GOVERNMENT OF MALAWI



Malawi's National Adaptation Plan

A Malawi where people, ecosystems and infrastructure are resilient and able to adapt to the impacts of climate change.



Malawi's National Adaptation Plan

September 2026

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GREEN CLIMATE FUND

FOREWORD



Malawi is highly vulnerable to the impacts of climate change. Rising temperatures, changing rainfall patterns, prolonged dry spells, droughts, floods, and tropical storms continue to affect livelihoods, food and water security, public health, infrastructure, ecosystems, and the country's development aspirations. These impacts place additional pressure on communities and public resources, particularly on those whose livelihoods depend directly on climate-sensitive natural resources.

Building climate resilience is therefore essential to safeguarding development gains and advancing Malawi Vision 2063. The National Adaptation Plan (NAP) provides a strategic framework for identifying and addressing current and future climate risks, strengthening adaptive capacity, and integrating climate change adaptation into national and sectoral policies, plans, programmes and budgets. It builds on Malawi's existing climate change policy and planning frameworks and supports the country's commitments under the United Nations Framework Convention on Climate Change and the Paris Agreement, alongside the Sustainable Development Goals.

The NAP recognises that climate risks cut across sectors and require coordinated action. It identifies adaptation priorities across key sectors, including agriculture, water, health and social systems, infrastructure and energy, forestry, fisheries, and education. Effective implementation will require these priorities to be reflected in sector investment plans, district development plans, public expenditure decisions and the delivery of services to communities.

Adaptation must be inclusive and responsive to the needs and knowledge of the people most affected by climate change. Women and men, young people, persons with disabilities, local communities and other groups facing heightened vulnerability must be meaningfully involved in planning and implementation processes, and must benefit from adaptation measures. Strengthening institutional coordination, technical capacity, access to climate finance, and monitoring of results will be equally important.

I call upon all ministries, departments and agencies, local authorities, civil society, the private sector, academia, development partners and communities to work together to implement this Plan. Government will continue to promote the integration of adaptation into development planning and decision-making and to mobilise domestic and international resources to support implementation. Through sustained collective action, Malawi can reduce climate vulnerability, protect development gains and build a more resilient and sustainable future.

Patricia Wiskes, MP.
Minister of Natural Resources

PREFACE



The NAP sets out Malawi's approach to reducing vulnerability to climate change by strengthening adaptive capacity and resilience, and by integrating adaptation into relevant policies, programmes, development planning and budgeting. It is intended to guide coordinated, medium- and long-term action so that climate risks are systematically considered in decisions that shape the country's development trajectory.

The Plan builds on the National Climate Change Management Policy, the NAP Framework, Malawi's Nationally Determined Contributions (NDC), Malawi Vision 2063 and related national development priorities. It also supports Malawi's commitments under the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement, and contributes to the achievement of the Sustainable Development Goals (SDGs) and the Global Goal on Adaptation (GGA).

The NAP has been developed through an inclusive and evidence-based process involving climate risk and vulnerability assessments, technical studies, sector analyses, and extensive consultations with government institutions, local authorities, civil society organisations, academia, the private sector, development partners, and communities. This process has strengthened understanding of current and future climate risks, helped identify priority adaptation needs, and established a common basis for coordinated action. It has also highlighted the importance of addressing cross-cutting issues such as gender equality, social inclusion, human mobility, knowledge management, and institutional coordination in adaptation planning and implementation.

The Plan is intended to support practical implementation. Its priorities should guide the preparation and review of sector policies and strategies, institutional workplans, district development plans, investment decisions and public budgets. Effective implementation will depend on clear institutional responsibilities, strong coordination across sectors and levels of government, strengthened technical and institutional capacity, access to adequate and predictable adaptation finance, and meaningful participation by communities and non-state actors.

Monitoring, evaluation, reporting and learning will be essential for tracking progress, assessing the effectiveness of adaptation actions, identifying gaps and informing adaptive management as climate risks and development conditions evolve. The NAP should therefore be regarded as a living document that is regularly informed by evidence, lessons learned and periodic review to ensure its continued relevance and effectiveness.

The Environmental Affairs Department, working in collaboration with relevant ministries, departments and agencies and established national coordination mechanisms, will facilitate coordination of the NAP process and support its implementation. Successful adaptation, however, is a shared responsibility requiring leadership, commitment, and sustained concerted action across government, the private sector, civil society, development partners, and communities. This Plan provides a common framework for translating climate risk information and adaptation priorities into policies, investments and actions that strengthen resilience and support sustainable development throughout Malawi.



Misheck Yagontha Munthali, PhD
Secretary for Natural Resources

ACKNOWLEDGEMENTS



The development of Malawi's NAP represents an important step in strengthening the country's response to climate change and advancing climate-resilient development. The Plan is the result of the collective efforts of government institutions, civil society organisations, development partners, technical experts, and stakeholders from across Malawi who contributed their knowledge, experience, and commitment throughout the process. Their contributions have helped ensure that the Plan reflects diverse perspectives and responds to national and local priorities.

The Government of Malawi, through the Environmental Affairs Department in the Ministry of Natural Resources, expresses its sincere appreciation to all institutions and individuals who contributed to the development of the NAP. Their expertise, time and constructive engagement have helped shape a nationally owned framework for addressing climate risks and strengthening resilience.

Special appreciation is extended to the Green Climate Fund (GCF) for providing readiness support through the project "Advancing the NAP Process: Climate Resilience for Sustainable Development in Malawi" and to the United Nations Environment Programme (UNEP) for serving as the delivery partner. The support enabled technical analyses, stakeholder consultations and coordination processes that informed development of the Plan.

The Government also acknowledges the valuable contributions of consultants, technical experts and partner institutions who supported climate risk and vulnerability assessments, adaptation prioritisation, adaptation finance analysis, and the development of implementation and monitoring arrangements. Their work has strengthened the evidence base and practical orientation of the NAP.

Particular recognition is extended to the Expert Working Group on Adaptation, the National Technical Committee on Climate Change and the National Steering Committee on Climate Change for their guidance, technical review and coordination throughout the process. We also acknowledge local authorities, traditional leaders, community structures and communities, including women, young people, persons with disabilities and other groups facing heightened climate vulnerability, whose experiences and perspectives helped inform adaptation priorities.

The Government appreciates the strong spirit of partnership demonstrated by all contributors. As Malawi moves from planning to implementation, continued collaboration will be essential to mobilising resources, strengthening resilience, and translating the priorities of this Plan into meaningful action and lasting development outcomes.

Tawonga Mbale-Luka
Director of Environmental Affairs

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ABBREVIATIONS AND ACRONYMS

ADDs	Agricultural Development Divisions
ADP	Area Development Plan
ADRiFi	Africa Disaster Risk financing Initiative
AF	Adaptation Fund
AFS	Adaptation Financing Strategy
ARC	African Risk Capacity
AU	African Union
BoP	Balance of Payment
BTR	Biennial Transparency Report
CAPEX	Capital Expenditure
CBA	Cost Benefit Analysis
CBD	Convention on Biological Diversity
CBOs	Community-Based Organizations
CISONECC	Civil Society Network on Climate Change
COMESA	Common Market for Eastern and Southern Africa
CORDEX	Coordinated Regional Downscaling Experiment
CPEIR	Climate Public Expenditure and Institutional Review
CRA	Climate Risk Assessment
CSOs	Civil Society Organizations
DCCIP	District Climate Change Investment Plan
DCCMS	Department of Climate Change and Meteorological Services
DDP	District Development Plan
DEAP	District Environmental Action Plan
DoDMA	Department of Disaster Management Affairs
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EAC	East African Community
EARS	East African Rift Valley System
EbAM	Ecosystem-based Adaptation for Resilient Watersheds and Communities
EIB	European Investment Bank
EMA	Environmental Management Act
EWGA	Expert Working Group on Adaptation

