



REPUBLIC OF MALAWI

Hard Hit by El Niño:

Experiences, Responses, and Options for Malawi

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Acronyms and Abbreviations

ACPC	Area Civil Protection Committee
ADMARC	Agricultural Development and Marketing Corporation
APES	Agricultural Production Estimates Survey
ARC	Africa Risk Capacity
ARMS	Agricultural Risk Management Strategy
CPC	Civil Protection Committee
CSO	Civil society organization
DCM	Disaster Crunch Model
DFID	Department for International Department (UK)
DODMA	Department of Disaster Management Affairs
DPRA	Disaster Preparedness and Relief Act
DRM	Disaster risk management
DRR	Disaster risk reduction
ENSO	El Niño–Southern Oscillation
FAO	Food and Agriculture Organization of the United Nations
FBS	Food Balance Sheet
FEWS NET	Famine Early Warning Systems Network
GDP	Gross domestic product
GoM	Government of Malawi
HEA	Household Economy Approach
HFA	Hyogo Framework for Action
INGO	International NGO
MGDS	Malawi Growth Development Strategy
MoAIWD	Ministry of Agriculture, Irrigation and Water Development
MT	Metric ton
MVAC	Malawi Vulnerability Response Committee
MWK	Malawian Kwacha
NAIP	National Agriculture Investment Plan
NAPA	National Plan of Action
NCCIP	National Climate Change Investment Plan
NCP	National Contingency Plan
NDRMP	National Disaster Risk Management Policy
NGO	Nongovernmental organization
PDNA	Post Disaster Needs Assessment
SGR	Strategic Grain Reserves
SFDRR	Sendai Framework for Disaster Risk Reduction
TA	Traditional Authority
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations Children Fund
USAID	United States Agency for International Development
VSLA	Village Savings and Loans Association
WFP	World Food Programme

Foreword

Disasters, mainly triggered by extreme weather conditions, have become a very frequent occurrence in Sub-Saharan Africa. These disasters are a product of the El Niño–Southern Oscillation (ENSO), the largest mode of interannual variability in the climate system, the frequency of which has increased over time. Shifting patterns in weather and climate have caused rainfall anomalies, adversely impacting agriculture sectors across the subcontinent. Malawi is among the most climate-fragile countries in the world, ranking 105 out of 113 countries based on the 2016 Global Food Security Index. In recent years, the country has faced successive and compounding climatic shocks, from the worst flood in 50 years in 2015, to the strongest El Niño event in 35 years in 2016, which left 6.7 million people (39 percent of Malawi’s population) in need of food assistance.

El Niño has hit Agriculture harder than any other sector, and caused agricultural production to dwindle, rendering most households vulnerable to food insecurity. The Government of Malawi (GoM) estimated that the 2015 El Niño led to an annual production loss of US\$282 million within the agriculture sector out of total estimated losses of US\$500 million (GoM 2016b). Consequently, overall agriculture sector production fell by 2 percent of gross domestic product (GDP), and GDP growth slowed from 5.7 percent in 2014, to 2.8 percent in 2015, and to 2.5 percent in 2016. As 30 percent of GDP comes from the agriculture sector, this recurring crisis reveals the urgent need for the GoM to take immediate and long-term actions to address this challenge. When climatic shocks strike, the economy is devastated as productive investments are diverted to address the immediate needs of food insecurity. Many of the economic gains made by the economy and farm households are swept away in the aftermath of a poor harvest.

Climate predictions indicate the likelihood of further extreme weather events in Malawi that, if not well managed, will increase vulnerability. Average temperatures are expected to increase by 1.4 to 2.0 degrees Celsius in low and high warming scenarios, respectively, by 2040. The frequency of droughts is projected to increase by up to 20 percent, for dry spells of one to six months. The frequency of heat waves is projected to increase by between 10 and 20 percent compared to the recent past (World Bank 2017b). This calls for concerted and immediate action to guide efforts to respond to extreme weather events to reduce vulnerability among households in Malawi.

Against the above background, this analytical work was designed to take a deeper look at the experience of past years to identify options, gaps, and entry points to improve future responses to El Niño and related extreme weather events. The report’s recommendations are based on analysis of secondary data and primary data collected in 15 disaster-prone districts, as well as stakeholder consultations at all levels. The recommendations are meant to guide the GoM, the World Bank Group, and other stakeholders in improving preparedness and responses to El Niño, and related extreme weather events, as part of efforts to achieve medium- to long-term vulnerability reduction.

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Executive Summary

In Malawi, the impact of extreme weather events has significantly contributed to the recurrent crises of food insecurity. The extreme weather events have shifted the country's focus from improving agricultural productivity and resilience to ensuring survival, with most resources devoted toward humanitarian assistance. The country is highly exposed to multiple hazards that cause widespread shocks. In recent years, the country faced successive and compounding climatic shocks: from the worst flood in 50 years in 2015, to the strongest El Niño event in 35 years in 2016. This prompted declaration of a state of disaster and left 39 percent of the country (6.7 million people) at risk of food insecurity during the 2016/17 consumption period (GoM 2017c). The El Niño–Southern Oscillation (ENSO) is the most important driver of climatic variability in Malawi. Even though El Niño occurrences are predicted to increase in frequency, the Government of Malawi's (GoM) actions are inadequate, as disaster management is largely reactive than proactive.

The agriculture sector, which contributes 30 percent to Malawi's gross domestic product (GDP), has been severely affected by the extreme weather events. This is amplified by the overreliance on single-season rainfed agricultural production, dominated by maize-based systems that are vulnerable to climatic shocks. The annual losses from production risks alone average US\$149 million per year (Giertz et al. 2015a). The agriculture sector incurs huge losses when disaster strikes, amounting to approximately 89 percent of the total losses (GoM 2016b). In response to reduced production of most crops, average prices have generally increased, fueling inflation and reduced agricultural growth, and ultimately adversely impacting the economy at large.

The Government of Malawi (GoM) has responded by putting in place various policies and coordinating institutions/structures to address extreme weather events, including increasing its responsibility for responding to the aftermath e.g. increasing support to maize purchases. However, its policies are fragmented, with inadequate resources to translate them into action, while capacity gaps further cripple increased coordination requirements. In view of this, efforts have not translated into sustained results when disasters recur, creating a vicious cycle of food insecurity and vulnerability.

This analytical work was undertaken to assist the GoM to strengthen its efforts toward effectively responding to extreme weather-related events, especially El Niño and La Niña phenomena. Specifically, the study aims to provide a critical review of how the country has responded to recent extreme weather events, draw lessons for future response planning, and identify gaps and options to strengthen preparedness and response to El Niño, La Niña, and similar weather events.

