Community-Based Forecasting: A Local Approach to Fall Armyworm Monitoring and Response in Malawi

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Fall Armyworm in Malawi

- FAW declared a "state of disaster" on Dec. 8, 2017, affecting:
  - 22 of 28 districts
  - >200,000 hectares
  - 133,083 farming families

14 POLITICS & GOVERNANCE

THE DAILY TIMES, Tuesday, August 8, 2017

POLITICS & GOVERNA

BY ROY NKOSI MANA

Fall armyworm: farmer' worst nightmare

FALL ARMYWORM INSECTICIDES TRIAL D.O.P. 26-05-2017

August 2017 article in *The Nation*

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Fall Armyworm in Malawi

- Catastrophic impacts to food security expected
  - 30% crop losses, mostly to maize

- Maize in Malawi:
  - World's highest per capita maize consumption
  - >75% of total cropped land
  - Grown by ~97% of households
  - ~60% of total caloric intake

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Fall Armyworm dynamics

- Fall Armyworm lifecycle is particularly devastating to Malawi, because:
  - Moths fly in large swarms that overwhelm fields
  - Females lay hundreds of eggs at once
  - Caterpillars quickly consumes crops before pupation
  - Cycle can repeat for 12 generations per year

- Damage is quick and devastating, yet response is often slow
  - Highlights the need for real-time monitoring and rapid response

- Effective monitoring and response requires "boots on the ground"
  - Public extension workforce is overstretched and rife with vacancies
  - Few NGO or private extension workers
- Communities (not just extension workers) must track and respond to FAW

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Current Fall Armyworm response in Malawi

- Response is similar to many other SSA countries:
  - Mobilize and equip farmers with pesticides
  - Awareness campaigns
  - Trainings of identification and treatment
- Often a "top-down" process
  - Led by development partners and the MOA
  - Reliant on functional systems and adequate supply chains
- Specific efforts are <u>still</u> required that:
  - Empower communities to own FAW response
  - Build from existing systems in place
  - Put more "boots on the ground"

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SANE/MOA community-based monitoring

- SANE is implementing a community-based monitoring approach for Fall Armyworm in Malawi
  - Developed jointly with the Ministry of Agriculture
  - Leverages existing extension workers in communities
  - Builds from the national extension system (DAESS)

- National Task Force on Fall Armyworm

  – public and private sector partners –

  has adopted and is promoting the approach

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DAESS Extension System in Malawi

- DAESS – District Agricultural Extension Services System – is:
  - A coordinated, multi-layer system of stakeholder platforms
    - Lower levels include farmer participation
    - Higher levels include mix of farmers and service providers
    - Extension workers involved at every level
  - A forum for farmers to voice needs
  - A communications structure for information flow between levels
  - A body to enhance coordination, collaboration, and communication between development partners
  - A link to Local Government committees where funding decisions are made