EWS	Early Warning System
FAO	Food and Agriculture Organization of the United Nations
FCDO	Foreign, Commonwealth and Development Office
GAFSP	Global Goal on Agriculture and Food Security Program
GBF	Global Biodiversity Framework
GBV	Gender Based Violence
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GGA	Global Goal on Adaptation
GHG	Greenhouse Gas
GoM	Government of Malawi
IDA	International Development Association
IFAD	International Fund for Agricultural Development
INFF	International National Financing Framework
INFS	Integrated National Financing Strategy
IOM	International Organization for Migration
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
IRVA	Integrated Risk and Vulnerability Assessment
IWRM	Integrated Water Resource Management
LDCF	Least Developed Countries Fund
LoCAL	Local Climate Adaptive Living Facility
MCCCI	Malawi Confederation of Chambers of Commerce and Industry
M-CLIMES	Modernized Climate Information and Early Warning Systems
MDA	Ministries, Departments and Agencies
MEL	Monitoring, Evaluation and Learning
MERL	Monitoring, evaluation, Reporting and Learning
MGDS II	Malawi Growth and Development Strategy II
MGDS III	Malawi Growth and Development Strategy III
MIP-I	Malawi Implementation Plan I
MIS	Monitoring Information Systems
MoFEPD	Ministry of Finance and Economic Development

MRV	Measurement, Reporting and Verification
MTEF	Medium-Term Expenditure Framework
MW2063	Malawi 2063 (National Vision)
NAP	National Adaptation Plan
NAPA	National Adaptation Programme of Action
NBSAP	National Biodiversity Strategy and Action Plan
NCCF	National Climate Change Fund
NCCMP	National Climate Change Management Policy
NDC	Nationally Determined Contribution
NGO	Non-Governmental Organization
NPV	Net Present Value
NRS	National Resilience Strategy
NRSWG	Natural Resources Sector Working Group
NSCCC	National Steering Committee on Climate Change
NSO	National Statistical Office
NTCCC	National Technical Committee on Climate Change
PPPs	Public–Private Partnerships
RBM	Results-Based Management
RCP	Representative Concentration Pathway
SADC	Southern African Development Community
SCCF	Special Climate Change Fund
SDGs	Sustainable Development Goals
SPEI	Standardized Precipitation and Evapotranspiration Index
SRHR	Sexual and Reproductive Health and Rights
SSP	Shared Socioeconomic Pathway
ToC	Theory of Change
UAE	United Arab Emirates
UN	United Nations
UNCDF	United Nations Capital Development Fund
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNFPA	United Nations Population Fund

UNICEF	United Nations Children's Fund
VCPC	Village Civil Protection Committee
VSLA	Village Savings and Loan Association
WB	World Bank
WFP	World Food Programme
WMO	World Meteorological Organization

GLOSSARY

The entries in this glossary are primarily taken or modified from definitions provided by reports of the Intergovernmental Panel on Climate Change (IPCC), the United Nations Framework Convention on Climate Change (UNFCCC), and other internationally recognised sources. Where relevant, terms have been adapted to reflect the specific policy, institutional, and socio-economic context of Malawi, including references from national policies, strategies, and legal frameworks. The glossary is intended to provide clarity and consistency in the use of technical terms throughout this National Adaptation Plan.

TERM	DEFINITION
Adaptation	Adjustment in natural or human systems in response to actual or expected climate impacts, reducing harm or exploiting beneficial opportunities.
Adaptive Capacity	The ability of systems, communities, or institutions to adjust to climate risks, moderate potential damages, and cope with consequences.
Area Development Plan	A localised planning instrument at the area level, used by Malawi's decentralised structures to identify and implement development priorities, including climate adaptation.
Belém Adaptation Indicators	They are a set of 59 voluntary measures adopted at COP30, used globally to track real progress in adapting to climate change, focusing on protecting people, health, nature and local community resilience.
Biennial Transparency Report	A report submitted by convention Parties to the UNFCCC providing updates on greenhouse gas inventories, mitigation and adaptation actions, and support needs. Following the enhanced transparency framework, countries no longer submit the Biennial Update Report (BUR).
Climate Change	A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods
Climate Hazards	Potentially damaging climate-related physical events or trends, such as droughts, floods, cyclones, and heatwaves.
Climate Information Services	The production, translation, and delivery of climate data and information to support decision-making and adaptation planning.
Climate Resilience	The capacity of interconnected social, economic and ecological systems to cope with a hazardous event, trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure. Resilience is a positive attribute when it maintains capacity for adaptation, learning and/or transformation (Arctic Council, 2016).
Climate Risk	The likelihood of adverse consequences resulting from the interaction of climate hazards with vulnerability and exposure.

Community-Based Resilience Initiatives	Grassroots programs in Malawi, such as Village Civil Protection Committees and Farmer Field Schools, that build adaptive capacity through local participation.
Decentralization	The transfer of planning and implementation responsibilities from central to local government structures, enabling districts in Malawi to mainstream adaptation into development plans.
Diaspora	International migrants and refugees, or their descendants, whose identity and sense of belonging—either real or symbolic—have been shaped by their migration experience and background.
Disaster Displacement	Situations where people are forced or obliged to leave their homes or places of habitual residence as a result of a disaster or to avoid the impact of an immediate and foreseeable natural hazard.
Disaster Risk Management	Processes and actions taken to prevent, mitigate, prepare for, respond to, and recover from disasters.
Disaster Risk Reduction	Systematic efforts to analyze and reduce the causal factors of disasters, including climate-related hazards.
Displacement	The movement of persons who have been forced or obliged to flee or leave their homes or places of habitual residence, particularly as a result of or to avoid the effects of armed conflict, generalized violence, human rights violations, or natural or human-induced disasters.
District Climate Change Investment Plan	District-level strategies in Malawi that translate national climate priorities into local actions, often focused on disaster-prone and vulnerable areas.
District Development Plan	An operational planning tool under Malawi's decentralization system, integrating district-specific development and climate adaptation priorities.
District Environmental Action Plan	A legally mandated plan updated every five years to identify and address environmental and climate-related issues at the district level.
Early Warning System	A system for monitoring, analyzing, and disseminating information that enables timely action to reduce risks from hazards such as floods or droughts.
Ecosystem-Based Adaptation	The use of ecosystem management activities to increase the resilience and reduce the vulnerability of people and ecosystems to climate change.
Exposure	The presence of people; livelihoods; species or ecosystems; environmental functions, services, and resources; infrastructure; or economic, social, or cultural assets in places and settings that could be adversely affected.
Farmer Field Schools	Participatory training programs in Malawi that equip farmers with knowledge and skills on climate-smart practices.

Gender-Responsive Adaptation	An approach that ensures adaptation measures recognize and address the different vulnerabilities and capacities of women, men, and marginalized groups.
Global Goal on Adaptation	Article 7 of the 2015 Paris Agreement established the global goal on adaptation, which aims to enhance adaptive capacity, strengthen resilience, and reduce vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the temperature goal referred to in Article 2.
Green Climate Fund	The UNFCCC's primary financing mechanism for supporting developing countries in climate change mitigation and adaptation.
Gross Domestic Product	The total value of goods and services produced within a country, a measure of national economic performance.
Green Bonds	Financial instruments that finance green projects and provide investors with regular or fixed income payments
Indigenous Knowledge	Traditional knowledge, skills, and practices developed by communities over generations, important for local adaptation strategies.
Integrated Water Resource Management	A coordinated approach to managing water, land, and related resources to maximize sustainable development and minimize environmental harm.
Institutional Capacity	The ability of organizations to design, implement, and sustain adaptation measures, including coordination across sectors.
Malawi 2063	The long-term vision for Malawi's development, emphasizing industrialization, resilience, and sustainable growth.
Malawi National Resilience Strategy	A multi-sectoral strategy (2018–2030) focused on reducing vulnerability to shocks through agriculture, disaster risk management, catchment management, and social protection.
Migration	The movement of persons away from their place of usual residence, either across an international border or within a State.
Mitigation	Human actions aimed at reducing greenhouse gas emissions or enhancing sinks, limiting the magnitude of climate change.
Monitoring, Evaluation, Reporting and Learning	A framework in Malawi for tracking adaptation progress, assessing effectiveness, reporting results, and enabling continuous improvement.
National Adaptation Plan	A country-driven process under the UNFCCC to identify medium- and long-term adaptation needs and integrate them into development planning.
National Adaptation Programme of Action	An earlier instrument under the UNFCCC, enabling least-developed countries to identify and implement urgent adaptation needs.
National Climate Change Fund	A financing mechanism in Malawi to coordinate and channel domestic and international resources for climate action.