The study used a combination of primary and secondary data collected from July to September 2017. Primary data were collected through focus group discussions and key informant interviews in Malawi's 15 disaster-prone districts. Secondary data included a review of various policies, research reports, and other documents.

The key findings and recommendations from the study are summarized below:

Key Findings

Ever increasing vulnerability and costs

1. The costs of unmanaged risks are high, and will likely go higher with the absence of concerted and coordinated actions to address the gaps, as temperatures and heat waves are projected to

increase. The 2016 El Niño was the highest ever in terms of magnitude, vulnerability, and ultimately cost. Donors provided significant resources toward humanitarian response (at least 77 percent).

2. Malawi is seemingly becoming more vulnerable, and the high humanitarian costs are a drain on critical resources that could otherwise be invested in adapting agricultural food systems to climate change and increasing absorptive capacity against climate change variability. The current responses are more reactive than proactive, with significant resources devoted to maize purchases (approximately 50 percent of the agriculture sector budget), thereby offering limited options to achieve agricultural transformation, as stipulated in the National Agriculture Policy.
3. Peak periods of food insecurity consistently relate to the occurrence of extreme weather shocks. In turn, this directly reduces agricultural production, agricultural growth, and ultimately overall economic growth. Extreme weather shocks often lead to downward adjustment of national growth targets.

Increased policy evolution trends, but fragmented, with outdated legal framework for disaster risk management

1. Policy trends have evolved in response to the increased prevalence of extreme weather events. Climate change is strongly integrated and prioritized within Malawi's medium-term strategy and is mainstreamed within various sector policies (including agriculture), as well as in the development of specific policy frameworks (e.g., the national climate change policy). These policies are significantly aligned with international frameworks. This notwithstanding, the policies are fragmented, sector-specific, inadequately funded, ad hoc, and broadly framed, offering limited scope for addressing the complexity of disaster events. The experience of 2015–2016 necessitated development of a "National Resilience Strategy and Implementation Plan" that offers hope to address fragmentation gaps, while shifting the focus toward resilience.
2. The country still relies on the Disaster Preparedness and Relief Act (DPRA) of 1991, which is outdated and not aligned with Malawi's international commitments.

Disaster risk management machinery in place, albeit with weak capacity and few champions in the agriculture sector

1. High political will exists in terms of leading coordination efforts, as is the functionality of various disaster risk management institutional structures. However, the GoM's funding is unable to keep pace with the increased needs, amidst weak structures at district and community level to translate results. No specific emergency funds are in place to facilitate timely response to disasters. Despite the draft Agriculture Risk Management Strategy (ARMS), the agriculture sector lacks champions to effectively integrate disaster issues as a core issue within its work.
2. Preparedness and early warning instruments are insufficiently connected and institutionalized to contribute effectively to decision making. Early warning systems remain weak and are not well integrated within the agriculture sector. Agricultural production estimates are routinely calculated using more traditional approaches, instead of more modern techniques that improve accuracy and prediction efficiencies. The Food Balance Sheet, which is informed by agricultural production estimates, weights maize calories relatively high, does not include other cereals, roots, and tubers, and underestimates food opening balances (particularly lacking an informed private stock assessment), thereby offering imprecise information for planning. Agricultural insurance has

not been successfully scaled up due to design flaws and stakeholders' lack of awareness. In the context of limited or no funding for contingency plans, these instruments hardly inform preparedness for disaster. Acute gaps exist at district level, where contingency plans are rarely updated and are supported in an ad hoc manner.

Resilience, diversification and social protection reduces vulnerability

3. Increased evidence suggests reduced vulnerability if resilience is integrated within the humanitarian response, with more focus on shock-responsive safety nets. Given the high political will and donors' good will, expanding social cash transfers to all districts offers large potential to ensure households' resilience to disasters induced by extreme weather shocks.
4. Upscaling resilience and diversification also offers a good option to reduce vulnerability. Where efforts for joint resilience programming are in place, coordination has been good and household vulnerability to extreme weather events has reduced.

Unpredictable public interventions on the market increase vulnerability and price volatility

1. Unpredictable GoM interventions on the market have created information asymmetry, which has fueled increased maize price volatility, leading to depressed producer prices and disincentives for private sector commercial investments.
2. The Agricultural Development and Marketing Corporation (ADMARC) can increase market stability and reduced volatility if it improves its transparency on maize operations, purchases maize from farmers early (soon after harvest), and establishes correct price setting (cost recovery). This not only increases private sector confidence and participation on the market, but also reduces anticipated losses by ADMARC, a drain on public resources when it needs to be bailed out.

Recommendations

Strengthen policy and legal framework, with sufficient funding on DRM activities

1. Department of Disaster Management Affairs (DODMA) should expedite the review of the DPRA, and ensure that it is aligned with the Sendai Framework for Disaster Risk Reduction and in line with existing and emerging climatic shocks.
2. DODMA/Ministry of Finance, Economic Planning and Development should set aside an emergency fund or DRM budget line that can be used to respond to disasters, rather than overreliance on donors' good will.

Strengthen/improve connectedness among early warning, forecasting and disaster preparedness tools

3. DODMA should strengthen early warning systems by developing comprehensive hazard maps and risk profiles (up to community level in disaster hotspots), and ensure that they are updated and communities are well-informed, while allocating adequate funding for this activity. The Ministry of Agriculture, Irrigation and Water Development (MoAIWD) should integrate early warning as part of agricultural extension advisory services, and ensure that it positions itself to implement and mainstream disaster preparedness and adaptation.

4. DODMA/MoAIWD should adopt use of geospatial tools, including satellites, to inform early warning (as informed by agricultural meteorological assessments such as use of geospatial tools). Appropriate capacity and partnerships should be developed at various levels to operationalize such tools, including use.
5. MoAIWD should improve the methodology used for the agricultural production estimates by incorporating use of remote sensing and automated data capture/transmission, and improve yield estimation (as guided by recommendations from pilots executed in 2014/15). In the Food Balance Sheet, estimation of the food gap should be informed by an elaborate assessment of public and private stocks and a better measure of postharvest losses; caloric consumption weights should be broadened to reflect other key cereals, roots, and tubers.

Deepen support to resilience, social protection while rebalancing investments to promote diversification

6. MoAIWD should ensure appropriate resource balance, guided and aligned with the National Agriculture Investment Plan (NAIP), while deepening resilience, as opposed to the current overemphasis on maize.
7. The GoM and development partners should scale up support toward resilience and diversification (already a strong feature in the NAIP), while ensuring coherent and joint programming. The National Resilience Strategy can offer an opportunity to guide such efforts. In the same vein, integration of resilience within the humanitarian response should be scaled up in all districts. Social protection programs (as led by the Ministries of Gender and Finance, Economic Planning and Development) should prioritize promotion of shock-responsive safety nets, which have proved to significantly reduce vulnerability against shocks.

