



Malawi's Food and Agricultural System: A Scenarios Analysis

SUMMARY

The evolution of Malawi's food system is critical to the country's development prospects over the coming decades. The population remains predominantly rural, rates of malnutrition are high, and the agricultural sector provides a critical source of employment, income and export revenue. However, considerable uncertainty surrounds the food system's future. Trends including demographics, climate change, environmental degradation, the development trajectories for domestic and international markets, rates of technological development and adoption, dietary patterns and social developments including the integration of a growing youth population into the job market and access to education and resources for women, all have important implications.

Taken together, these trends present huge uncertainty surrounding how Malawi's food system will evolve between now and 2050. Any national forecast of such a complex system over such a long time frame will certainly be wrong and planning purely on the basis that 'expected' outcomes will materialize is likely to result in poor decisions. Instead, plans to develop Malawi's agricultural and food system should explicitly recognize this uncertainty. Decision-makers need to explore how choices and events might shape different futures and identify strategies that are resilient to uncertainty: no regret options that should pay off in a range of possible futures, rather than the one we hope for or expect.

To help this process of planning a more resilient future, a scenario exercise for Malawi's food system was conducted in November 2018 with a selected group of 60 stakeholders from government, academia, civil society and the

agriculture sector. Through discussion, two critical driving forces, with *high uncertainty* regarding their outcomes, were selected from a shortlist of pertinent trends affecting the food system. These two critical uncertainties were used to create axes for a 2x2 matrix that frames four potential futures reflecting more and less progressive outcome for each critical uncertainty. Each one of these futures was then explored, allowing participants to consider the inherent uncertainty the future holds, and understand how choices, decisions and extraneous factors might contribute to very different outcome.

POLICY IMPLICATIONS

- Regardless of the magnitude of climate risks, the nature and cohesiveness of the policy landscape will have profound implications in determining how successful Malawi is in realising a sustainable and climate-smart food system which delivers food and nutrition security and broad-based economic growth
- Malawi should consider planning for significant climatic hazards in the future and seek to reduce vulnerability so that risks are manageable
- Malawi should take steps to enhance/ensure coordination and cooperation between the different agencies in charge of the development and administration of various sectoral development policies
- A closer working partnership between the Government of Malawi and donors is desirable as this can leverage national and international efforts to address the Sustainable Development Goals (SDGs)

MALAWI'S FOOD SYSTEM POLICY LANDSCAPE

The Malawi 2016 National Agricultural Policy (NAP) sets itself a goal to drive significant agricultural transformation, which should lead to increased agricultural exports, expanded incomes for farming households and improved food and nutrition security. Sustainable agricultural production and productivity and food and nutrition security are among the priority areas earmarked by the 2016 NAP, which aims to achieve these aims (in part) by increasing investment in adoption of climate smart agriculture and sustainable land and water management.

The policy landscape more broadly has also gradually increased signaling of the actions that can be taken to address the problems emanating from climate risks. For example, the 2016 National Climate Change Management Policy, which is meant to act as a mechanism for harmonising and coordinating climate change initiatives and programmes, underlines the importance of technological developments and transfers in realising food and agriculture adaptation and mitigation, emphasising the role of climate-smart technology investment and adoption. Other more recent, policy processes such as the 2017 Malawi Growth and Development Strategy III (MGDS III), the 2017 Strategic Programme for Climate Resilience, and National Resilience Strategy (NRS) currently under development together with its Implementation Plan have all linked agricultural development/transformation and productivity outcomes, food and nutrition outcomes and climate change and broader environmental sustainability outcomes.

However, the NRS, despite being a major policy process intended to instill resilience in many aspects of Malawi's growth ambitions and its population's welfare, doesn't give much prominence to climate change as a major threat to Malawi's development, despite major humanitarian disasters associated with climate change that have affected the country in recent years². Failure to recognise climate change as a major risk to development ambitions and the absence of long-term adaptive strategies, will jeopardise the delivery of MGDS III outcomes under priority area 6.2 "agriculture and climate change"³.

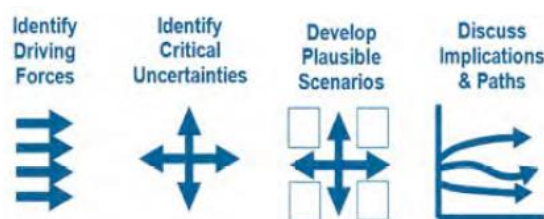
Despite this slow but important shift in the policy arena and the multiplicity of policies developed,⁴ there is not yet a comprehensive approach in agricultural and food system policy-making in Malawi that considers a range of driving forces which have the ability to affect food production and availability, social and economic development, and environmental sustainability. For example, while envisaging increases in agricultural productivity and food production, the impacts, and conflicts, that such agricultural developments are likely to have on broader water use and energy demand still need to be considered more holistically.