Nationally Determined Contributions	Commitments under the Paris Agreement to adapt to climate change and mitigate it.
Planned Relocation	Settling persons or communities in a new location. In other contexts, it may also include tourism, commuting, and short-term employment-related movements.
Remittances	Remittances are financial or in-kind transfers made by migrants directly to families or communities in their countries of origin
Resilience	The capacity of systems, communities, and societies to withstand shocks, recover, and transform in response to climate stressors.
Sustainable Development Goals	A global framework of 17 goals adopted by all United Nations Member States in 2015.
Trapped Populations	Trapped populations are those who do not migrate, yet are situated in areas under threat or at risk of becoming trapped or having to stay behind, where they will be more vulnerable to environmental shocks and impoverishment.
United Nations Framework Convention on Climate Change	An international treaty adopted in 1992 to address global climate change.
Vulnerability	The degree to which people, ecosystems, or systems are susceptible to the negative impacts of climate change. Vulnerability encompasses a variety of concepts and elements, including sensitivity or susceptibility to harm and lack of capacity to cope and adapt (IPCC, AR6).
Water–Energy–Food Nexus	An integrated approach recognizing interdependencies between water, energy, and food systems to enhance sustainability and resilience.

EXECUTIVE SUMMARY

Malawi is highly vulnerable to climate change, with rising temperatures, changing rainfall patterns, droughts, floods, cyclones and other extreme weather events posing significant threats to its economy, livelihoods and development (Government of Malawi, 2026). More than 80 per cent of the population depends on rain-fed agriculture, leaving rural households particularly exposed to climate shocks. With a population of 20.73 million in 2025 and a density of 235.6 people per km², increasing pressure on land, water and other natural resources further compounds these vulnerabilities (National Statistical Office, 2026). The impacts are already severe: the 2015–2017 drought left approximately 6.7 million people food-insecure (DoDMA, 2024), while Cyclone Freddy in 2023 caused 679 deaths, displaced 659,278 people and resulted in an estimated US$764 million in recovery and reconstruction needs (Government of Malawi, 2023). The 2015 floods alone caused approximately US$335 million in damages and losses, equivalent to about 5 per cent of GDP (Government of Malawi, 2019). Beyond economic losses, climate shocks disrupt education, health services, infrastructure and ecosystems, while worsening existing social vulnerabilities, particularly for women, children and other marginalised groups (Government of Malawi, 2026). The National Multi-Hazard Risk Atlas estimates average annual losses of US$596.6 million under the current climate, potentially increasing to US$672.2 million under a high-emissions pathway (DoDMA, 2024). These risks highlight the urgent need for coordinated and sustained adaptation across all sectors.

In response, Malawi has established a range of policies and institutional frameworks to guide climate action, including the National Climate Change Management Policy (2016), National Resilience Strategy (2018–2030), National Adaptation Plan Framework (2020) and National Framework for Water and Climate Services (2024–2029). Building on these frameworks, the National Adaptation Plan (NAP) provides a long-term, nationally owned roadmap for strengthening resilience, reducing vulnerability and integrating climate adaptation into national and sectoral development planning. It identifies 51 adaptation priorities and 103 associated actions across seven sectors: agriculture, water, social (health and gender), infrastructure and energy, forestry, fisheries and education. The priorities were informed by national climate risk assessments (CRAs) undertaken across the country. These adaptation actions address key areas including climate-smart agriculture, sustainable water management, resilient infrastructure, ecosystem restoration, sustainable fisheries, diversified livelihoods, early warning systems and inclusive social protection. The NAP is aligned with the Global Goal on Adaptation, covering its seven thematic and four dimensional targets, while its monitoring framework supports reporting against the Belém Adaptation Indicators adopted at COP30.

To strengthen the investment case for implementation, an economic appraisal and cost-benefit analysis of priority NAP adaptation measures was undertaken, with the measures organised into seven flagship investments. These cover irrigation and rainwater harvesting, climate-smart agriculture, forest landscape restoration, flood management and resilient infrastructure, early warning systems, sustainable aquaculture and habitat restoration, and shock-responsive social protection and livelihoods. The appraisal estimates a capital investment requirement of approximately US$4.58 billion over the initial five-year investment phase, with operating costs estimated at US$437 million in the first year. The portfolio has an estimated internal rate of

return of 33 per cent, demonstrating the economic value of investing in adaptation and reducing future climate-related losses (AFS, 2026).

Despite this investment case, financing remains a major constraint to implementation. Malawi has received approximately US$875 million in climate finance, with a further US$2.17 billion committed. However, the amount that translates into genuine adaptation benefits remains significantly lower than the overall climate finance figures suggest. The NAP financing analysis estimates that adaptation-weighted resources cover only about 22 per cent of the required investment, leaving a financing gap of approximately 80–90 per cent, equivalent to around US$700 million annually or US$3.5 billion over the five-year investment phase (AFS, 2026; CPEIR, 2018). The gap is compounded by limited domestic fiscal space, high public debt and delays in the disbursement of committed external finance. Existing mechanisms, including the Carbon Levy and sovereign parametric insurance, provide a foundation for mobilising resources, while the National Climate Change Fund still requires capitalisation. Closing the gap will require increased domestic budget allocations, predictable grant and concessional finance, improved access to international climate funds, stronger project preparation and greater private sector participation through blended finance, guarantees and other appropriate risk-sharing instruments (AFS, 2026).

Successful implementation of the NAP will depend on strong institutions, effective coordination and robust technical systems. A Monitoring Evaluation, Reporting and Learning (MERL) framework developed under the NAP process will support accountability, track results and inform continuous improvement, including through improved data collection and use. Ultimately, adaptation must be locally led, inclusive and financially sustainable. District- and community-based resilience initiatives should respond to local climate risks, build on indigenous knowledge and ensure the meaningful participation of women, youth, children, persons with disabilities and other marginalised groups. Climate resilience must also be integrated into wider development investments, including agriculture, water, health, forestry, fisheries, gender, education, energy and infrastructure.

Malawi has established its adaptation priorities, assessed the investment required and outlined a phased approach to implementation. The task now is to translate this foundation into action through sustained national commitment, stronger institutional capacity and predictable, accessible and adequate international support. The success of the NAP will be measured not simply by the implementation of planned activities, but by the extent to which it reduces climate-related losses, protects livelihoods and strengthens the resilience of Malawi's people, economy and ecosystems.

CHAPTER ONE: MALAWI ECONOMY AND CLIMATE CHANGE

1.1 NATIONAL CONTEXT AND CHALLENGES

Malawi's climate is undergoing significant shifts, marked by rising temperatures, erratic rainfall patterns, prolonged dry spells, shorter growing seasons, delayed rainfalls and more frequent extreme weather events (DCCMS, 2021; GoM & UNEP, 2024). Over 80% of its farmers depend on seasonal rains, making agriculture highly vulnerable to these changes. Droughts and floods damage crops, reduce water supply, erode soil, and harm infrastructure. These climate-induced challenges worsen poverty and food insecurity, particularly in rural areas where agriculture is the primary economic activity. The climate impacts cascade beyond agriculture, destabilizing livelihoods, water resources, and key industries, thereby undermining progress toward the Sustainable Development Goals (SDGs), especially poverty reduction and zero hunger.

During the NAP process, Malawi identified implementation gaps and challenges including: institutional gaps across national and district levels; data and knowledge gaps particularly in climate risk assessments, sectoral vulnerability mapping and gender disaggregated data; weak coordination among Ministries, Departments and Agencies (MDAs) responsible for climate action; and limited technical expertise at community levels.

Crucially, Malawi has demonstrated strong commitment to building climate resilience. The government has developed policies, strategies, and institutional frameworks that mainstream climate change into national and sectoral planning. The National Climate Change Management Policy (NCCMP, 2016) laid the foundation for coordinated action, emphasizing (i) climate impact management, (ii) greenhouse gas stabilization, (iii) gender-sensitive sectoral planning, and (iv) institutional strengthening (NCCMP, 2016). Subsequent frameworks, such as the National Adaptation Plan Framework (NAPF-2020) and the National Resilience Strategy (2018–2030), further refined Malawi's approach to long-term adaptation. Complementing these efforts, the National Climate Change Learning Strategy (2020) prioritizes capacity-building to ensure effective implementation.