Strengthen institutionalization of DRM within mainstream agriculture sector

8. MoAIWD should identify champions within its structures to lead in mainstreaming DRM within agriculture at all levels, while coordinating with district DRM desk officers. Funding to facilitate such work will be needed. The ARMS offer a proper guide and should be adopted to inform this.
9. MoAIWD should lead in the implementation of the National Resilience Strategy and Implementation Plan, ensure that resources are mobilized accordingly, and align coordination structures with the existing ones. As the plan has been finalized, such support needs to be mobilized from 2018-2019.

Improve transparency, predictability of market interventions and enabling environment for agriculture

10. The Ministry of Trade, Industry and Tourism should improve the enabling environment as it relates to GoM interventions on the market. Review of the Control of Goods Act needs to be expedited to guide this endeavor to improve transparency, consultation, and predictability on market interventions.
11. ADMARC should routinely provide information on its marketing plans (prices, volumes to be bought or sold) ahead of the crop selling season, and ensure cost recovery prices to avoid any anticipated losses (risk-based). Based on this, ADMARC should enter the market soon after the maize harvest to ensure smallholder farmers receive a price above the minimum price set by the GoM.

Chapter 1: Agriculture and Extreme Weather Events in Malawi

1.1 Background

Disasters, mainly triggered by extreme weather conditions, are now a constant occurrence in Sub-Saharan African countries, the economies of which rely mainly on agriculture. These disasters are manifested in the El Niño–Southern Oscillation (ENSO), the largest mode of interannual variability in the climate system (Murphy et al. 2001), the frequency of which has already increased and is likely to increase further in the countries of East and Southern Africa. Shifting patterns in weather and climate cause rainfall anomalies that adversely impact agriculture. The major agricultural vulnerability drivers include poor agricultural production, loss of livestock, high food prices, cross-border trade barriers, growing economic interdependence, and poverty. As an agro-based economy, Malawi has been one of the hardest hit countries in the region.

Agriculture is the backbone of Malawi's economy, contributing over 30 percent of gross domestic product (GDP). The sector employs 64.1 percent of the total labor force and contributes about 80 percent of the country's foreign exchange earnings. The main export crops grown are tobacco, sugar, tea, and cotton. Maize is the principal subsistence crop, cultivated by 80 percent of smallholders. Other important food crops include rice, cassava, sweet potato, Irish potato, sorghum, and millet. Malawi's agriculture sector has two main subsectors: the smallholder subsector and the estate subsector. The smallholder subsector contributes more than 70 percent to agricultural GDP, while the estate subsector contributes less than 30 percent (GoM 2006d). Smallholders mainly cultivate food crops such as maize, cassava, and sweet potatoes to meet subsistence requirements, the production of which is adversely affected by climate change. Estates focus on high-value cash crops for export such as tobacco, tea, sugar, coffee, and macadamia.

Agriculture in Malawi is vulnerable to production shocks, particularly extreme weather events, including El Niño and La Niña, which have induced increased incidences of droughts and floods. When crop harvests are cut significantly due to such shocks, many farming households, particularly in the lean period (November to March), face hunger and deplete some of their assets or turn to short-term coping strategies. In 2016,¹ El Niño-induced drought affected 24 districts in Malawi, markedly reduced maize production by 30 percent, and led to a declaration of a state of disaster. According to an agricultural risk assessment conducted by the World Bank, annual losses from shocks to production averaged US\$149 million per year from 1980 to 2012 (Giertz et al. 2015). The Malawian economy is devastated when productive investments are diverted to address the immediate crisis of food insecurity to ensure survival. Many of the economic gains made by farm households are wiped away in the aftermath of a poor harvest.

Malawi's economy is not sufficiently diversified. It is dominated by maize production, which is heavily affected by climate change, leading to high economic costs. Maize is grown in a regime where 99 percent of smallholders rely on a single rainfed season. Consequently, maize production, and ultimately the agriculture sector, is characterized by low productivity due to the high risk of climatic shocks. Floods in 2015 led to estimated losses of US\$335 million (5.2 percent of GDP), of which agricultural losses alone were US\$68 million (GoM 2015c). This was followed by a strong El Niño-induced drought in 2016 that led

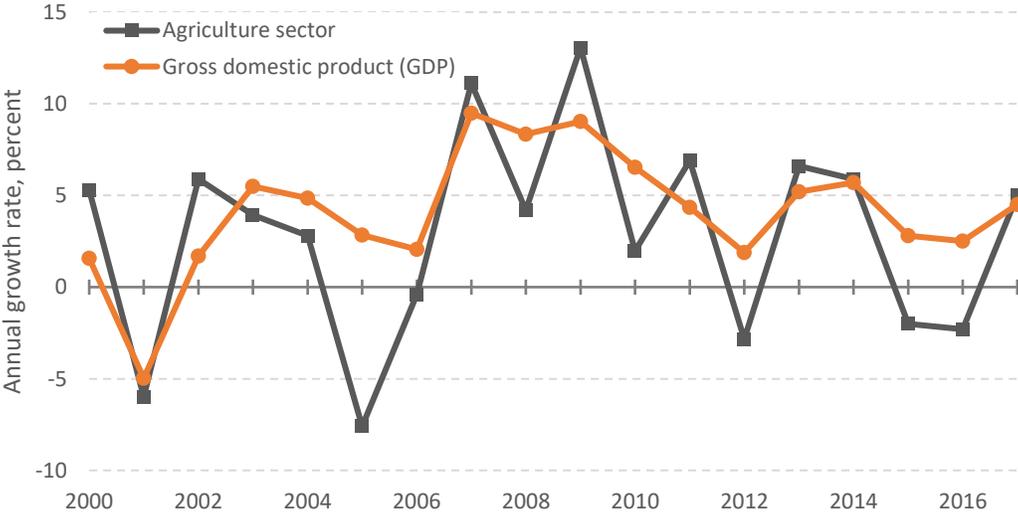
¹ The 2015/16 El Niño phenomenon was one of the strongest on record, deeply affecting the lives and livelihoods of more than 60 million people across 40 countries.

to losses of US\$239 million, of which crop production alone accounted for 83 percent (GoM 2016b). Drought drove up maize prices in response to reduced production, resulting in food price inflation above 20 percent, with higher food imports and lower exports.

