POLICY BRIEF

NARROWING THE MAIZE YIELD GAP: FACTORS AFFECTING MAIZE PRODUCTIVITY

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Agricultural productivity, what's the issue?

Malawi remains an agrarian economy, with agriculture sector contributing significantly to the nation [accounting for 30% of the Gross Domestic Product (GDP)]. In addition, it provides a source of livelihoods for more than 90% of the population. Meanwhile, the sector remains smallholder dominated; characterised by small landholding sizes of an average size of less than a hectare per household; and having 28% of total harvested area dedicated to the production of maize which is also the staple for the country.

Productivity for the sector, and especially for maize remains below potential despite colossal investment by both the government and the Civil Society. Malawi's maize production has fluctuated substantially in recent years, but continues to register above average harvests with the 2018/19 season ending at an estimated 3.4 million tonnes.

The government of Malawi has pursued a number of deliberate policies, frameworks and institutional efforts championed including the Farm Input Subsidy Programme and National Agriculture Policy (NAP) 2016. These efforts to support farmers and promote agricultural development have been, and remain, significant to the sector.

However, Malawi remains one of the most food insecure countries in the world, ranking 105 out of 133 in the global food security index in 2017. Low productivity remains the biggest challenge to the sector, coupled with weak coordination between actors which has resulted in inefficient implementation of agricultural policies, strategies and various interventions. These existing challenges have greatly affected food production and the growth of the agriculture sector in the country.

Moving away from this trend, and sufficiently improving food security for the country entails increasing maize production levels starting at the grassroot level. The Malawi Government and stakeholders have to, among other things, harmonize and adapt policies that are practical and actionable in the immediate term and long term.

A consultative workshop was conducted in October 2019 with a selected group of stakeholders from government, academia, civil society, private sector, and smallholder farmers. The workshop was conducted through a collaboration by the Civil Society Agriculture Network (CISANET) and Project Concern International (PCI)- Njira project.

Core issues addressed by the workshop included the following:

- What are the factors causing yield gap for farmers?
- How can agriculture productivity be improved?

Why is achieving productivity important?

Other than over reliance on rain-fed agriculture, Malawian farmers are increasingly challenged to produce more, with ever shrinking plot sizes, climate change, and pest infestation. Farmers are failing to produce maize at the required level. Factors attributing to low production include lack of finance, low adoption of quality and improved seeds, little or no use of fertilizers, and poor land management practices topping the list. Even in a year of "bumper harvest", some small holder farm families are at risk of food insecurity. A compelling example is the 2013/14 season in which the country managed to get the highest total maize production quantity of 3.9 million tonnes yet a 2014 report by the Malawi Vulnerability Assessment Committee (MVAC) estimated that 640,009 people were food insecure.

It is revealed that Malawi's average maize yield is 2.2tonnes per hectare against the world average of 5.5 tonnes per hectare and the potential the potential of more than 10 tonnes per hectare. Thus, projected annual loss in production due to poor adoption, agronomic practices and excluding adversaries of climate change is at 5.28tons and is valued at 1billion USD annually (MK750billion). With increased appropriate adoption use of technology such as fertilizer and improved seeds plus good agronomic practices, Malawi can increase average maize production up to 10 tonnes per hectare.

The sector still has potential to achieve the required productivity and per hectare yield for maize and other crops. This however can only be achieved by acknowledging and addressing the wider reality and context in which the challenges and opportunities exist. This calls for vigilance among all stakeholders beginning with government, non-state actors, the private sector, and the farmers to realize this potential and work towards establishing collaborations and coordination on improving structures and technologies for increased agricultural productivity

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Key recommendations to food security projects

Closing the maize Yield Gap among smallholder farmers will therefore require actions outline as below:

1. Increase access to extension and advisory services by farmers to enable them acquire good information on agriculture technologies so as to adopt and develop necessary approaches to increase agriculture productivity.

2. Increase access to inputs (including improved seed varieties, and appropriate fertilizers) for farmers.

3. Promote the sustainable natural resource management and restoration of degraded landscapes.

4. Develop and create opportunities for improved collaboration and coordination among stakeholders for synergies and harmonized efforts at national, district and community level.

Key recommendations to government

The Ministry of Agriculture, Irrigation and Water Development needs to consider the following:

1. Carry out a comprehensive investigation (involving the researchers and agriculture extension experts) at Extension Planning Area (EPA) or Agro-Ecological Zone (AEZ) level to pin point the root causes for the yield gap between the different levels (actual, attainable and potential).

2. Examine extension service delivery and crop management lessons from successful farmers and regions of the country.

3. Adopt and Implement policy level decisions to endorse measures aiming at closing the yield-gap in maize production

4. Develop a road map for closing the yield gap on maize production that clearly outlines the roles and responsibilities of research, weather forecasting units, extension, seed and fertilizer retail outlets, implementing organizations and community volunteers.

5. Adopt a national "Award and Recognition" system for research, agriculture extension staff as well as farmers who demonstrate innovation and success in closing the yield-gap in Maize production.

6. Ensure clear policy enforcement to check on organisations that are supporting small holder farmers to conserve crop genetic material by encouraging them to grow and use local varieties.

7. Provide support and resources towards linking research and extension in order to narrow the yield gap.

8. Decentralize research to district level will allow for improvement in breeding of crops and realize area specific outcomes that can be used to design practical solutions.

9. Increase access and adoption of improved technologies (seeds and fertilizers) by smallholder farmers.

10. Build capacities and strengthen existing departments and structures to be able to perform as mandated and to be responsible for their roles as according to their service charters

What should policy makers do?

- Formulate and implement policy that is focused on agricultural commercialization of smallholder farmers.
- Shift government spending away from input subsidies and toward investments that support the productivity and long-term competitiveness of the agriculture sector.
- Support investments in agricultural and technology research to foster innovation and capacities in agricultural extension.
- Adopt a market-led production system whereby better markets and prices will act as incentives and enablers for innovations and adoption of technologies that enhance productivity