Malawi operationalised its National Adaptation Programme of Action (NAPA) in 2006, identifying urgent adaptation priorities in agriculture, health, energy and natural resource management. The NAPA laid the groundwork for identifying and prioritising immediate adaptation needs and informed the subsequent NAP process. These initiatives align with global commitments, including Malawi's updated Nationally Determined Contribution (NDC) (2021) and NDC 3.0, which outline adaptation priorities under the Paris Agreement, as well as regional and international agendas such as the African Union's Agenda 2063 and the Sustainable Development Goals (SDGs) (AU, 2015; UN, 2015).

A well-structured National Adaptation Plan anchored on the NAP Framework (2020) would strengthen Malawi's climate resilience efforts by consolidating existing policies such as the National Climate Change Management Policy (2016), the National Resilience Strategy (2018–2030) and National Climate Change Learning Strategy (2020) into a cohesive, actionable roadmap. Implementing the NAP process provides coherent long-term adaptation and

mitigation pathways safeguarding food security, livelihoods and overall sustainable socio-economic development.

1.2 SOCIO-ECONOMIC DEVELOPMENT

1.2.1 Geographic Profile

Malawi is a landlocked country in southern Africa, located along the southernmost part of the East African Rift Valley System (EARS). Malawi is listed as a Least Developed Country (LDC) by the United Nations (UN), and ranks among the 20 most vulnerable countries in the World by the Notre Dame Global Adaptation Initiative Index 2021, which measures vulnerability to climate change. It shares borders with Tanzania to the north and northeast, Mozambique to the south, east and southwest, and Zambia to the west and covers a total area of 118,484 km². Around 80% of this area is land, while the remaining 20% is covered by water, Lake Malawi. Lake Malawi is the third largest lake in Africa and one of the country's most striking features.



Figure 1: Map of Malawi **Source**: Nations Online

Malawi's position within the Rift Valley has shaped its landscape, which is made up of five main physical regions. These include the Rift Valley floor, steep escarpments rising from the valley and broad plains lying at 750-1300 m above sea level. Higher up, the African surface extends across relatively flat lands while moderate slopes reaching 1400-1500m characterize the upland areas. Together, these features create Malawi's diverse topography, ranging from low-lying valley floors to elevated plateaus and escarpments.

1.2.2 Demographic Profile

The main cities in Malawi are Lilongwe, the capital; Blantyre, the commercial hub; Mzuzu, in the Northern Region; and Zomba, the former capital. Malawi has 28 districts across three regions: Northern (6), Central (9) and Southern (13). The population was estimated at 20.73 million in 2025, compared with 17.55 million in 2018 (NSO, 2019; NSO, 2025). An estimated 48% of the population lives in the Southern Region, 39.5% in the Central Region and 12.2% in the Northern Region. Women account for 51% of the population and men 49%. Malawi has

a young population, with 52% under the age of 15. The reported life expectancy of 48.5 years in 2008 should be checked against the cited source and updated if a more recent comparable figure is available (NC3, 2021).

1.2.3 Economic Profile

Malawi has seen gradual improvements in key development indicators such as increased access to primary education and healthcare services, supported by government and donor initiatives, contributing to human development. Urbanization and small-scale entrepreneurship are slowly diversifying the economy beyond agriculture, with sectors like trade, services, and renewable energy gaining traction. While the country has made strides in poverty reduction, education, and healthcare, structural constraints and climate vulnerability continue to shape its growth trajectory.

As part of the NAP process, major climate hazards affecting Malawi were identified, their impacts assessed, and their potential evolution under changing climate patterns and extreme weather examined in relation to vulnerability and exposure. The national assessment was complemented by detailed assessments in eight selected districts, one from each of Malawi's eight Agricultural Development Divisions (ADDs): Chikwawa, Phalombe, Balaka, Salima, Dedza, Rumphi, Karonga and Kasungu. These districts represent different agro-ecological zones of the country.

Agriculture remains the backbone of the economy, supporting livelihoods for over 80% of the population, typically contributing one third of Gross Domestic Product (GDP) and over 80% of export earnings (World Bank, 2025). Malawi is a country defined by smallholder farmers. However, reliance on rain-fed farming exposes the economy to climate variability and climate change, requiring adaptive strategies to sustain progress. Malawi's climate-sensitive economy means that weather patterns significantly influence growth. Erratic rainfall, droughts, and occasional cyclones such as Cyclone Freddy (2023) disrupted agriculture, affecting food security and incomes. However, the country has demonstrated resilience, with initiatives like the National Resilience Strategy (2020) promoting climate-smart agriculture and disaster preparedness. International partnerships, including support from the Green Climate Fund (GCF), are helping farmers adopt drought-resistant crops and sustainable land management practices.

Despite progress, Malawi contends with structural hurdles such as limited industrialization, energy shortages, and infrastructure gaps. The Malawi Growth and Development Strategy emphasizes economic diversification, private sector growth, and improved governance to accelerate development. Strengthening climate adaptation measures such as irrigation systems, early warning systems, and renewable energy investments will be crucial in safeguarding livelihoods and sustaining economic stability. Strategic investments in structured management of education, infrastructure, and climate adaptation can further deepen unlocking of sustainable growth. By leveraging its agricultural base, fostering innovation, and enhancing climate resilience, Malawi can continue advancing toward inclusive and stable socio-economic development.

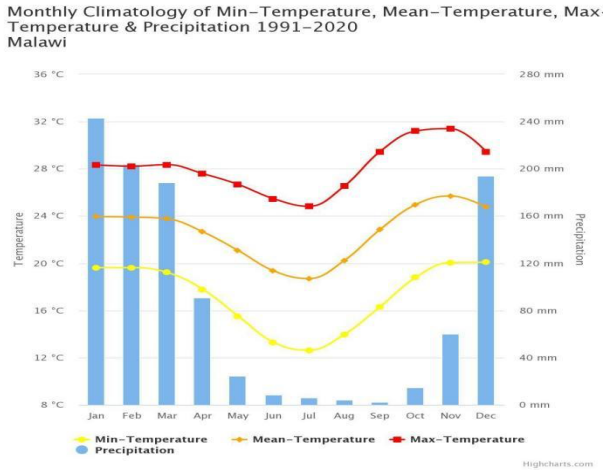
1.3 CURRENT AND FUTURE CLIMATE OF MALAWI

The following sets out the current climate profile and future climate projections for Malawi, providing the climatic baseline against which the vulnerability, exposure and impact analyses of this report are framed. The data and analysis draw on NAP process documents prepared by the Government of Malawi, principally the Department of Climate Change and Meteorological Services, Climate Change in Malawi. The climate analysis covers the period 1961-2100, divided into a historical baseline (1961 – 2020) and three future horizons: near-century (2011-2040), mid-century (2041-2070) and end-century (2071-2100). There is some overlap between the historical and near-century periods. Temperature and rainfall trends and patterns were derived from a mean of 20 bias-corrected Coordinated Regional Downscaling Experiment (CORDEX) models, examined at monthly, seasonal, intraseasonal and annual scales. To capture a range of plausible futures, results are presented under two emissions scenarios: RCP 4.5 (a moderately controlled pathway) and RCP 8.5 (a business-as-usual pathway).

Malawi's high exposure to climate change can be characterized by the rise of temperatures, intensification of aridity, rainfall becoming more erratic, shortening of rainy seasons, and increased frequency of climate-change induced disasters, including droughts and floods.

1.3.1 Temperature Patterns, Trends and Future Projections

Malawi experiences significant variations in average daily temperatures, influenced by both seasonal changes and elevation. The coldest temperatures, ranging between 6°C and 10°C, occur in July in the Mulanje Highlands, while the hottest temperatures, typically between 35°C and 36°C, are recorded in October in the Lower Shire Valley. From May to August, the country experiences a cool, dry winter season, with mean temperatures varying from 17°C to 27°C and minimum temperatures occasionally dropping below 10°C. The hot and wet season begins between October and November, during which mean temperatures range from 25°C to 37°C.