The costs of undermanaged risks are escalating, and will likely rise more in the absence of concerted action to address the gaps. Humanitarian costs are increasing gradually, coinciding with the occurrence of disasters. The most recent peak was in 2016, when 6.7 million people were unable to meet their food requirements after the El Niño. The country seems to be becoming more vulnerable, and the cost of addressing this vulnerability drains critical resources that could be leveraged to invest in adapting agri-food systems to climate change and in increasing absorptive capacity against climate change vulnerabilities.

Growth in the economy is correlated with agricultural performance. In years of depressed agricultural growth, GDP is similarly lower (Figure 1). Growth trends in the agriculture sector are more volatile than those of the overall economy, reflecting the sector’s exposure to adverse weather-related production shocks. Total value added in the agriculture sector fell year-to-year four times between 2000 and 2014, primarily because of droughts or otherwise erratic rainfall, exacerbated in 2012 by weak economic conditions in Malawi’s economy more broadly. In 2015, floods followed by droughts reduced maize production by 30 percent. Consequently, overall agriculture sector growth contracted by 2 percent of GDP, and GDP slowed from 5.7 percent in 2014 to 2.8 percent in 2015, and further to 2.5 percent in 2016.

Figure 1: Malawi's agriculture sector, economy, and annual growth, 2000–2016



Source: World Bank 2016.

Climate change has led to varying rainfall patterns, which in turn, has caused poor crop yields or total crop failure in most districts. Weather-related disasters are manifested through the late onset of rain seasons, abnormal and persistent dry conditions, high temperatures, and early cessation of rains before the crops pass through the maturity stage. Most often 15 of Malawi’s 28 districts are affected by various severities of floods and droughts: 8 in the southern region (Mangochi, Machinga, Zomba, Phalombe, Nsanje, Chikwawa, Balaka, and Blantyre), 4 in the central region (Nkhotakota, Salima, Ntcheu, and Dedza), and 3 in the northern region (Karonga, Rumphi, and Nkhatabay).

Extreme weather conditions induced by El Niño and La Niña present not only a humanitarian challenge, but also a long-term development challenge, manifested by various causes of vulnerability. Factors such as poverty, inequality, environmental degradation, competition for scarce natural resources, high population growth, rapid and uncontrolled urbanization, and weak risk governance contribute to make countries and their people increasingly vulnerable to climate change and the increased frequency and intensity of weather-related hazards. The poorest, who depend directly on natural resources for food, clean water, energy, shelter, and income and who do not have access to social safety nets, are the most affected by this phenomenon. As population pressure and vulnerability rise, increased dependency on natural resources fuels increased environmental degradation, further posing a threat to sufficient rainfall to sustain agricultural production. Increased vulnerability also leads households to adopt various coping mechanisms, some of which reinforce their long-term vulnerability. The Center for Global Development ranks Malawi 8 out of 67 countries on the overall vulnerability scale (Busby, Smith, and Krishnan 2015).

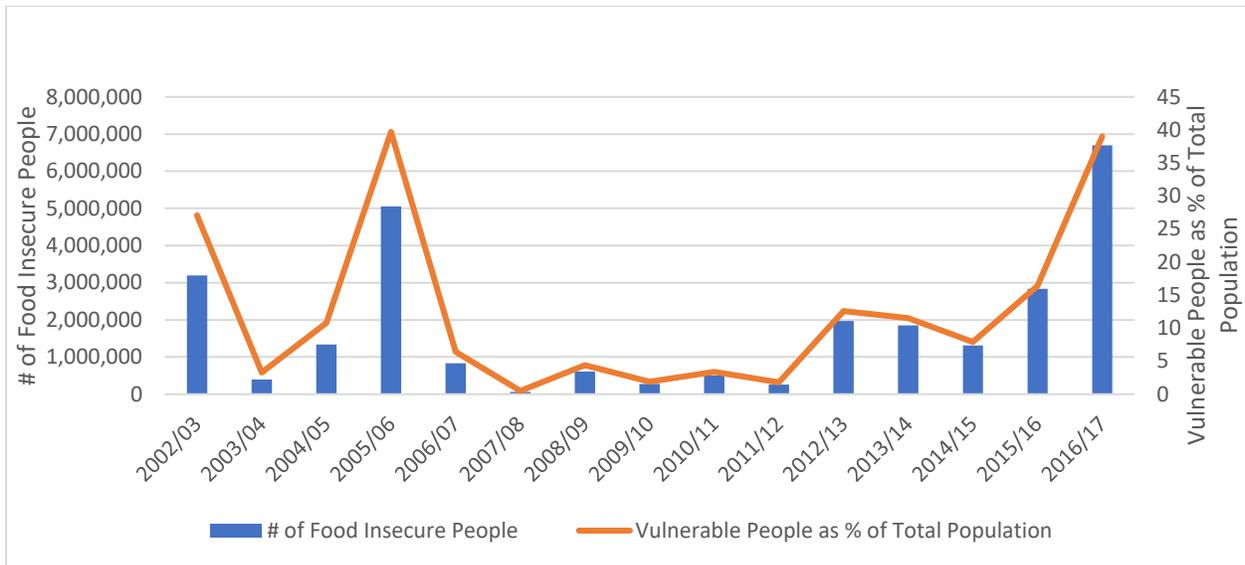
Climate predictions indicate continued extreme weather events in Malawi that, if not well managed, will increase vulnerability. Average temperatures are expected to increase by 1.4 degrees Celsius and 2.0 degrees Celsius in low and high warming scenarios, respectively, by 2040. Frequency of droughts is projected to increase up to 15–20 percent for dry spells of one to six months. Similarly, the frequency of heat waves is projected to increase between 10–20 percent compared to the current scenario (World Bank 2017b). Concerted actions are needed to guide efforts to respond to extreme weather events to reduce vulnerability among households in Malawi. This study contributes toward developing such options, based on lessons learned.

1.2 El Niño and Food Insecurity in Malawi

Malawi is among the top climate-fragile countries, ranking 105 out of 113 countries based on the 2016 Global Food Security Index (Economist Intelligence Unit 2016). Malawi experienced 6 major droughts and 20 floods events over the past 15 years, with their frequency and intensity increasing over time. In 2016, the central and southern regions of Malawi received significantly below-normal levels of precipitation, while the northern region received above-normal rains. As a result, 6.7 million people (39 percent of the population) were food insecure due to drought induced by El Niño. A similar situation occurred in 2015, when 2.8 million people experienced food insecurity due to massive floods in 15 districts, and droughts in others, that negatively affected agricultural production, particularly crops (GoM 2016a). Over the period under review, an average 1.8 million people per year were food insecure (12.4 percent of the total population) (Figure 2).