- The SANE project is tasked with improving the functionality of the DAESS

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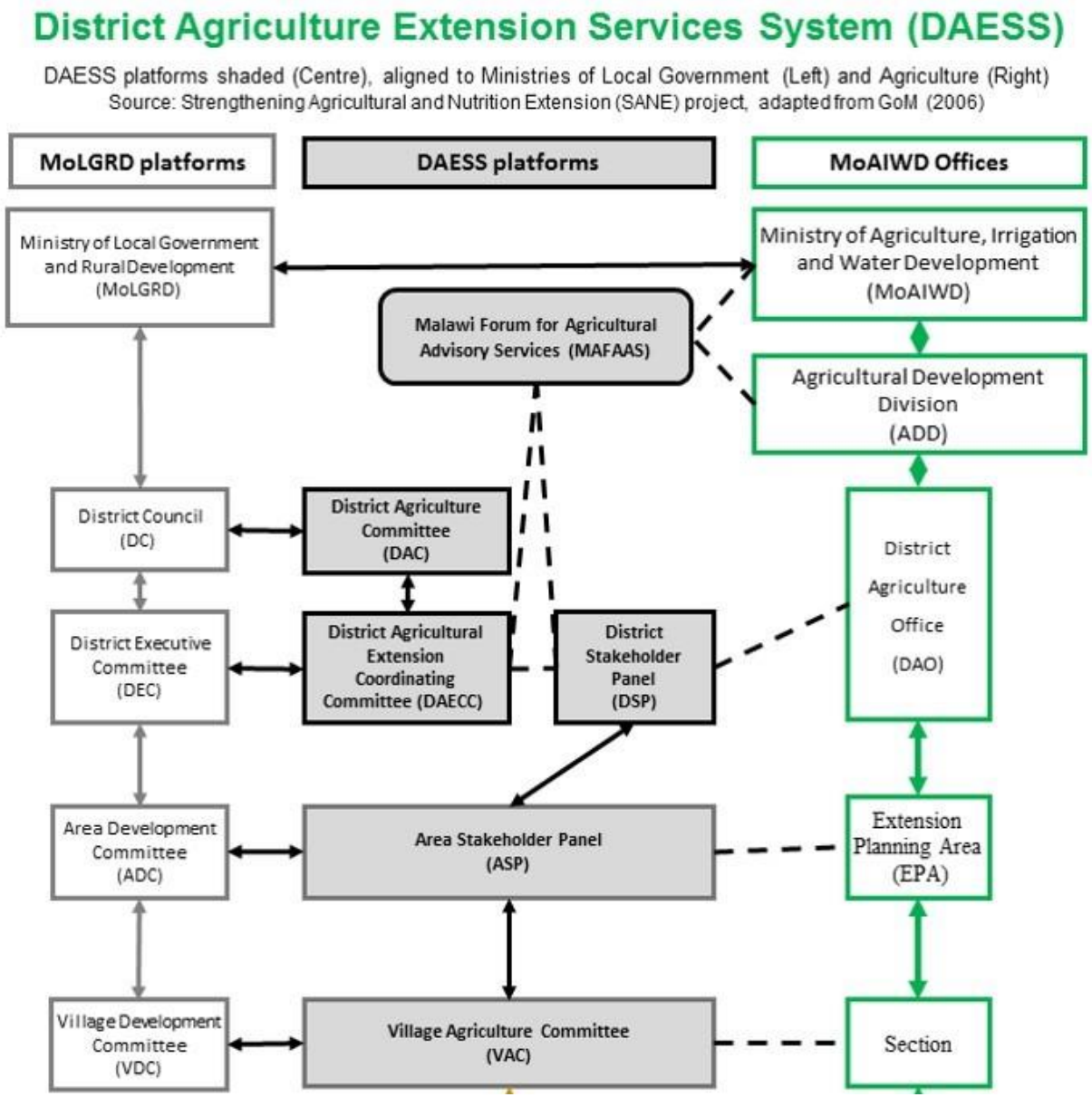
DAESS Extension System in Malawi



SANE/MOA community-based monitoring

1) SANE provided pheromone traps and training on their use to communities
   - Each community identifies 3+ Community Forecasters to manage the traps
2) Forecasters record the number of moths trapped per day
3) Totals are reported to the local extension worker
   - Extension workers provide support on day-to-day monitoring, with SANE backstopping

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SANE/MOA community-based monitoring

4) Emergency village meetings called if moths reach critical threshold (12-14 /day)
   - Inform community of the impending attack
   - Devise response with local agricultural officials
5) Results are disseminated through levels of the DAESS extension system
   - Village Agriculture Committees, Area Stakeholder Panels, and District Stakeholder Panels
   - Platforms are comprised of farmers and extension providers
6) Larger-scale data is organized by mapping traps to identify hotspots and allow for proactive forecasting