In recent years, the Lower Shire Valley has seen record-breaking maximum temperatures, often exceeding 40°C and reaching as high as 46°C. Across the country, temperature patterns follow a clear geographical trend. The Lower Shire Valley consistently records the highest temperatures, followed by the lakeshore areas, while cooler conditions prevail in the high-altitude regions (IRIS, 2020; World Bank, 2021).

Figure 2: Historical distribution of rainfall and temperature variation (max, min and mean) throughout the year for Malawi between 1991 and 2020

Source: Climate Risk Assessment (2024)

1.3.2 Observed Temperature Trend

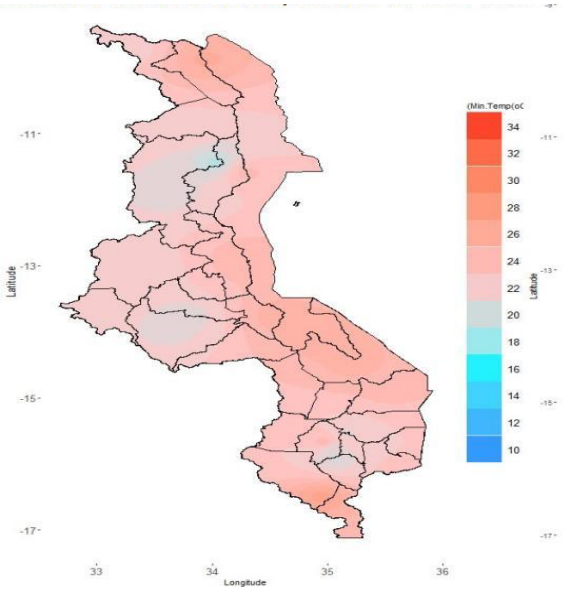


Figure 3: Mean annual temperature (1991-2020)

Source: DCCMS (2021)

Malawi has experienced a noticeable warming trend over the past decades. Based on the reference period of 1981–2010, the mean annual temperature ranged between 15°C and 27°C. However, this range shifted to 16°C to 27°C between 1991 and 2020, indicating a gradual rise in temperatures. Since 1971, the country's mean annual temperature has increased by 0.2°C, with an average warming rate of 0.04°C per decade. More recently, the warming trend has accelerated, with some weather stations recording temperature increases at a rate of 0.019°C per year for maximum temperatures and 0.022°C per year for minimum temperatures. Notably, the central and lakeshore regions are warming at a faster pace compared to the rest of the country, highlighting regional variations in climate change impacts.

Table 1:The temperature annual mean (1991-2020) and temperature changes summarized over climatological zones

Climatic Zone	Mean Annual Temperatures (1991-2020)	1971-2000 Temperature Change (°C)	1981-2010 Temperature Change (°C)
Shire Valley	25.3	0.2	0.1
Shire Highlands	21.2	0.2	0.1
Central areas	21.3	0.3	0.2
Northern Highlands	20.8	0.2	0.1
Lakeshore areas	24.9	0.3	0.1

Source: DCCMS (2021)

1.3.3 Projected Temperatures for Malawi

According to projections from the Malawian Department of Climate Change and Meteorological Services (DCCMS, 2021), referencing the 1991–2020 baseline, the country's mean temperature is expected to rise significantly under different climate scenarios. By the 2040s,

the average increase is projected to be +0.4°C under the SSP2-4.5 scenario and +0.7°C under SSP5-8.5, though individual model estimates vary widely, ranging between +0.2°C and +1.0°C.

Looking further ahead to the 2060s, the mean temperature is expected to rise by +1.2°C (SSP2-4.5) and +1.6°C (SSP5-8.5) on average, with individual models projecting increases between +0.9°C and +2.2°C for both scenarios. By the 2080s, warming is anticipated to intensify further, with average increases of +1.9°C (SSP2-4.5) and +2.7°C (SSP5-8.5). However, model variations suggest a possible range of +1.1°C to +2.9°C for SSP2-4.5 and +1.9°C to +3.2°C for SSP5-8.5 during this period. These projections highlight a clear upward trend in Malawi's temperatures, with higher-emission scenarios leading to more extreme warming.

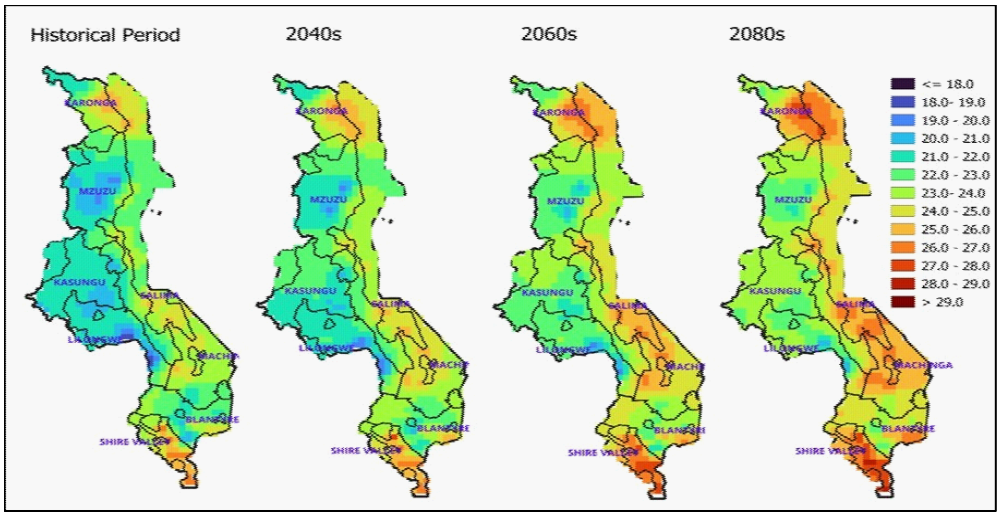


*Figure 4: Mapped projected mean temperature change for Malawi in the 2040s, 2060s and 2080s, using **SSP2.45** (lower to middle expectations)*

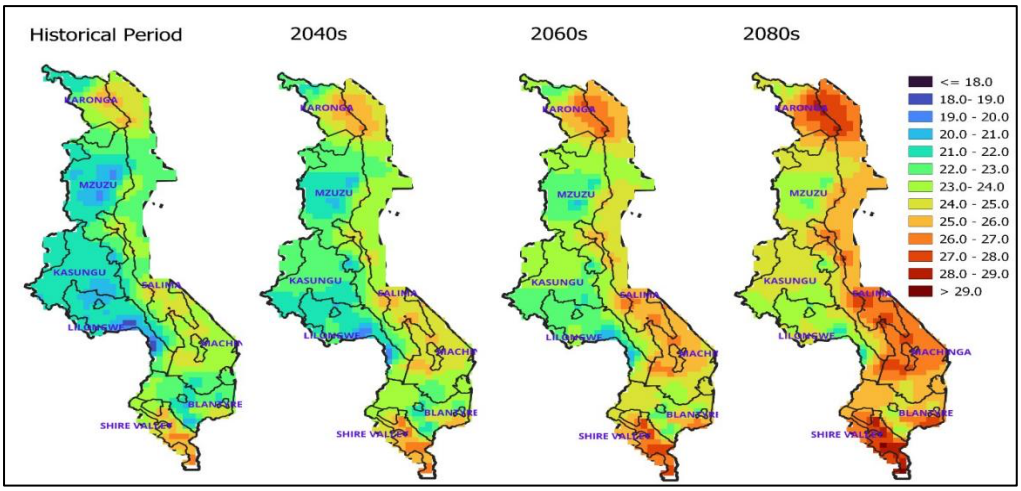


Figure 5: Mapped projected mean temperature change for Malawi in the 2040s, 2060s and 2080s, using SSP5-8.5 (high-emissions scenario).

Source: DCCMS 2023

In the 2020s, about 15% of Malawi, mostly in the Shire Valley already has average maximum temperatures above 30.5°C. By the 2040s, this hot zone is expected to spread into Machinga and Karonga, covering 20-25% of the country. By the 2060s, it could grow to 28-34%. By the 2080s, under the higher emissions scenario, it may reach over half the country (54%), spreading further to include Mzuzu, Kasungu, Salima and Blantyre. Under the lower emissions scenario, it would reach about 39%.