Achieving a food and nutritionally secure and resilient Malawi, in which a healthy population is able to drive Malawi's future stability and economic prosperity, requires comprehensive and integrated planning and policymaking.

FUTURE SCENARIOS: A PARTICIPATORY APPROACH

There is considerable uncertainty surrounding how Malawi's food system will evolve between now and 2050. Any 'best estimate' forecast of such a complex system over such a long-time frame will be wrong. Accordingly, plans to develop Malawi's food and agricultural system should recognize this uncertainty. Decision-makers should explore how choices and events might shape different futures and identify strategies that are resilient to uncertainty: no-regret options which would pay off in a range of possible futures, rather than the one we hope for or expect.

Figure 1: The Steps in a Scenario Exercise



A scenario exercise can help with planning for uncertainty by exploring the range of possibilities that the future may hold. In such a process, a group of participants identifies a set of driving forces that will shape future outcomes over the period in

question. Through discussion, two impactful trends (or critical uncertainties) are selected over which there is *high uncertainty*, thus maximizing the range of possible future outcomes. Ideally these should also be as independent as possible to maximize the extent of future possibilities. These are used to create a 2x2 matrix that frames four potential futures – one in each quadrant (see figure 1 below). Each one of these futures is then explored, creating a rich, narrative-driven scenario into which the other driving forces can be integrated. Exploring these four scenarios through discussion allows participants to better embrace the inherent uncertainty the future holds, and understand how choices, decisions and extraneous factors might contribute to very different outcomes.

A scenario exercise for Malawi’s food system was conducted in November 2018 with a selected group of stakeholders from government, academia, civil society and the agriculture sector.

Core questions addressed by the Malawi scenario exercise included the following:

- What will Malawi’s agri-food systems be like in 2050?
- What crops, grown where, how?
- What relationship with trade?
- Does food provide nutrition? Equitably?
- Adaptation and mitigation to climate?
- Sustainability?

IDENTIFYING THE MOST CRITICAL UNCERTAINTIES

Participants identified and discussed the following shortlist of important uncertainties for Malawi:

Table 1: Driving forces, critical uncertainties and ranking importance in shaping Malawi’s agri-food system

Uncertain trends	Key Questions	Ranking
Climate risks	<ul style="list-style-type: none"> • Rainfall and temperatures/changing weather patterns in Malawi/natural disasters/dry spells and flooding • Adaptation to climate change • Environmental and land degradation, deforestation, pollution • Water availability • Pests and diseases 	1
Effective policy implementation for food systems outcomes	<ul style="list-style-type: none"> • Technology direction of travels/level of adoption • Food security • Priorities in agriculture • Infrastructural development 	2
Global changes	<ul style="list-style-type: none"> • Politics and markets • Macroeconomics and global inequality 	
Other trends	<ul style="list-style-type: none"> • Rates of migration • Inequality of income and gender • Crops/role of smallholder farmers/livestock- improved production systems • Proportion of agriculture to the broader national economy • Land tenure fragmentation • Local and international markets • Energy supply • Emergence of middle classes in farming • Impact of inward foreign investment • Economic growth (trade/formal and informal sectors/industrialization) • Infrastructure investment in transport, irrigation and impacts on imports/exports • Food security and nutrition • Technological development and adoption 	

Whilst all of the trends considered above are clearly important in determining whether or not Malawi’s food system in 2050 will be sustainable, productive and climate smart, they vary in terms of their uncertainty. For example, whilst temperature and rainfall changes due to climate change are both important, there is considerably

more uncertainty about the latter. And whilst there may be some uncertainty about the extent of population growth and urbanization that will occur, there is little doubt that both will increase significantly and that plans should be made on this basis.