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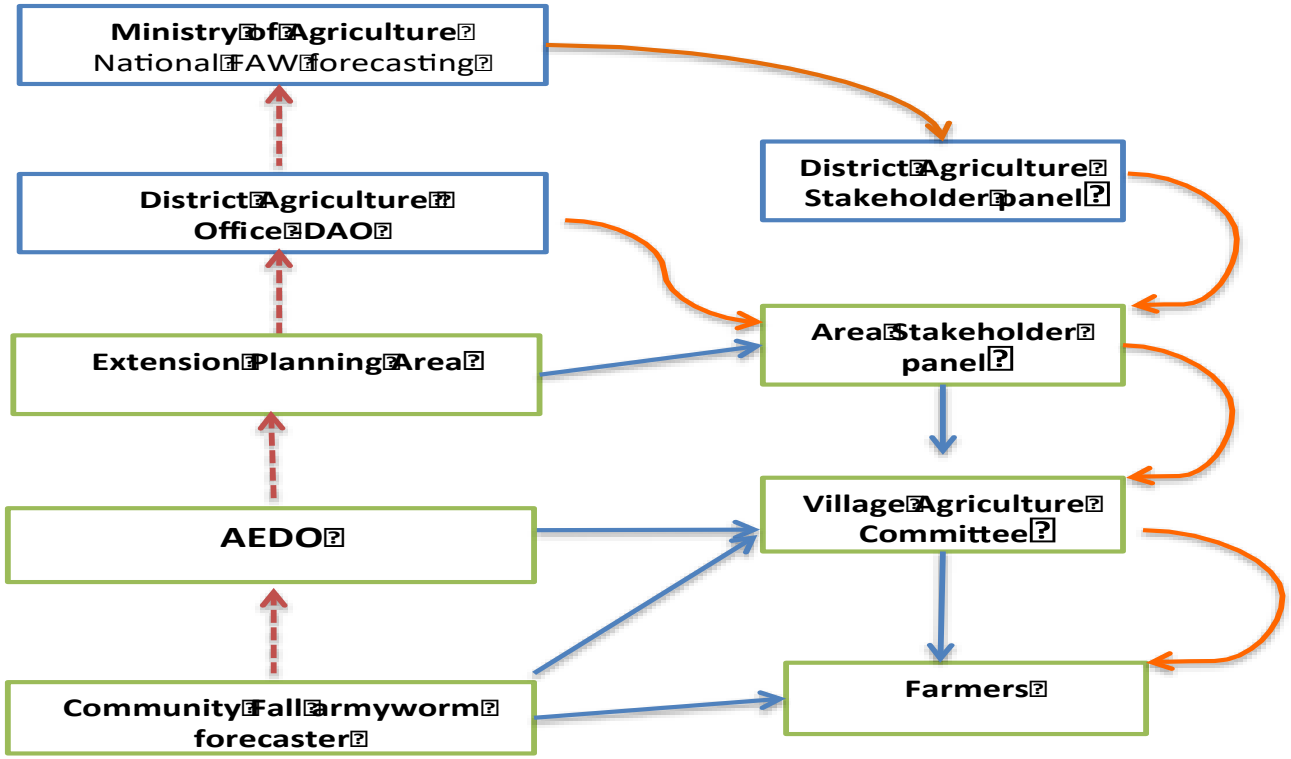
SANE/MOA community-based monitoring

Community Based FAW Monitoring-Reporting and Information Sharing Structure



Notes:

Reporting line

Feedback, support

Shares information with

Benefits of the approach

- Empowers communities to lead in monitoring and controlling attacks by utilizing existing resources and community leadership
- Promotes sustainable, community-led approaches that continue beyond project interventions

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Benefits of the approach

- Integrates FAW monitoring and control into the existing DAESS agricultural extension system, to:
  - Improve coordination between stakeholders
  - Enable rapid response when outbreaks are detected
  - Reinforce the central role of farmer-extension collaboration in pest management
- Leverages local support and resources for cost-effectiveness
- Organizes pest data/maps for proactive decision-making by stakeholders

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Next steps

Improve FAW data management and extension services through ICTs

1) Target data management issues to improve real-time reporting
   - Huge volume of data will be generated through community-based monitoring
   - Smartphones record trap results and geo-locations
   - Results uploaded to web-based dashboard stakeholders can access
   - Data displayed in tables and as heat maps to allow for predicting further outbreaks

2) Improve spread of FAW messaging and training
   - Extension workers can show videos via smartphones (and Pico projectors) to farmers
     - FAW videos already developed/under development by various partners (including SANE)

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Summary

- FAW mitigation requires a multitude of approaches
  - Top-down and bottom-up

- Extension systems (not just workers) can be a mechanism for FAW efforts

- Community-based approaches:
  - Put more "boots on the ground"
  - Identify outbreaks more quickly
  - Increase likelihood of sustainable control
  - Leverage benefits of other programs and resources

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Thank You

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