Table 2:The maximum temperature changes in 2040s, 2060s and 2080s with reference from 1991-2020.

Maximum Temperature Change (°C)								
Period	**Proportion Area >30.5°C (%)**		**SSP2-4.5**			**SSP5-8.5**		
			Mean change			**Mean change**		
			Mean	**Range**	**Proportion Area >30.5°C (%)**	**Mean**	**Range**	**Proportion Area >30.5°C (%)**
Historical (2020s)	28	15.4	—					
2040s			**0.3**	**0.03–0.4**	**20**	**0.67**	**0.4–1.1**	**24.6**
2060s			**1.3**	**0.8–2.3**	**27.7**	**1.6**	**0.9–2.3**	**33.9**
2080s			**1.9**	**1.2–3.1**	**38.5**	**2.8**	**1.4–4.0**	**53.9**

Source: DCCMS, 2023.

1.3.4 Rainfall Patterns, Variability, Trends and Future Projections

Malawi experiences a subtropical climate shaped by the influence of Lake Malawi, diverse topography, and mesoscale and synoptic weather systems originating from the Indian Ocean. The country follows a distinct seasonal pattern with a single rainy season occurring during the southern hemisphere's summer from November to April and a dry season from May to October. These seasons can be categorized into three main periods: the cool and dry season from May to August, the warm and dry season from August to November, and the warm and wet season from November to April. On average, Malawi receives between 700 mm and 2,500 mm of rainfall annually, with about 95% occurring during the warm, wet season from November to April while the remaining winter season from May to August is typically dry.

Rainfall distribution varies significantly due to topography and latitude, with the Rift Valley floor along Lake Malawi shores and the Lower Shire Valley receiving the least precipitation at 600 mm or less per year, while some highland areas receive 2,500 mm or more according to GoM and UNEP (2024). Northern Malawi averages over 1,100 mm annually, with highland regions exceeding 1,300 mm and experiencing more winter rains compared to other areas. In contrast, central Malawi, characterized by plains, sees mean rainfall of around 900 mm with warmer temperatures and predominantly dry winters. Rainfall patterns also exhibit high interannual variability driven by large-scale climate systems including the Inter-Tropical

Convergence Zone, Congo Air Boundary, El Niño-Southern Oscillation events like La Niña, the Indian Ocean Dipole, the Mascarene High in the southern Indian Ocean, and fluctuations in Lake Malawi's water levels within the broader hydrological network as noted in GoM (2019). These complex interactions create significant variations in precipitation across different regions and years.

1.3.5 Observed Rainfall Variability

Analysis of rainfall patterns in Malawi reveals complex regional variations, as evidenced by data from DCCMS (2021). While annual rainfall trends across the country do not show significant changes, examination of seasonal patterns through three key periods - October-November-December (OND), December-January-February (DJF), and January-February-March (JFM) - demonstrates notable spatial differences. The data indicates that southern Malawi has experienced relatively minimal reductions in seasonal mean rainfall compared to central and northern regions when referenced against the 1961-1990 baseline period. This contrast is particularly evident in recent decades, with most central and northern areas showing rainfall decreases ranging between 10% and 20%, while parts of southern Malawi have actually recorded increases exceeding +10%.

The OND season presents the most uniform negative trend, with nearly nationwide reductions interrupted only by isolated areas of increased rainfall around Mangochi. Some regions have experienced particularly severe OND declines, with reductions reaching up to 30% in certain locations. These findings highlight the importance of regional and seasonal analysis when assessing Malawi's changing rainfall patterns, as aggregate national data may obscure significant local variations in precipitation trends.

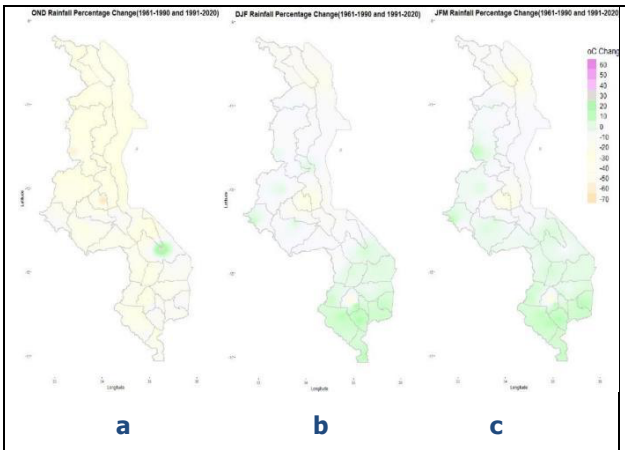


Figure 5: Percentage change in seasonal rainfall 1990-2020 minus 1961-1990 (a) OND, (b) DJF and (c) JFM over Malawi

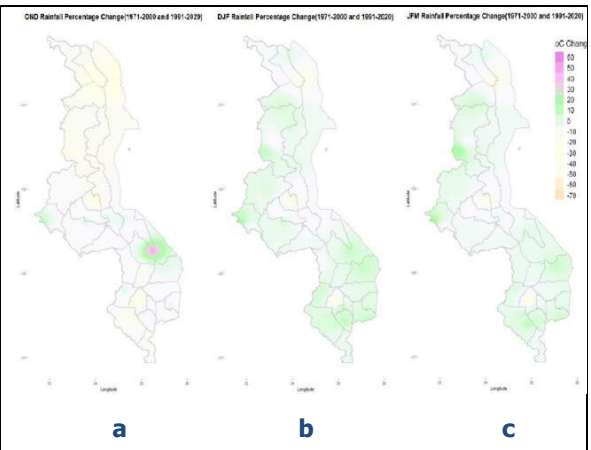


Figure 6: Percentage change in seasonal rainfall 1990-2020 minus 1971-2000 (a) OND, (b) DJF and (c) JFM over Malawi

Source: DCCMS, 2021

When comparing rainfall patterns to the 1971-2000 reference period, Malawi has experienced a general decline in precipitation across all three key sub-seasons (OND, DJF, and JFM), with most regions showing reductions in the range of -5% to -15%. However, this overall trend shows some notable exceptions, particularly in southern Malawi and certain central and

lakeshore areas. Mangochi stands out as a significant anomaly, demonstrating a marked increase in seasonal rainfall, especially during the October-December (OND) sub-season. The data reveals that the OND period has been most severely affected by rainfall reductions, showing more substantial decreases compared to the DJF and JFM seasons. This pattern suggests that the early part of the rainy season is experiencing the most pronounced drying trend across much of the country, with Mangochi's contrasting increase presenting an interesting regional exception that may warrant further investigation into local climatic influences.

