

INTRODUCTION TO AGRICULTURAL MONITORING IN MALAWI

PRESENTED AT

UNCTAD CROP WATCH TRAINING WORKSHOP

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INTRODUCTION

- ✓ Malawi is a land locked country in Southeastern Africa, bordered by Zambia to the Northwest, Tanzania to the North and Mozambique to the East, South and South-west.
- ✓ Malawi is about 118square kilometres and has lake Malawi running from North-South on the east part which constitutes 20% of total area.
- ✓ It is a country of about 18 million people (National Stastical office 2018).
- ✓ The country is among the least developed countries in the World

GEOGRAPHICAL LOCATION OF MALAWI



Introduction Cont'd

- ✓ Malawi is predominantly an agro-based country, and this sector contributes 90% of the employment and 39% to National GDP (Ministry of Agriculture and Food Security, 2012).
- ✓ This sector contributes both to food and nutritional security to the country and neighbouring countries

Introduction Cont'd

- ✓ Malawi's agriculture landscape is characterised by dambos, arable land and hilly areas and most agricultural activities are done in the arable and dambo areas.
- ✓ On average the land holding capacity of the farming household is about 0.8 of a hectare.
- ✓ It is estimated that Malawi has 4.7 million hectares of arable land which can be cultivated under rainfed and irrigated agriculture.
- ✓ However, it is estimated that only 2.5 million hectares are under cultivation

Introduction Cont'd

- ✓ Malawi's agriculture is sub-divided into small-scale and estate sub-sectors with the former cultivating on 70% of the land.
- ✓ Smallholder farmers are important players in the sector as they are involved in production of food crops such as maize, rice, legumes and pulses in addition to cash crops such as tobacco, cotton, tea and coffee.
- ✓ Small/commercial businesses include small scale processing factories to large scale processing factories like sugar companies and textile companies, Cooking oil refineries, beverage companies, whole selling and retailing of both raw or processed products among others.
- ✓

AGRICULTURAL MONITORING IN MALAWI

- ✓ Malawi conducts agricultural monitoring every year and in different rounds and different areas related to agricultural production, utilization and relate the same to food security
- ✓ Monitoring is done by a range of key players like
 - Ministry of Agriculture
 - Ministry of Finance
 - Ministry of economic planning
 - Reserve Bank of Malawi
 - FEWSNET
 - And several other players

EARLY WARNING SYSTEMS

- Agricultural monitoring is mainly used as an Early Warning System in Malawi.

Importance of EWS

- ✓ To provide decision-makers with timely information in a format that enables action.
- ✓ Can detect shocks such as droughts, successive failed rainy seasons, and poor harvests that drive populations in the “hunger gap”
- ✓ Food crises can be an impediment to agricultural and economic development
- ✓ Early warning systems predicts both livelihood and humanitarian crises

Importance of EWS

- ✓ Early warning systems plays a key role towards greater agricultural and economic resilience to climate impacts
- ✓ Early warning risk factors being monitored include weather and climate data, harvest yields, and market fluctuations
- ✓ Early warning systems take different forms depending upon the level of focus
- ✓ The large majority of smallholder farmers depends on rainfed agriculture in Malawi
- ✓ produces most of the food for poor communities

EWS System objective

- For periodic analysis of food security situation in the country
- To improve national food security through providing advance information on food supply and demand
- providing alerts in cases of crop failure; other factors affecting agricultural season

What is being Monitored in EWS

- ✓ Food crop performance, providing alerts in cases of crop failure
- ✓ Food supply and requirements assessments and projections, including imports and exports
- ✓ Identification of food insecure areas and populations affected,
- ✓ EWS involves monitoring some aspects that are continuous throughout year and others specific to certain parts of the year
- ✓ Some activities are monitored/reported monthly while specific activities relating to the food crop growing season are monitored quarterly

Current EWS monitoring tools & methods

- ✓ APES (forecasts and crop estimates)
- ✓ Fortnightly Reports
- ✓ Food security bulletins
- ✓ Food balance sheets
- ✓ Price analysis

Agricultural Production Estimate Surveys (APES)

- ✓ A key component in EW monitoring is estimating the size of agricultural production
- ✓ Four Rounds, all identifiable crops
- ✓ Each Round in comparison with its corresponding round the previous year
- ✓ With narrative of reasons for disparities of figures in the comparisons
- ✓ Production data is obtained through field surveys
- ✓ Early estimation of production (area planted x yield)
- ✓ The crop stage (vegetative to flowering) and the condition of the crops.
- ✓ Performance of RF season and its impact on the harvest.
- ✓ Post Harvest Loss (PHL) is expected during the harvest and storage process

Food Security Bulletins

- ✓ Bulletin is intended to provide information on the current food situation in Malawi at national and household level
- ✓ The bulletin is produced on a monthly basis at National level
- ✓ The bulletin provides a national and region-wide early warning/food security perspective
- ✓ Gives a basis on timely policy decisions that government may undertake to avert any food insecurity situation