CONSTRUCTION OF THE SCENARIOS AND KEY CONSIDERATIONS FOR THE NARRATIVES

To explore possible agricultural and food system futures in Malawi, each scenario (quadrant) was considered in turn using the following guiding questions:

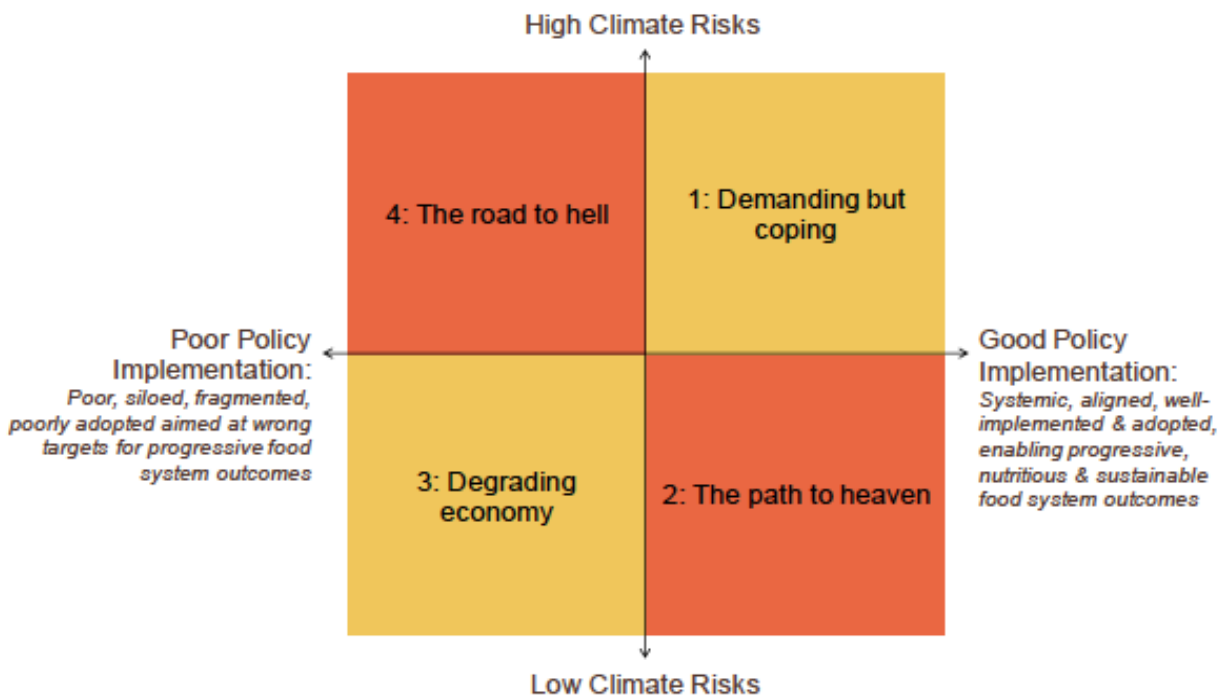
- What are the implications the scenario for agriculture (and its technologies), crops and farming systems, trade, nutrition, employment, food prices, sustainability, economic growth?
- What might be the implications for different stakeholders and who are likely to be the winners and losers?
- How might such a world come about between now and 2050?

From the long-list of uncertain trends the assembled stakeholders ranked the following top as the most critical uncertainties to construct the scenarios matrix:

1. Climate risks
2. Effective policy implementation for food systems outcomes
3. Global trends was a close third.

This resulted in the scenario matrix below:

Figure 2: Malawi Food System Scenario Matrix

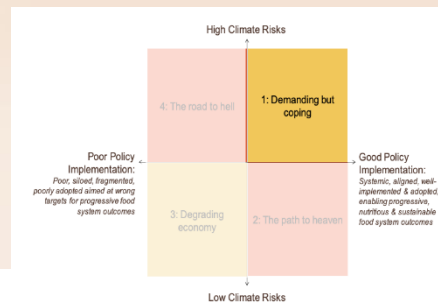


The four scenarios are explored in the following sections, starting in the top right quadrant.

SCENARIO 1: DEMANDING BUT COPING (HIGH CLIMATE RISKS, GOOD POLICY IMPLEMENTATION)

Under this future the Malawian agriculture sector and the food system are subjected to high climate risks, which manifest as unpredictable weather patterns, more frequent rainfall and longer spells of high temperatures. In this scenario the following is taking place:

- Malawi food and agricultural system sector is subject to high climate risks, e.g. unpredictable weather patterns, more frequent rainfall and longer spells of high temperatures
- Environmental and specifically climate risk challenges are addressed/mitigated domestically, sustainable development policies, sensitively and coherently developed, are evidence-based, future-proofed, and are mutually supportive
- Coordination and collaboration between central and regional government departments fostering cross-ministerial and cross-sectoral strategic alignment
- Coping capacities highly depend on the level of introduction and uptake of more advanced agricultural and climate intelligent technologies
- Mechanisation, input-use, dietary demands, and production support systems are all governed by a well-aligned policy framework which is equally designed to reduce the pressures on the natural environment