The number of vulnerable people also increased between the 2014/15 and 2016/17 consumption years. During the 2014/15 growing season, Malawi experienced delayed onset of rains, followed by heavy rains, dry spells, and an early tail-off to the rainy season. According to Africa Risk Capacity (ARC) Initiative (2016), a cumulative 18 million people were affected by droughts and floods between 2005 and 2016.

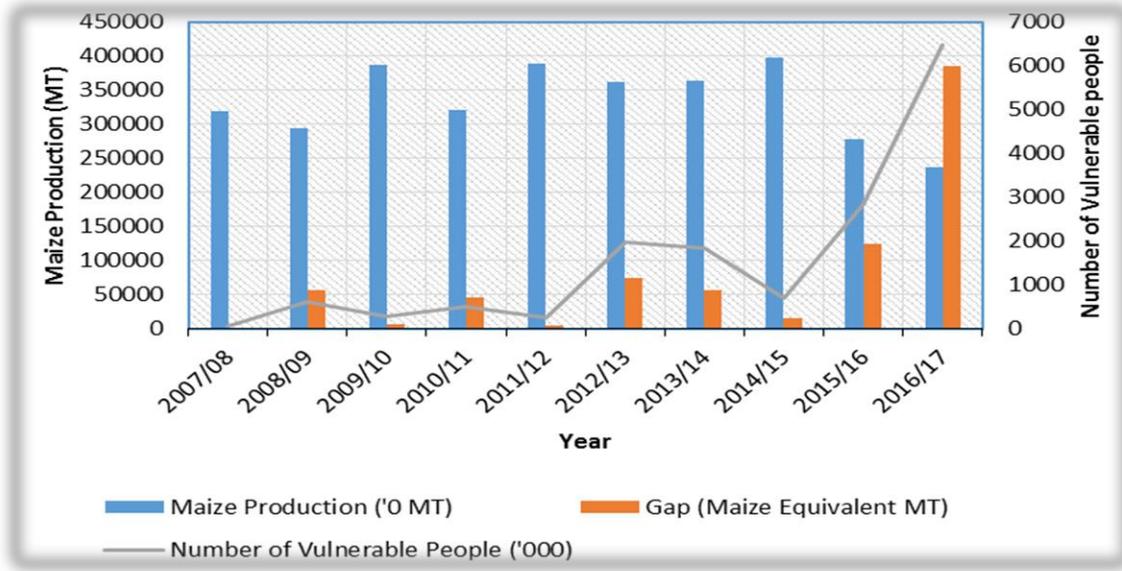
Figure 2: Number and share of food insecure people in Malawi, 2002–2017



Source: Authors' compilation from Malawi Vulnerability Response Committee (MVAC) reports.

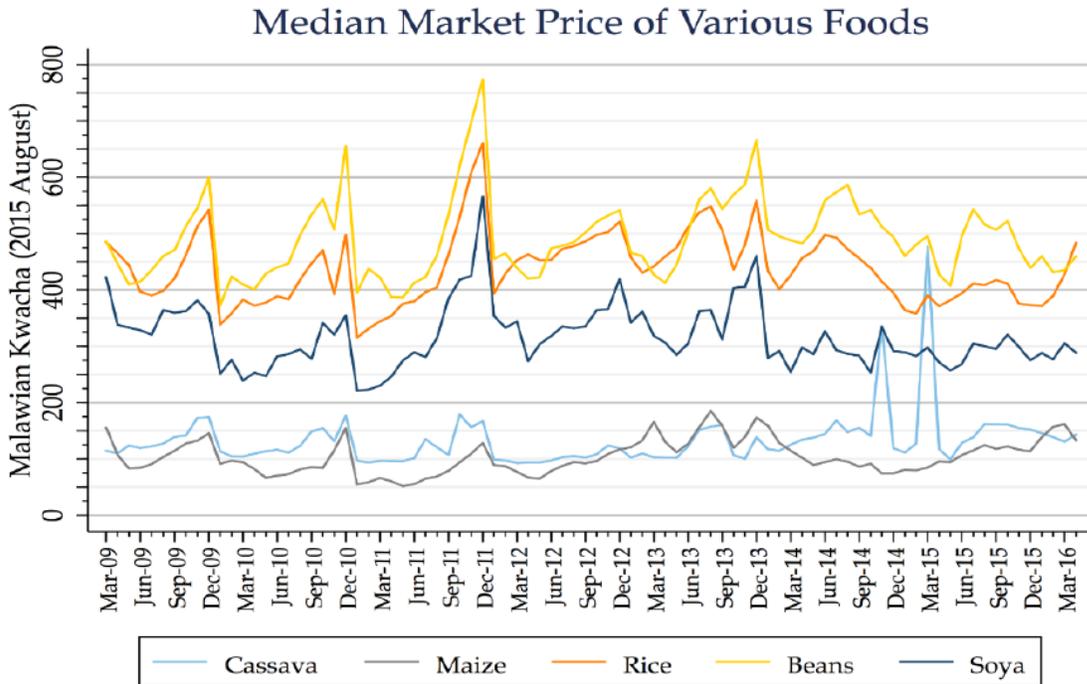
The increased number of food insecure households followed trends in the maize deficit (Figure 3). The irregular pattern of the trends was due to rainfall variability and other factors that led to a cyclic pattern in maize production. Maize production decreased from 3,978,123 metric tons (MT) in 2014/15 to 2,369,493 MT in 2016/17, while the number of food insecure people increased from 695,600 to 6.7 million over the same period. Similarly, the food insecurity gap (maize equivalent) increased from 15,830 MT in 2014/15 to 385,407 MT in 2016/17. Production of most other crops was also adversely affected, leading to increased prices and ultimately inflation, particularly for maize. The uncertainties of market interventions further influenced commodity price volatility. Figure 4 depicts the level of volatility over the past seven years in Malawi. The high peaks of maize prices are associated closely with the incidence of market interventions in response to reduced production due to extreme weather events.

Figure 3: Production and consumption trends, 2007–2016



Source: Authors' compilation using food insecurity data from MVAC reports.