Food Balance Sheets (FBS)

- ✓ The food balance sheet is a quantitative tool used to assess food security in early warning systems.
- ✓ It forms the focal point for analysing the overall food supply /demand situation and estimating import requirements and available export surpluses at the national level
- ✓ Used for food demand/supply analysis to determine the adequacy of food supplies to cover national and regional requirements.
- ✓ provides an objective methodology for assessing food security based on quantifiable data rather than on qualitative judgements
- ✓ Balance sheets can be prepared to the lowest possible level according to data availability
- ✓ There are two types of FBS used- annual and quarterly
- ✓ Limitations of FBS analysis is that it only provide average figures for the whole country and do not take into account differences in distribution between population groups, households and household members

PRICE MONITORING

- ✓ Involves monitoring market trends and food price movements which provides a means of keeping a pace on changes in food supply/demand scenarios;
- ✓ This gives early warnings on the stability or otherwise of food supplies.
- ✓ Prices can serve as signals of both food availability and food access
- ✓ The Agricultural Market Information Systems (AMIS) has some sampled big markets from which weekly prices are collected

FORTNIGHTLY MONITORING

- ✓ Any changes in household food security (food availability and access)
- ✓ The response of food insecure groups to food insecurity
- ✓ Any livestock health/disease or pasture problems
- ✓ Information on how the rainfall season has started (early, near normal, or late).
- ✓ How the rainfall season is progressing in amount and distribution (poor, near normal, or good).
- ✓ How preparation of the season is progressing (crop input supply/demand situations, land preparation, assessing impacts of disease/pest infestations).

Drought Risk Management Plans

- ✓ Several mechanisms have been put in place to ensure that drought risks are properly managed
- ✓ Promotion of drought resistance varieties for farmers has been key in drought situations
- ✓ Climate smart agriculture to ensure sustained productivity
- ✓ Soil and water conservation practices among farmers
- ✓ Diversification –livestock and fisheries initiatives complementing crop production
- ✓ Macro and micro insurance scalability to mitigate drought impacts
- ✓ Stocking of the grain in Strategic Grain Reserves
- ✓ Price stabilization through ADMARC to ensure affordability of the staple in times of deficit

EWS PARTNERSHIPS

- ✓ Agro-meteorological information; yield estimates using crop-weather models with DCCMS
- ✓ Agrometeorology provides one of several sources of data and information that is needed for early warning purposes in agriculture
- ✓ Informal cross-border trade and food security forecasts by FEWSNET

CHALLENGES

- ✓ Failure to improve coverage of food in the balance sheets (cereal crops) by including other food items has been one big challenge in early warning
- ✓ In a number of cases these non-cereal crops take on an even higher percentage of food consumed during the lean period, in drought years
- ✓ information is not in the right form to be understood by those who receive it and inform their planning
- ✓ Lack multiple actors working at differing scales for sustainable outcomes and good governance.
- ✓ Inadequate well-established communication networks

CONCLUSION

- ✓ Early Warning Systems (EWS) are thus crucial for the provision of early warning information to trigger early action and enhance food security.
- ✓ this information, if disseminated appropriately, could lead to better-informed decision-making that would enhance the adaptive capacity of farmers.
- ✓ investment in developing or improving early warning systems should be coupled with investment in improving communication and decision-making processes to maximize the benefit of early warning.
- ✓ In order to increase response, early warning systems must also tailor information for a broader set of actors ranging from global to community level.
- ✓ early warning systems require regular feedback from stakeholders to ensure that its keeping pace with local dynamics

Recommendations

- ✓ Broaden the range of users of early warning information and integrate into development activities.
- ✓ Early warning systems should incorporate systematic feedback from users, and change with the needs of stakeholders and new technology.
- ✓ Invest in the quality, accessibility and integration of data.
- ✓ Ensure participatory processes for adaptation from vulnerability assessment to early warning and adaptation measures where communities can voice their needs, capacities and visions and be agents of change.

Status of Remote Sensing in Malawi

The Ministry of Agriculture in the 2014/15 agricultural season- simultaneously piloted two methodologies to improve APES methodology: Use of remote sensing and satellite imagery to estimate crop production.

Main aim of the evaluation

- To assess the methodologies and draw lessons which can be adopted and incorporated into the APES to enhance quality and credibility of the data produced.