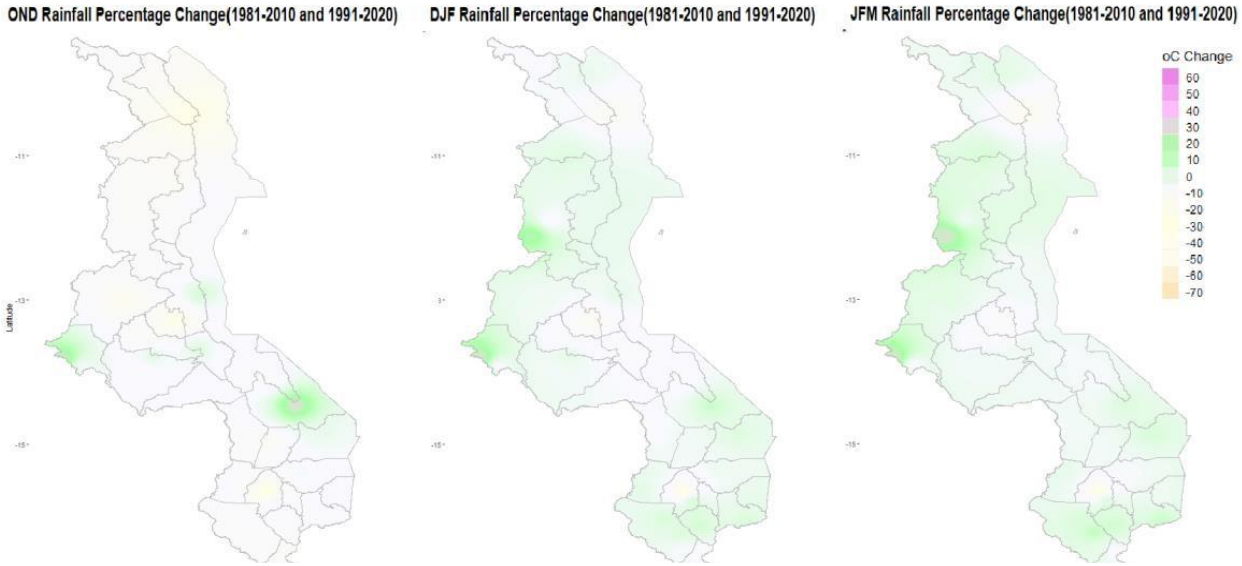
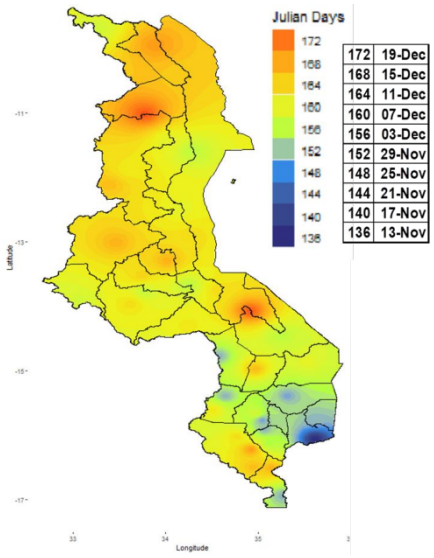


Figure 7: Percentage change in seasonal rainfall 1990-2020 minus 1981-2010 (a) OND, (b) DJF and (c) JFM over Malawi

Source: DCCMS, 2021

The analysis of rainfall trends across Malawi reveals distinct temporal patterns when comparing different reference periods. During the 1991-2020 period, sub-seasonal total rainfall changes were generally smaller in magnitude compared to the earlier 1961-1990 and 1971-2000 reference periods, as would be expected given the shorter timeframe. While most of these recent changes remain statistically insignificant, some noteworthy regional variations emerge. Specifically, slight negative rainfall anomalies were observed in Karonga and Zomba during the January-February-March (JFM) sub-season.

In contrast, positive trends of up to 20% increase were recorded in Mchinji, southern Mzimba, and areas surrounding Mulanje and Mangochi during the same period. These patterns demonstrate considerable decade-to-decade variability in seasonal rainfall distribution across Malawi, with certain locations consistently showing either increasing or decreasing trends regardless of the reference period examined. The persistence of these regional variations suggests the influence of localized climatic factors that may be modifying broader precipitation patterns in the country.



1.3.6 Observed Rainfall Trend

Rainfall patterns show a shifting trend in most rainfall characteristics. The trend of rainfall onset over Malawi shows major variability. For the period 1991-2020, the mean rainfall onset over Malawi varied greatly, with most areas in the southern the region of Malawi normally having earlier onset than central and northern areas. The normal onset dates range from middle November to the first week of December for most areas in the south. Normal onset for areas in the central region ranges from early December to mid-December while for northern areas, onset is usually experienced from mid-December.

Figure 8: Mean rainfall onset during 1991-2020 period **Source**: DCCMS, 2021

The 1991-2020 period saw a striking delay in onset of the rainy season, with most areas experiencing an 8- to 14-day delay compared to the 1961-1990 period. While this delay is widespread, exceptions exist in parts of Mangochi, Salima and Dowa, where onset dates have remained stable or even shifted earlier. The timing of rainfall cessation shows similar variability, with southern and central regions typically ending their seasons between late March and early April, while northern and lakeshore areas continue receiving rains until mid- to late April. Since the 1960s, most regions have seen seasons ending earlier by 12-14 days, particularly in districts like Mwanza, Neno and Karonga, though some areas like parts of Mangochi and Rumphi show no significant change or even slightly delayed cessation.

The combination of delayed onset and earlier cessation has led to a marked shortening of the rainy season across much of Malawi. Comparing 1991-2020 to 1961-1990, southern and central districts like Nsanje, Machinga and Ntchisi have seen their seasons shrink by 18-22 days, while only isolated areas including parts of Mangochi show slight lengthening. This reduction in seasonal length is particularly concerning as it coincides with an increase in dry spells during critical agricultural months. February has become especially prone to prolonged dry periods, with southern areas like the Shire Valley experiencing spells lasting 8-10 days significantly longer than the 4 –7-day spells typical in northern regions. While January's dry spell patterns have remained relatively stable, February has seen an increase of 1-2 days in dry spell duration across central and southern Malawi since the 1960s.

Compounding these changes is a general decline in the number of rainy days per season. High-altitude areas like Mulanje and Thyolo still maintain the highest counts of 50-62 rainy days, but most regions have seen reductions of 6-10 days since the 1960s. Karonga district stands out with an extreme decline of over 34 rainy days, while the Mulanje Mountain area represents a rare exception with a slight increase. These shifting patterns i.e. late starts, earlier endings, longer dry spells and fewer rainy days collectively point to a more challenging rainfall regime for Malawi's rain-fed agricultural systems. The consistency of these trends

across multiple decades suggests they represent not merely temporary variability, but rather a sustained transformation of the country's rainfall climatology with significant implications for water resource management and food security.

1.3.7 Future Rainfall Projections

According to DCCMS projections, future rainfall patterns in Malawi remain uncertain, with climate models showing divergent trends under different emission scenarios. For the SSP2-4.5 scenario, approximately 67% of models project decreasing rainfall from the 2040s through the 2080s. The SSP5-8.5 scenario presents a more complex picture, with 67% of models indicating reduced rainfall in the 2040s but shifting to show majority agreement (67%) on increasing trends by the 2060s and 2080s. Interestingly, when examining ensemble means across all models, these opposing projections effectively cancel each other out, resulting in minimal net change when comparing the 2020s, 2040s, 2060s and 2080s for both scenarios.

This model disagreement highlights the challenges in making definitive rainfall projections for Malawi, suggesting that while some models anticipate significant changes, the overall consensus points to considerable uncertainty in both the direction and magnitude of future precipitation patterns. The divergence between scenarios becomes particularly pronounced in later decades, with higher-emission pathways showing greater potential for rainfall increases compared to moderate-emission scenarios.

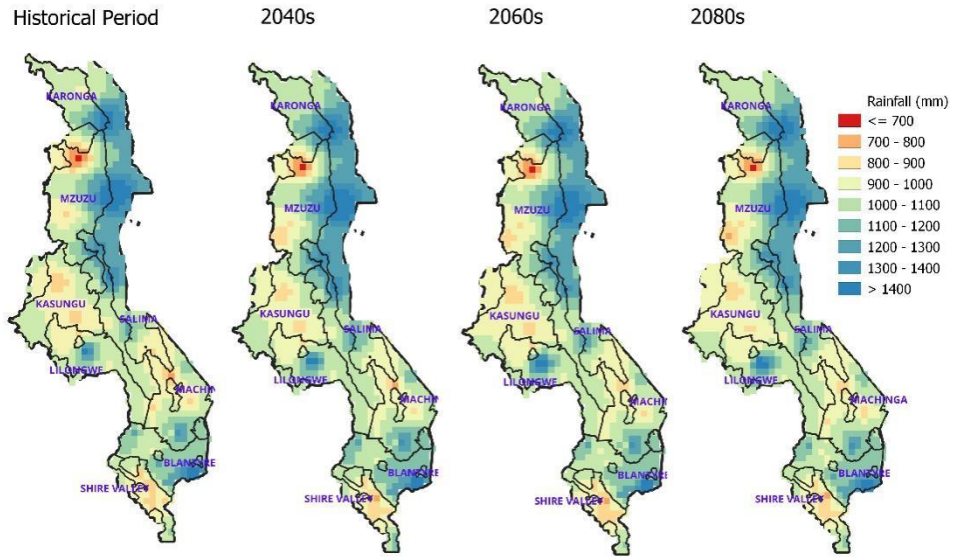


Figure 9: The ensemble annual rainfall means from 2020s (historical period) to 2040s, 2060s and 2080s based on a better case scenario – SSP2-4.5. The eight ADDs are overlain on the distribution