Figure 4: Price volatility of major food crops in Malawi, 2009–2016



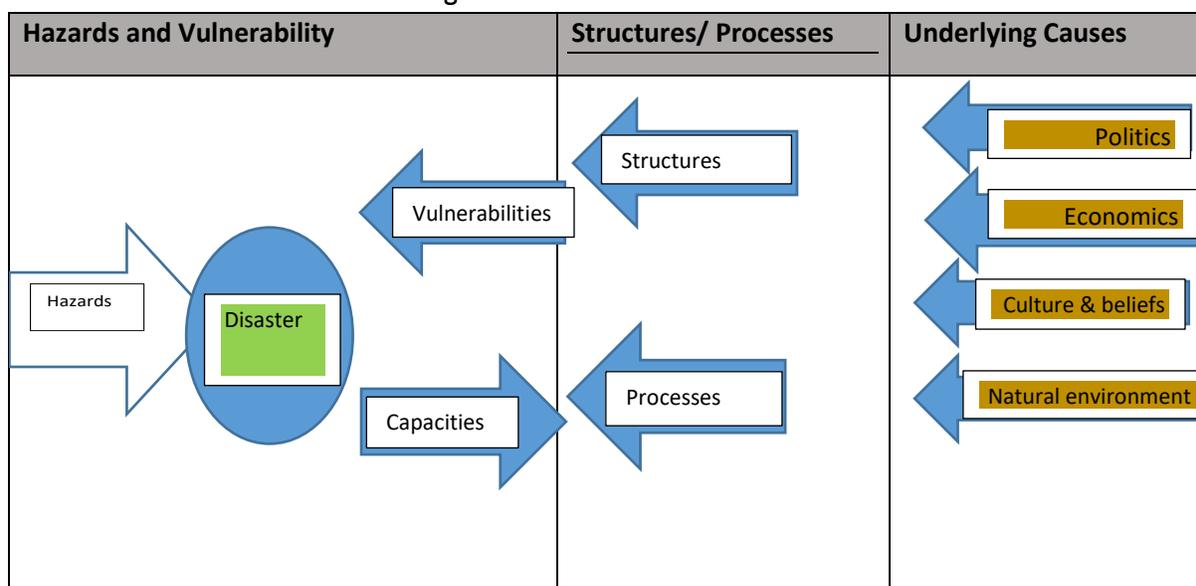
Source: MoAIWD.

1.3 Theoretical Framework

This study was conducted in 15 disaster-prone districts, purposively selected to cover all three regions of Malawi, as follows: Karonga, Chitipa, Rumphi (northern region); Nkhotakota, Salima, Mchinji, Dedza (central region); and Mangochi, Balaka, Machinga, Zomba, Phalombe, Chikwawa, Mulanje, Nsanje (southern region). The combination of methods used included a review of secondary data, stakeholder consultations, and focus group discussions with various groups at local level.

A Disaster Crunch Model (DCM) was used to understand the causes of vulnerability, structural processes, and disaster hazards to generate experiences and lessons (Figure 5). The DCM focuses on the role of community or national capacities (strengths) and vulnerabilities (weaknesses), and wider institutional factors (such as existing structures and processes) in dealing with disasters. It also identifies underlying causes shaping the occurrence, impact, and response to hazards and disasters.

Figure 5: Disaster Crunch Model



Source: Hansford, Dellor, and McPherson 2007.

The DCM starts with a consideration of hazards, which may be natural phenomena, such as a drought or a flood, or may be the result of human activity. Disasters are the result of a failure of the vulnerable community or country to contain, reduce, or minimize the hazard's impact, manifested in loss of life and/or damage to property, assets, or livelihoods. The structures and processes refer to the role of stakeholders and institutional structures and processes through which they influence decision making in disaster risk management (DRM) interventions. Each of these structures has institutional policies or implements activities that affect beneficiaries, in the process making them more or less vulnerable to hazards.

The DCM was complemented by some elements of the Food and Agriculture Organization's (FAO) DRM Model² to analyze the institutional architecture for DRM at the national, district, and community level.

Unlike the DCM, the FAO framework provides a set of practical tools and methods to assess the structures and capacities of national, district, and local DRM institutions to improve their response effectiveness and allow for the integration of DRM into development planning in disaster-prone areas, vulnerable sectors, or population groups (FAO 2004). A Power Cube Framework (Gaventa 2005) was used to analyze the levels of power and influence of various actors within the DRM architecture.

1.4 Report Outline

The remainder of the report is organized as follows. Chapter 2 discusses the policy and institutional framework for extreme weather events in Malawi. Chapter 3 provides an assessment of preparedness instruments. Chapter 4 reviews Malawi's responses to recent extreme weather events. Chapter 5 presents the trade and market implications of extreme weather events. Chapter 6 summarizes key messages and recommendations.

² The FAO DRM approach is a combination of (i) the Hyogo Framework for Action (HFA), which emphasizes a shift from reactive emergency relief to proactive DRR in the predisaster stages by strengthening prevention, mitigation, and preparedness; and (ii) DRM, which combines, through a management perspective, the concept of prevention, mitigation, and preparedness with response.

Chapter 2: Policy and Institutional Frameworks to Address Extreme Weather Events in Malawi

This section presents findings of a review of policy evolution to determine the extent to which national policy frameworks integrate climate-related DRM in Malawi. Of interest is how the international policy agenda has shaped Malawi's policy landscape. The section also provides a quick overview of institutions, actors, and processes involved in preparedness and responses to guide the status of interplay, including options for coordination and collaboration. An analysis of capacity at national, district, and community level identifies options to strengthen preparedness and responses to extreme weather events.

2.1. International Frameworks

Malawi is signatory to a number of international and regional agreements related to disasters and climate change. These include the Convention on Biological Diversity (ratified in 1996); the United Nations Framework Convention on Climate Change (UNFCCC, ratified in 1994) and the accompanying Kyoto Protocol (signed in 2002); the Convention to Combating Desertification (signed in 1996); the Sendai Framework of Disaster Risk Reduction 2015–2030; the Sustainable Development Goals; the African Regional Strategy for Disaster Risk Reduction; and the Southern African Development Community (SADC) Disaster Risk Reduction Strategy (World Bank 2017b).

The international policies and frameworks developed before 2004 were mostly reactive, with strategies aimed at managing the aftermath of extreme weather events. In 2005, the Hyogo Framework for Action (HFA) (2005–2015) was adopted as a global blueprint for disaster risk reduction (DRR) efforts, with a focus on building the resilience of nations and communities to climate-related disasters. The HFA triggered the development of national DRM strategies in response to the recurrence of extreme weather events in most countries, including Malawi. Several policies were developed and aligned with the HFA (Figure 6), which shaped the national policy focus by: emphasizing measures to reduce the impact of climate-related disasters; developing the resilience of vulnerable communities; and instituting measures to substantially reduce disaster-related losses in lives, and in the social, economic, and environmental assets of communities and nations. After the expiration of the HFA in 2015, the United Nations General Assembly adopted the Sendai Framework for Disaster Risk Reduction (SFDRR) (2015–2030); the SFDRR aimed to achieve a substantial reduction in disaster risk and losses in lives, livelihoods, and health and in the economic, physical, social, cultural, and environmental assets of persons, businesses, communities, and countries.

