oxytetracycline</td>
<td>600</td>
</tr>
<tr>
<td>Less De-wormer - albendazol 10%</td>
<td>170</td>
</tr>
<tr>
<td>Less Multi-vitamin</td>
<td>3,650</td>
</tr>
<tr>
<td>Less Dip/spray</td>
<td>270</td>
</tr>
<tr>
<td>Less Camel (one time)</td>
<td>50,000</td>
</tr>
<tr>
<td>Total Recurring Costs</td>
<td>55,950</td>
</tr>
</tbody>
</table>

### Working Profit

(42,450)

### Loan Repayments

<table>
<thead>
<tr>
<th>Item</th>
<th>Monthly</th>
<th>Yearly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less Startup loan interest</td>
<td>653</td>
<td>7,833</td>
</tr>
<tr>
<td>Less Total Loan Repayment</td>
<td>653</td>
<td>7,833</td>
</tr>
<tr>
<td>Profit after Loan Repayment</td>
<td>(50,283)</td>
<td></td>
</tr>
</tbody>
</table>

*All of the recurring costs + the camel are included in the loan
Step 4  Model how profit from each income generating activity is affected by drought

**IGAs**
1) Camel milk trading  
2) Honey production  
3) Honey trading  
4) Fodder production  
5) Goat trading  
6) Irrigated vegetable production  
7) Urea multi-bricks  
8) Poultry rearing
**Step 5** Model contribution of drought-affected income from each income generating activity to total (drought-affected) income of poor households.

Livelihoods Protection Threshold (LPT) varies by income generating activity because of variations in production costs.

Baseline | Drought | Camel milk | Honey prod. | Honey trade | Hay (small-scale) | Goat trade | Irrigated veg. | UMB | Poultry
--- | --- | --- | --- | --- | --- | --- | --- | --- | ---
LPT | LPT | LPT | LPT | LPT | LPT | LPT | LPT | LPT | LPT
Only 3 income generating activities resulted in a net profit in the drought year.

Step 5 Model contribution of drought-affected income from each income generating activity to total (drought-affected) income of poor households.
Step 6: In-depth analysis of markets and constraints and opportunities

Goat Trading: Market Map

Producers in Southern Marsabit

Iluat Market

Khorr Market

Mirille Market

Nairobi Market

Market Price Information

Savings

Credit

Key constraints:
- Market Information
- Credit

Viable for poor and very poor households

Not viable for female-headed households without older male family members
Step 7: Address market-related constraints

In the case of goat trading:

- Develop customized market-monitoring system and ensure price information is accessible to poor households
- Work with commercial bank to develop new targeted loan product
- Explore options for reducing barriers for female-headed households
Step 8: Monitor impact at household level

Focus intervention here

Monitor impact here

Poor household - Drought-affected income

Poor household - Drought-affected income with goat trading
• The connections between livelihood systems and market systems provide powerful entry points for increasing resilience.

• We can hone the use of market-level interventions by grounding them in an understanding of livelihoods.

• Without this understanding, we run a high risk of missing the mark and/or causing unintended harm.
Thank you
Market Systems and Resilience: A Multi-country perspective

Gabriela Alcaraz
Chemonics International
Market system

Dynamic space in which different actors participate in the production, distribution, and consumption of goods and services

- **Market environment**
  (policies, institutions, regulations, practices, overall context)

- **Market chain**
  (actors and their linkages)

- **Infrastructure, inputs, and support services**
  (storage, transport, financial services, etc.)
Market system for rice (Haiti)

IRC et al (2010).
Market system mapping

- Facilitates identification of critical aspects of the system
  - Inter-dependencies
  - Access (and lack of) to resources
  - Potential bottlenecks

- Helps understanding how shocks/stresses can affect the system and which aspects could be strengthened to increase resilience
Multi-scale system: example Greater Horn of Africa (GHA)

