Agile Data Systems for Food Security Monitoring, Resilience Insights, Forecasting, & Collaborative Response

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Overview of the MIRA Approach

• **Monthly data collection** on shocks, food security, and coping strategies.

• **Community-embedded enumerators** trained, equipped with smartphones, compensated per-survey using mobile money (where possible).

• **Automation** of surveys to a cloud server on a monthly basis and data to dashboards.

• **Responsiveness and flexibility** to deploy survey modules in response to specific shocks or conditions.

• **Community engagement** through sharing simple reports back to community leaders each month.

• **Data sharing** with key stakeholders at national- and sub-national levels.
Expanding map of MIRA / RFMS countries... vary in status, partnerships, and primary objectives

- **Malawi**
  - Pilot in 2016 under USAID project, expansion to 12 districts over 2020-2022, *Rapid Feedback Monitoring System (RFMS)* project (2020-25)
  - Outside of a specific CRS project and in partnership with GoM, World Bank, and others

- **Madagascar**
  - Pilot in 2018, expansion in 2022, under USAID programming - Firanga / Maharo (2020-24)
  - Representative data for monitoring & programmatic applications

- **Ethiopia**
  - Launched in 2021 as part of a USAID DFSA - *Ifaa* (2021-26)
  - Focus on program adaptation
Food Security Trends - Comparing previous years (with CI) to present

Household Food Security, comparing years
Food Consumption Score (FCS)

Household Food Security, comparing years
Household Hunger Scale (HHS)

- Monthly average this year, with 95% CI
- Monthly averages from prior year(s), with 95% CI
## Chronic Food Insecurity

<table>
<thead>
<tr>
<th></th>
<th>Avg % of months food secure</th>
<th>Transitory food security (%)</th>
<th>ALWAYS food secure (%)</th>
<th>Percentage of Time FOOD SECURE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>90-100%</td>
</tr>
<tr>
<td>FCS</td>
<td>38</td>
<td>90</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>HDDS, 24-hour</td>
<td>31</td>
<td>82</td>
<td>1</td>
<td>5</td>
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<tr>
<td>HDDS, 7-day</td>
<td>33</td>
<td>84</td>
<td>2</td>
<td>6</td>
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<tr>
<td>rCSI</td>
<td>19</td>
<td>76</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>HHS, = 0</td>
<td>41</td>
<td>90</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>HHS, &lt;=2</td>
<td>69</td>
<td>85</td>
<td>14</td>
<td>20</td>
</tr>
</tbody>
</table>

**Note:** The table shows the percentage of time food security is maintained at various levels, categorized by different measures.
Cyclone impacts & lean season response

- Major cyclones hit in both 2022 and 2023
- Working to develop and share insights into *how* recent cyclones are likely to affect lean-season food insecurity in 2024 – as well as to better understand differential impacts and recovery across affected areas.

*Household Hunger Scale, by Cyclone Experience*  
10 districts

**Note:** Data through June 2021 reflects 6 districts; 10 districts thereafter.
Cyclone impacts & lean season response

- Gain added insight from the SWIFT approach; shaded areas showing the harvest seasons and red lines showing cyclone incidence.
- Poverty rates increase post-cyclone, but at a delay — as people buffer their food insecurity initially but suffer (relative to others) once the reduced harvest is realized.
  - Consistent with findings on food security.

Poverty rates between August 2020 and July 2023:

- Aug, 2020: 57.5%
- Dec, 2020: 58.4%
- Jul, 2021: 59.0%
- Dec, 2021: 58.8%
- Feb, 2022: 59.2%
- Jul, 2022: 57.9%
- Dec, 2022: 60.3%
- Jan, 2023: 59.5%
- Mar, 2023: 60.0%
- Jul, 2023: 60.0%
These data (a quality, high-frequency panel survey) lend themselves to innovative and policy relevant research

- Food security *predictive* analytics (nowcasting and forecasting), integrating climate indicators
- Understanding and characterizing household resilience / recovery, and shock impacts (Covid-19, cyclones, food prices...)
- Household livelihood activities and behaviors in response to shocks (financial services, coping behaviors)
- Analyzing the importance of and impacts of social protection / assistance
- Monitoring METHODS and phone-based surveys
- Migration dynamics
- Food and water security
Evidence of CRS Interventions Building Resilience

Participants in Savings and Loans Groups experience less food insecurity

Participants in Savings and Loans & Farmer Groups are more resilient
Evidence of interventions mitigating shock impacts

Cash assistance is the GoM’s most important safety net – and the ability to control for months of the year reveals that it has lasting importance for households affected by cyclones.
Poverty Trends

- World Bank team leveraged the RFMS to evaluate MA-SHEP (Market-Oriented Smallholder Horticulture)

- Retrospective analysis shows that households did not differ much from district-wide averages at the start of the program – but current poverty rates and trends show major improvement in the MA-SHEP areas
Community Engagement & Empowerment

- Starting in 2017, provided data back to communities to share with local committees
- Follow-up, mixed-methods study in 2022 to track data sharing mechanisms and results
- Shows usefulness of data for advocacy as well as coordinating community action, mostly for disaster preparedness and response
- Plans to further this by experimenting on the impacts of different types of information
Community Engagement & Empowerment

Reported RESULTS from Data Sharing

- Improved food diversity
- More knowledge/training in farm practices
- Better coordination with service providers
- Improved crop management
- Infrastructure for NRM
- Infrastructure for disaster management
- Improved food availability, own production
- Improved livestock disease prevention
- Infrastructure for livelihood improvement
- More knowledge/training in prevention
- Increased awareness of challenges
- Establishment of additional follow-up structures
- Improved food availability, assistance

Percentage of Communities (out of 60)