Winners: Academics and policy makers; the poorest and food insecure due to greater safety net support, technology developers

Losers: Smallholder farmers highly dependent on rain fed maize; insurance companies (provided weather insurance works well)

SCENARIO 2: THE PATH TO HEAVEN (LOW CLIMATE RISKS, GOOD POLICY IMPLEMENTATION)

Under this scenario the climate risks to Malawi's food and agricultural systems are lower than might otherwise have been anticipated, though they are nonetheless more significant than they were in the late 2010s.

In this scenario the following is taking place:

- Climate has warmed and the risks of drought have increased, but these have not yet proven to be catastrophic; rainfall patterns are more changeable but farmers are able to manage this uncertainty with regard to planting plans; improved irrigation infrastructure has aided water availability at key times of the year
- Malawi's development policies have been well designed, integrated, and implemented, and are providing an enabling environment for broad-based progressive changes: e.g. gender sensitive land titling scheme, access to finance, access to markets, crop diversification, improved nutrition, jobs creation/youth employment
- With funds from GCF and other donor contributions, Malawi has invested considerably in climate-smart agricultural adaptations and technologies
- Smallholders are recipients of more appropriate and better financed training, including on the appropriate use of novel technologies; and all farmers have benefited from the broad-based nature of policy priorities and are food secure



Winners: Everyone wins in this scenario although middlemen are expected to profit less (because of increased direct access to markets by now capacitated smallholders)

Losers: Commercial farmers (reduced large scale farming); and medium to large commercial farmers (if local products are undercut by easily imported goods)

SCENARIO 3: DEGRADING ECONOMY (LOW CLIMATE RISKS, POOR POLICY IMPLEMENTATION)

In this scenario, policies that govern, impinge on, and otherwise affect food and agricultural sectors in Malawi are incohesive and have been poorly designed and implemented.

In this scenario the following is taking place:

- Malawi’s food and agricultural system policies in are not cohesive because of poor design and are poorly implemented; in the context of low risks and disruptions posed by climate change
- The goals of Malawi Growth and Development Strategy (II and III) and the National Resilience Strategy, e.g. increased productivity, dietary diversity and resilient farming systems, are not realised
- It’s business as usual for agricultural research institutions and seed companies (e.g. focus on maize), with no agricultural diversification as a consequence
- Lack of political will to develop infrastructure in the more marginalised parts of the country restricts farmers’ access to markets
- Agriculture’s contribution to Malawi’s economy, and the potential for additional value-addition, dwindles; growing, youthful population are attracted to work in other more appealing non-farm sectors especially in urban areas
- Malawi relies on international donors for support and food aid; the country’s ability to attract foreign direct investment is impaired by the shortcomings of trade and investment policy, the regulatory climate, and the failures to upgrade infrastructure



Winners: Small group of wealthy/upper class farmers, multinational investors, external donors

Losers: Smallholder farmers, government (e.g. losses in taxes and higher expenditures on nutrition management), rest of population (higher food prices)

SCENARIO 4: THE ROAD TO HELL (HIGH CLIMATE RISKS, POOR POLICY IMPLEMENTATION)

The future under this scenario is bleak: climate risks are high and Malawian food and agriculture systems are ill-equipped to deal with them as a result of fragmented, poorly designed and ill-targeted national development policies.

In this scenario the following is taking place:

- Climate impacts on food and agricultural systems mean high unemployment, low trade, food and nutrition insecurity all leading to a collapsed economy, high political instability and widespread social unrest
- Degradation of Malawian soils significantly reduces the fertile area and reduces yields on land that remains under production
- Reduced productivity is exacerbated by lack of investment in agricultural research and technologies, resulting in frequent food shortages and high dependence on imports



Winners: Politicians (if they can win the electorate by using language focussing on people’s concerns about food shortages, poverty alleviation, provision of infrastructures)

Losers: More losers than winners; the poorest and most vulnerable financially and technically are the worst affected