2.2 National Policy Framework

The international policy agenda shaped the way climate issues are addressed in the national policy space. The focus shifted from climate mitigation in the 1990s (as guided by the Kyoto Protocol and other UN treaties) to reduction of losses since the 2000s (through the HFA) to the current focus on developing community resilience and early warning systems. The number of DRM-related policies and legislative instruments increased significantly from 1991 to 2017 in Malawi (Figure 6). This also reflects the extent to which issues of early warning, preparedness, response, and resilience were emphasized as the severity of extreme weather events increased.

Figure 6: Trend in DRM-related policies and strategies in Malawi, 1991–2017



Source: Authors' compilation.

The Disaster Preparedness and Relief Act (DPRA) (1991) is the oldest and most overarching legislation governing issues of disaster management in Malawi. The Act was precipitated by the Phalombe flash floods of March 11, 1991 (which impacted 128,140 people, killed between 700–1,000 people, and destroyed 30,000 hectares of crops). As it was enacted before the Kyoto Protocol, the Sendai Framework, and other recent regional frameworks, DPRA's approach is primarily reactive, rather than comprehensively covering the activities of disaster planning, response, and recovery needed in the current context.

Gaps existed in earlier policies, which de-emphasized the issues of response and resilience building, just as DRM was more reactive than proactive. However, due to the frequency and severity of impacts of extreme weather events/disasters, especially dry spells and floods, emphasis shifted toward DRM management that extended to developing preparedness strategies that required cross-sectoral approaches. This led to the development of the National Plan of Action (NAPA) in 2008, which emphasized (i) improving existing early warning systems to enhance disaster preparedness and response, and (ii) promoting climate-smart agriculture to increase resilience.

The GoM developed the National Climate Change Investment Plan (NCCIP) (GoM 2013) to provide opportunities for funding climate-related issues. Among other things, the NCCIP supported the development of the National Disaster Risk Management (NDRM) Policy (2015), the National Climate Change Management Policy (2016), and the National Agriculture Policy (2016). Most of the older-generation policies are aligned with the HFA (2005–2015), the Millennium Development Goals, the United Nations Framework Convention on Climate Change, the African Regional Strategy for Disaster Risk Reduction, and the SADC Disaster Risk Reduction Strategy. These policies emphasize early warning, preparedness, and response as well as strategies for building communities' resilience to reduce the levels of damage and loss in the event of extreme weather patterns.

The new National Agriculture Policy (2017) strongly recognizes agriculture risk management and integrates this as a priority area. This is due to the high fluctuations in production stemming from climate

change, weather variability, pests, and diseases. A World Bank study on agricultural risk management estimated that production losses over the past 30 years were US\$149 million per year due to systemic risks in Malawi's agriculture sector. In response, a risk management strategy for the agriculture sector (2016/17) was developed to support implementation of the risk management key result area of the National Agriculture Policy. The National Agricultural Investment Plan (NAIP) (2017), which is the implementation strategy/plan for the National Agriculture Policy, has a dedicated programmatic area on resilient livelihoods and production systems that has DRM interventions. Out of the 16 intervention areas, 4 are related to efforts to address the plight of vulnerable communities: DRM; pest and disease management; sustainable natural resource management; and sustainable irrigation development. The National Irrigation Act (revised 2016) and the National Strategy for Sustainable Development (NSSD) (2005) were developed with a greater focus on resilience building through irrigation and economic growth. The NSSD outlined core functions for different stakeholders to implement sector-specific interventions that translate into resilience building of the nation and communities.

The National Resilience Strategy (2017–2022) was developed in an attempt to break the recurrent cycle of food insecurity. The plan has four pillars: (i) resilient agricultural growth, (ii) catchment protection and management, (iii) flood control early warning and response, and (iv) household resilience. This plan provides a comprehensive approach toward deepening resilience, particularly covering agricultural and natural resource management.

2.3 Alignment of National Policies to the Sendai Framework

Although the key policy documents were developed during the HFA era, some of their elements are well aligned with the SFDRR. For instance, the National Resilience Strategy (2017) integrates all four known priority areas of the SFDRR: understanding disaster risk, strengthening disaster risk governance, investing in DRR, and enhancing preparedness for effective response (Table 1). Similarly, other policies such as the Malawi Growth Development Strategy (MGDS) III (2017), the National Disaster Risk Management Policy (NDRMP) (2015), the NCCIP (2013), and the NAIP (2017) tackled all four pillars, even if some are weakly incorporated. For example, the MGDS III and NDRMP weakly emphasize strengthening investment in DRR but are strong on the remaining three priority areas. On the other hand, the NCCIP and NAIP are very strong on strengthening DRR investments, but are relatively weak on the other three priority areas.

Table 1: Alignment of Malawi’s existing policies to the Sendai Framework

DRM-related Policy	Sendai Framework Priority Area			
	Understanding disaster risk	Strengthening disaster risk governance to manage disaster risk	Investing in disaster risk reduction for resilience	Enhancing disaster preparedness for effective response, and to “Build Back Better” in recovery, rehabilitation, and reconstruction
Malawi Growth Development Strategy III	Yes	Yes	Yes	Yes
National Disaster Risk Management Policy	Yes	Yes	Yes	Yes
National Climate Change Investment Plan	Yes	Yes	Yes	Yes
National Climate Change Management Plan	Yes	No	No	No
National Agriculture Investment Plan	Yes	Yes	Yes	Yes
National Resilience Strategy	Yes	Yes	Yes	Yes
National Agriculture Policy	Yes	No	Yes	No

Source: Authors’ compilation.

The National Climate Change Management Plan (2016) and National Agriculture Policy (2016), despite being key DRM-related policies in the country, are not directly aligned with some priority areas of the SFDRR. For instance, the National Agriculture Policy (2016) does not incorporate strategies/actions to strengthen DRR governance or disaster preparedness. Rather, it is more focused on enhancing understanding risks in terms of agricultural production and resilience building.

2.4 Policy Gaps

Proper coordination structures exist, with clear roles, but limited coordination at implementation level, with overlaps on mandates by various institutions. The assignment of roles among various players within DRM seems clear, but such clarity is not mirrored at implementation level. Despite increased interest for policies to recognize DRM, actual implementation is fragmented, with insufficient coverage of interventions. DRM and climate are not sufficiently mainstreamed across various sectors.

Enforcement of policies, plans, regulations, and frameworks has been challenging, leading to uncoordinated and unstandardized approaches to DRM. This is further exacerbated by the now outdated

legal framework, the DPRA of 1991. Various efforts are project-based, with lack of proper connectedness among interventions and of sustainability.