The Two Methodologies

Area Frame Methodology by AIRRBUS

- Less labor intensive due to short period for data collection.
- Good yield estimation method which produces quick and reliable estimates at all levels
- Same images can be used for 5 years, hence, no need to procure images every year
- -Good data transmission and management system

**MPFASU 2015
Early acreage estimation survey**

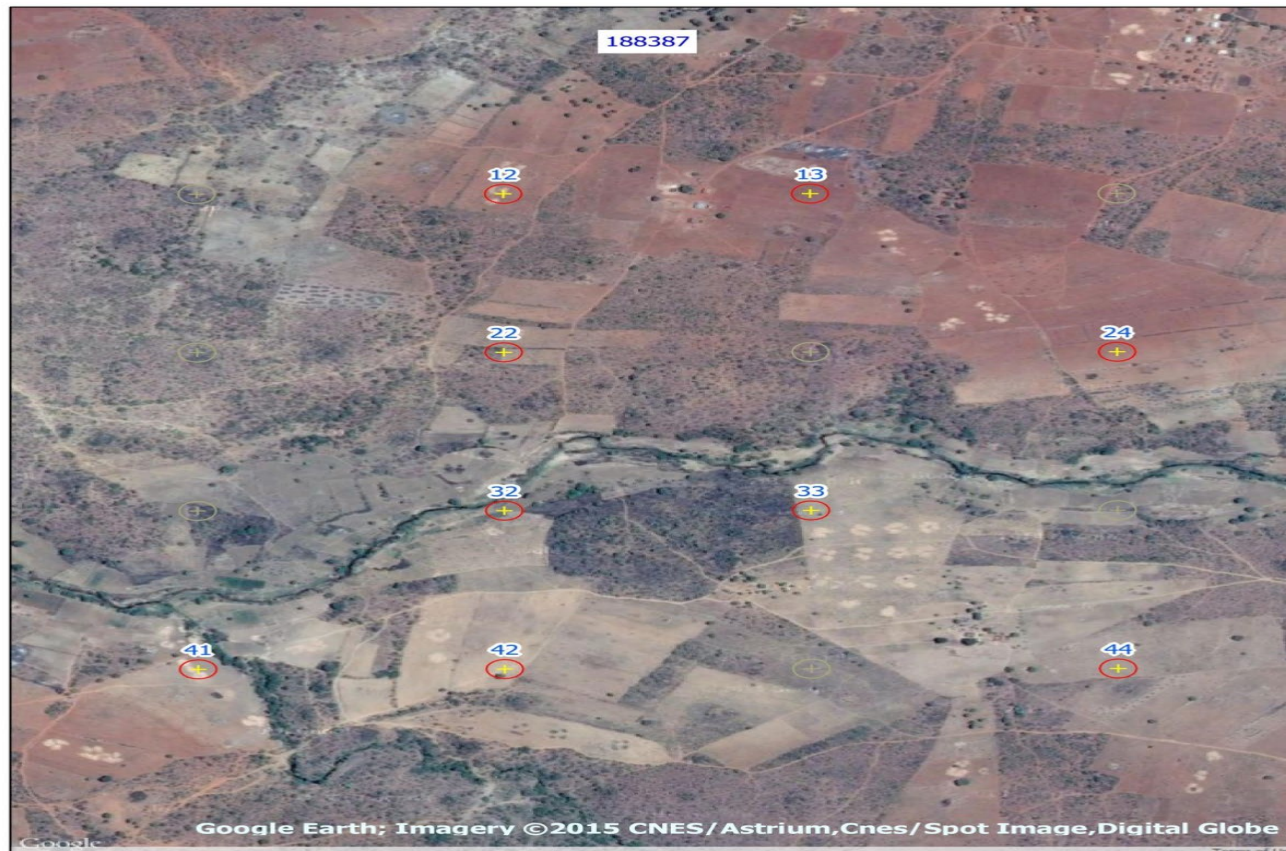
Cluster ID: 188387

Team: A



Index Map: 90

District: MZIMBA



0 100 200 300 400 500 m

Status of Remote Sensing in Malawi cont.....

Point Frame Methodology

- Less labor intensive due to short period for data collection.
- Real time data transmission.
- Reduces the burden of garden area measurement because the surveyor only needs to identify a predetermined point i.e. workload reduced
- Timely results
- Transparency in data capture.
- Captures data beyond maize, includes other crops.
- Online survey progress monitoring system, hence, reducing field supervisions

Status of Remote Sensing in Malawi cont.....

The technology failed to roll out after piloting due to

1. High initial investments-procurement of tablets, moisture meters, GPS and server.
2. Cost of building capacity at all levels-EPA, District and ADD officers

Recommendations - Pilot methodologies

- *Short Term Recommendations*

- **i) Use of Information, Communication and Technology (ICT) in Data Collection and Transmission**

- There is need to introduce electronic data transmission system for APES.
- Electronic data acquisition and transmission has proven to promote quick and error free data submission.
- There is need to use the existing central server located in the Ministry headquarters for data submission.
- Daily data transmission by AEDO's should be made possible by distributing tablets (i.e., with GPS and internet access) to each of the AEDO.

- **ii) Development of electronic database**

- There is need to develop an electronic database for APES data.

Recommendations - Pilot methodologies

cont...

- **iii) Introduction of moisture content measurement for crops**
- Introduction of moisture content measurement in APES to improve on data quality and facilitate early submission of data.
- *Long-Term Recommendations*
- **i) Use of point frame approach for hectarage estimation**
- The point frame hectarage estimation has proven to be more accurate, quick, easy, less time consuming and requires less human resource.

THANK YOU FOR
YOUR ATTENTION!!

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