IMPLICATIONS OF THE SCENARIOS

The sketches of the four scenarios reveal that due to uncertainty of the drivers, Malawi's food and agricultural system will evolve over the next decades. Successful development of the food system requires coordinated thinking about the impacts of climate change domestically and internationally, given Malawi's exposure through trade impacts elsewhere. It also requires coordinated and coherent policy development and implementation in the agri-food sector and beyond to create an enabling environment in which farmers, processors, retailers and others can sustainably and profitably deliver sufficient and nutritious food to Malawi's growing population. Several tentative conclusions emerge:

- 1) **The nature and cohesiveness of policy implementation** will determine Malawi's success in achieving a sustainable and climate-smart food system which delivers food and nutrition security and broad-based economic growth. Like many African countries, Malawi can be described as a policy rich country, but the implementation of these policies is the major constraint to the country's development ambitions. Some of the key policy instruments (MGDS III, the National Adaptation Plan, the National Agricultural Policy, and the National Climate Change Management Policy etc.) have been adopted but implemented fully.
- 2) **There is need to address the current lack of coordination and cooperation between the different agencies** in charge of the development and administration of various sectoral development policies. Failure to pursue these policy pronouncements, or to pursue them in isolation without regard to the synergies and tensions between them – individually and collectively - and a broader suite of policy instruments that also

determine food system outcomes, stands to hinder progress towards the more progressive scenarios, irrespective of the climate risks that may or may not be faced.

- 3) **Concomitant with improved coordination of policy interventions, a closer working partnership between the Government of Malawi and donors is desirable.** This holds the potential to better leverage national and international efforts to address the Sustainable Development Goals, particularly those pertaining to poverty alleviation (SDG1), ending hunger in all its forms (SDG2), ensuring sustainable consumption and production patterns (SDG12) and actions to address climate change and its impacts (SDG13).
- 4) **Malawi should plan for significant climatic hazards in the future and seek to reduce vulnerabilities so that risks are manageable.** Although two of the scenarios discussed here depict a future in which Malawi could be affected by relatively low climate risks, ongoing international efforts to achieve the 2015 Paris Agreement targets to limit global warming to well below 2°C and to pursue efforts to keep temperature increases to 1.5°C this century, suggest that concerted additional effort will be required if these targets are to be achieved. Given the scale of the challenge and the inertia in earth system processes, even relatively low climate risks are likely to be greater than the risks faced today, in absolute terms. It is imperative, therefore, that Malawi plans for significant climatic hazards in the future.



Notes

¹ It did however stress that this small concern could become a serious problem if it goes unchecked.

² For example, floods that affected Malawi, Mozambique and Madagascar in January 2015 and which caused significant damages to property, infrastructure and agriculture. (Rapolaki, R.S. & Reason, C.J.C., Tropical storm Chedza and associated floods over south-eastern Africa, Nat Hazards (2018) 93:189–217, accessible at: <https://link.springer.com/article/10.1007%2Fs11069-018-3295-y#citeas>)

³ Under MGDS III priority area 6.2 the following outcomes, among others, are planned: Increased agricultural production and productivity; increased land under irrigation; increased agricultural diversification; improved nutrition and food security; increased agriculture market development, agro processing and value addition; improved weather and climate monitoring, prediction, information and knowledge management systems

⁴ These demonstrate that Malawi is committed to addressing problems of famine and food insecurity today, especially as they relate to climate shocks.

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About the Agricultural and Food-system Resilience: Increasing Capacity and Advising Policy (AFRICAP) Programme

The Agricultural and Food-system Resilience: Increasing Capacity and Advising Policy (AFRICAP) programme is a four-year research programme focused on improving evidence-based policy making to develop sustainable, productive, agricultural systems, resilient to climate change. The programme is being implemented in Malawi, South Africa, Tanzania, Zambia, and the UK led by the University of Leeds, a leading Russell Group university in the north of England, in partnership with the Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN), a pan-African multi-stakeholder policy network. The programme is funded by the UK Government from the Global Challenges Research Fund (GCRF), which aims to support research that addresses critical problems in developing countries across the world. It is administered by the UK's Biotechnology and Biological Sciences Research Council (BBSRC) - UK Research and Innovation (UKRI).

Implementing Partners: FANRPAN; University of Leeds; University of Aberdeen; the UK Met Office; Chatham House - Royal Institute of International Affairs; the Civil Society Agriculture Network (CISANET), Malawi; Department of Agriculture Research Services (DARS), Malawi; National Agricultural Marketing Council (NAMC), South Africa; Economic and Social Research Foundation (ESRF), Tanzania; and the Agricultural Consultative Forum (ACF), Zambia.

For More Information

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