Inadequate budget hampers support to resilience-building activities and coordinated preparedness and response activities. No budget line exists specifically for DRM that various government institutions can use, hence affecting implementation. Preparedness and risk reduction receives very low funding, with more support on disaster responses. The resources meant to support long-term resilience are diverted to support recurrent disasters. This is also the case for government where significant attention is made to support disaster response efforts e.g. release of MK1.2 billion in 2016-2017.

2.5 Institutional Architecture for Disaster Management in Malawi

The DPRA of 1991 is the main legal framework guiding DRM implementation in Malawi (under revision). It focuses on disaster preparedness and response, and covers the composition and functions of the Commissioner's Office for the Department of Disaster Management Affairs (DODMA), the National Disaster Preparedness and Relief Committee (NDPRC), and the National Disaster Preparedness and Relief Fund. DODMA coordinates the implementation of DRM at national level. The District Executive and Civil Protection Committees coordinate DRM-related issues at district level. The Desk Officer acts as the Disaster and Relief Officer responsible for disaster impact assessment and liaison with DODMA. At area and village levels, elected chairpersons oversee DRM issues. Various platforms under DRM are summarized in this section (and shown in Figure 7).

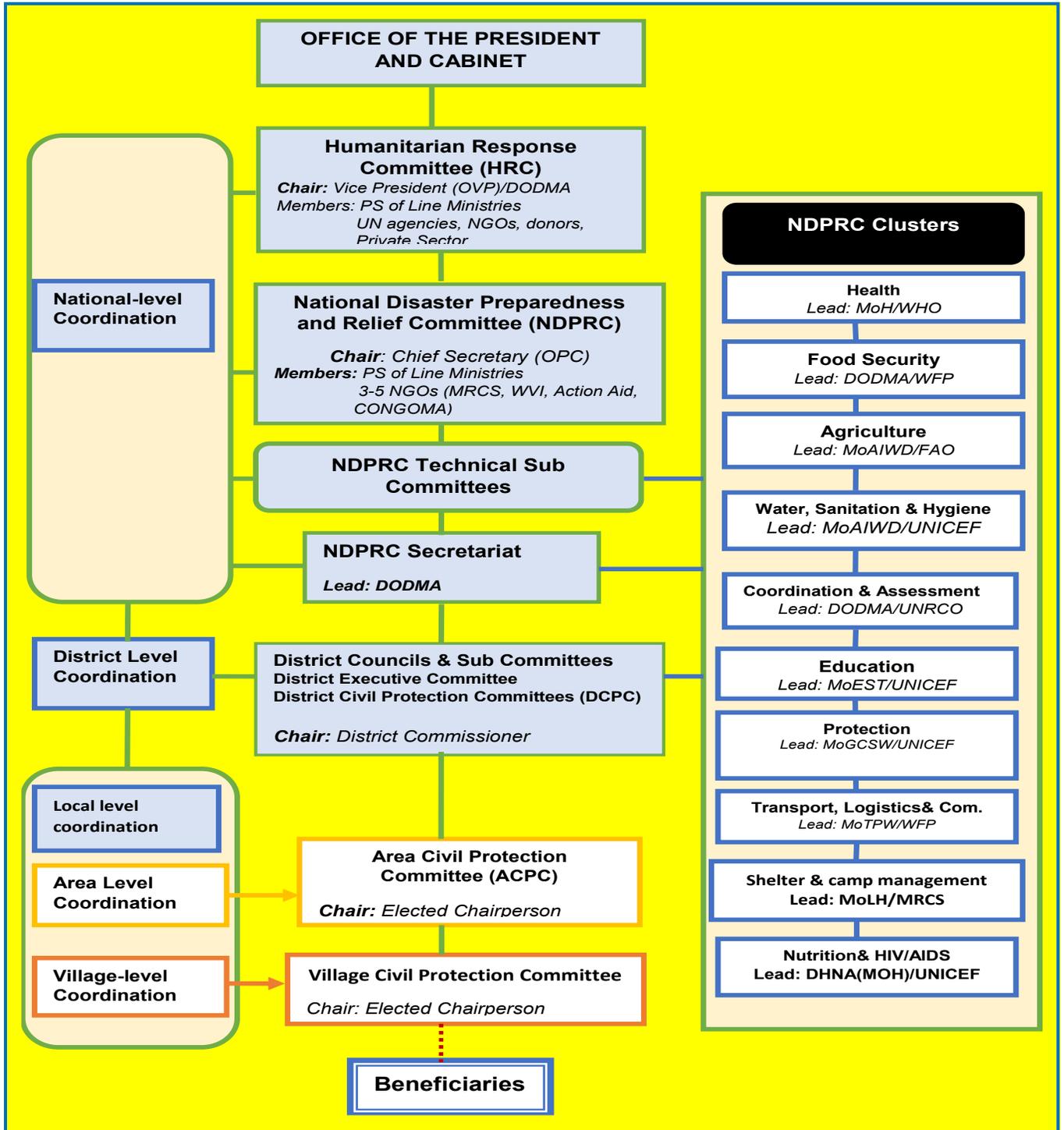
The Humanitarian Response Committee (HRC), chaired by the Vice President, is the overall committee aimed at providing policy direction for implementation of national-level disaster preparedness and response in Malawi. Its membership is drawn from sector ministries, development partners, and nongovernmental organizations (NGOs). The Office of the Vice President (under which DODMA is housed) has overall responsibility for providing political leadership (and interministerial coordination) and directing implementation of disaster responses.

The National Disaster Preparedness and Relief Committee (NDPRC), subordinate to the HRC, comprises Principal Secretaries from all line ministries and departments, NGOs, and UN agencies and is chaired by the Chief Secretary to Government. The committee provides policy direction in implementation of DRM interventions. Donors and heads of ministries and departments are co-opted into the Humanitarian Country Team (HCT, see below), which provides the highest level of coordination outside GoM coordination structures.

The Cluster System is activated in times of disaster to ensure better coordination for disaster assessment and emergency response, at operational level. Clusters include: Coordination and Assessment; Food Security; Agriculture; Water, Sanitation and Hygiene; Health; Nutrition and HIV/AIDS; Education; Shelter and Camp Management; Protection; and Transport, Logistics and Communication. These clusters are led by the GoM and co-led by UN agencies and the Malawi Red Cross Society. Box 1 lists activities undertaken by the Agriculture and Food Security Clusters in 2016.

The Humanitarian Country Team (HCT) comprises heads of UN agencies, international and local NGOs, the GoM, and the Malawi Red Cross Society. This team is chaired by the United Nations Resident Coordinator. HCT is part of the cluster approach.

Figure 7: Institutional arrangements for DRM in Malawi



Source: Redrawn based on Babu et al. 2017.