Production and trade linkages

FEWS NET (2008).
Regional market environment: integration

George (2016) after AFP.
### Import / export road infrastructure

<table>
<thead>
<tr>
<th>Corridor</th>
<th>Length</th>
<th>Links</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern</td>
<td>1,700 km</td>
<td>Mombasa (KE), Kenya, Uganda, Rwanda, Burundi, Eastern DRC</td>
</tr>
<tr>
<td></td>
<td>99% paved</td>
<td></td>
</tr>
<tr>
<td>Central</td>
<td>1,300 km</td>
<td>Dar es Salaam (TZ), Tanzania, Zambia, Rwanda, Burundi, Uganda, Eastern DRC</td>
</tr>
<tr>
<td></td>
<td>70% paved</td>
<td></td>
</tr>
</tbody>
</table>

But maintenance is an issue, contributing to high transport cost and time (2013, up to 15% in good condition)

*AfDB (2013).*
Adverse climatic events

FEWS NET (2017).
Recent shocks in GHA

- Drought
  - Reduced regional supply
  - Considerable livestock losses
  - Temporary export restrictions in sourcing countries
  - Increased prices

- Conflict

- Macroeconomic context
Resilience and multi-country market systems

Key for resilience: **ability to manage, adapt, and/or change** in face of a [potential] shock/stress

Who?

To what?

How?

- **Market environment** (policies, institutions, regulations, practices, overall context)
- **Market chain** (actors and their linkages)
- **Infrastructure, inputs, and support services** (storage, transport, financial services, etc.)
Building resilience through markets, some thoughts:

• Who? Which market actors?
  • Cereal producers in Uganda, Tanzania, Ethiopia
  • Cross-border traders

• To what?
  • Adverse climatic events (drought)
  • Trade disruption (conflict, poor infrastructure)

• How?
  • Facilitation of trade (harmonization of rules)
  • Livelihood diversification, resource management
  • Infrastructure improvements
  • Peace building

✔ Flexible
✔ Collaborative
✔ Risk reduction oriented
Resilience of Agricultural Value Chains

Ryan Vroegindewey
July 10, 2018
Roundtable on Resilience and Market Systems
Motivation & Conceptualization

Resilience of agricultural value chain (VC) may be a key mediator of household resilience and food security, and can strengthen VC competitiveness.
Motivation & Conceptualization

Resilience of agricultural value chain (VC) may be a key mediator of household resilience and food security, and can strengthen VC competitiveness.
To what degree should we build VC resilience?

Building and maintaining resilience has direct costs and trade-offs with other dimensions of VC performance.

Appropriateness of building resilience depends on what products/services stakeholders value, supply and demand uncertainty, and existing resilience capacity.
### How do we build VC resilience?

<table>
<thead>
<tr>
<th>Resilience-building principles</th>
<th>Supply Chain Management</th>
<th>Hypothetical Upgrades to Agricultural VCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Maintaining diversity &amp; redundancy</td>
<td>• Flexibility; resource redundancy</td>
<td>• Diversity in suppliers/buyers and products/markets; excess capacity and stocks</td>
</tr>
<tr>
<td>2. Managing connectivity</td>
<td>• Short vs. long chains</td>
<td>• Infrastructure &amp; communications; traceability</td>
</tr>
<tr>
<td>3. Managing slow variables &amp; feedbacks</td>
<td>• Agility; visibility; response velocity</td>
<td>• Remote sensing; chain-wide monitoring; information-sharing</td>
</tr>
<tr>
<td>4. Fostering complex adaptive systems thinking</td>
<td>• Creating a resilience culture; leadership, innovativeness</td>
<td>• Considering environmental footprint; experimentation and evaluation</td>
</tr>
<tr>
<td>5. Encouraging learning</td>
<td>• Collaboration</td>
<td>• Inclusion of entire VC in strategic planning; layered institutions; coordination with food assistance agencies; social capital</td>
</tr>
<tr>
<td>6. Broadening participation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Promoting polycentricity in systems governance</td>
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</tr>
</tbody>
</table>

Kamalahmadi & Parast (2016); Biggs, Schulter, & Schoon (2015); Hohenstein et al. (2015); Tukamuhabwa et al., (2015)
Where should we build VC resilience?

More of or ?

A question of comparative advantage, equitable participation, and coordination across the VC.
Advancing Understanding

• Case studies to understand the mechanisms of resilience.

• Development of quantitative measures, and empirical estimation of costs and effects on other dimensions of performance.

• Integration into VC strategic analysis. Vroegindewey & Hodbod (2018)
Thank you