Source: DCCMS 2023

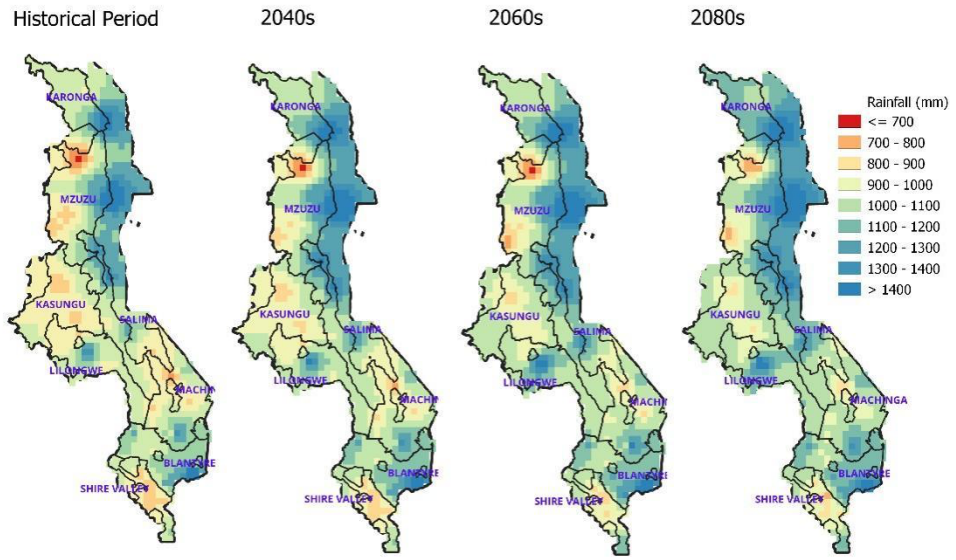


Figure 10: The ensemble annual rainfall means from 2020s (historical period) to 2040s, 2060s and 2080s based on a better case scenario – SSP5-8.5. The eight ADDs are overlain on the distribution

Source: DCCMS 2023

Malawi's projected seasonal rainfall changes show minimal shifts in average annual rainfall through the 2040s–2080s, but more pronounced seasonal patterns emerge across near-, mid-, and end-century periods and both RCP4.5/8.5 scenarios (DCCMS, 2021). For October-December (OND), near-century changes are insignificant under both RCPs (±2% for most areas), with the lower Shire districts seeing the sharpest early drop (-29%). Significant negative changes begin appearing from mid-century onward across the country, and by end-century all scenarios show declines everywhere, with some central-region areas like Ntchisi exceeding -35%. RCP4.5 consistently shows reduced rainfall in Nsanje throughout.

For December-February (DJF), most of the country sees a slight increase of up to +5% across the century and both scenarios, except Nsanje under RCP4.5, which sees up to -13% reduction throughout all centuries, though RCP8.5 shows a positive change there instead. Ntchisi is the worst-affected area, with reductions across all centuries and the steepest drop (-29%) under RCP8.5 by end-century.

For January-March (JFM), a modest increase (up to +5%) is expected countrywide, but the central region, particularly Ntchisi, stands out with a significant decline, reaching -26% under RCP8.5 by end-century. Nsanje again shows a negative trend under RCP4.5, exceeding -10%.

1.3.8 Observed Climate Extremes

Malawi has experienced significant climate extremes in recent decades, with observable shifts in temperature, rainfall patterns, and the frequency of severe weather events. Rising temperatures have led to more intense and prolonged heatwaves, particularly in the southern and low-lying regions, exacerbating droughts and heat stress on agriculture and water resources. Unpredictable rainfall has become a major concern, with alternating periods of extreme flooding and prolonged dry spells.

Extended droughts in the 1991/92 season, prolonged dry spells in 2014/2015 and 2023/2024, severely impacted food security, leading to crop failures and heightened vulnerability among rural communities. Erratic rainy seasons have disrupted traditional farming cycles. Conversely, floods in the 2014/15 and 2019/20 seasons (caused by heavy rainfall from a severe weather system, Tropical Depression 11, and the impact of Tropical Cyclone Idai), Tropical Storm Ana (2022) and Cyclone Freddy (2023) displaced thousands and caused widespread damage to infrastructure and crops. In 2023, Malawi tragically lost more than 600 lives due to mudslides caused by Tropical Cyclone Freddy (DoDMA, 2023). Further, Malawi's rich biodiversity, including diverse flora and fauna, is under threat due to changing climate patterns. Altered rainfall patterns and temperature fluctuations impact ecosystems and endanger various species, threatening the country's ecological balance and causing loss of habitat.

The increased frequency of extreme weather events has strained Malawi's adaptive capacity. The observed extremes align with broader climate change trends in Southern Africa, underscoring the urgent need for action. Projections show that extreme weather events such as heatwaves, storms and drought are likely to increase in frequency and intensity during the rest of the 21st century. These projections have implications for ecosystem balances and for all human activities that depend on natural resources, especially agriculture which contributes about one third of the GDP and is essential for food security.

CHAPTER TWO: MALAWI NATIONAL ADAPTATION PLAN

2.1 VISION, GOALS, AND OBJECTIVES

The Malawi National Adaptation Plan (NAP) provides a long-term framework to guide the country's response to climate change. Building on the foundations of the National Climate Change Management Policy (2016), the NAP Framework (2020), the NDC 2.0 , NDC 3.0, and other national strategies, this NAP articulates a shared vision, clear goals, and measurable objectives to strengthen resilience across all sectors of society and the economy. Its formulation is anchored in Malawi's development priorities and international commitments under the UNFCCC and Paris Agreement[1] while also contributing to the Global Goal on Adaptation (GGA) across priority systems, sectors and vulnerable groups.

The two UNFCCC NAP process objectives are to:

a) Reduce vulnerability to the impacts of climate change by building adaptive capacity and resilience; and
b) Facilitate the integration of climate change adaptation into relevant policies, programmes and activities, particularly development planning and budgeting processes.

Malawi's NAP operationalizes these objectives through nationally defined goals and objectives that emphasize risk reduction, resilience-building, mainstreaming and iterative adaptation planning across national and sub-national levels.

Malawi's NDC was validated after this NAP had already reached an advanced stage of drafting. As Malawi's overarching adaptation commitment under the Paris Agreement, NDC 3.0 sets the country's adaptation priorities and targets at a strategic, international level. This NAP is the instrument through which that adaptation component is operationalized domestically. Full alignment between the two instruments could not be completed in this drafting cycle and should be flagged for the NAP's first review cycle.

VISION

"A country with people, ecosystems and infrastructure that are resilient and have adaptive capacity to the impacts of climate change."

GOALS

a) Reduce vulnerability and build resilience of communities, ecosystems and key economic sectors.
b) Integrate climate change adaptation into national and sectoral policies, strategies and development plans.
c) Strengthen climate-resilient water security, reducing water scarcity and the impact of floods and droughts on communities and productive sectors.
d) Build and protect climate-resilient infrastructure and human settlements to ensure continuity of essential services during climate shocks.

[1] Article 7, Paragraph 9 – Paris Agreement.

e) Protect and diversify livelihoods and strengthen social protection to reduce poverty triggered by climate change.

OBJECTIVES

The objectives of Malawi's NAP articulate how the country will advance climate-resilient development in line with national priorities and international commitments.

Malawi's NAP objectives are further designed to align with the Belém Adaptation Indicators, the set of 59 voluntary measures adopted at COP30 to track global progress on adaptation across process, output, outcome and impact levels. **Table 3** presents this alignment at the level of the Global Goal on Adaptation's seven thematic and four dimensional targets; the indicator framework described in Section 7.2 will subsequently screen the Belém indicators for national relevance and select those that correspond most directly to each objective, avoiding duplicative reporting.

Table 3 Malawi NAP Linkage of Objectives to Global NAP process goals and GGA Thematic Areas

Malawi NAP Objective	Corresponding UNFCCC NAP Objective	Contribution to Global Goal on Adaptation
Strengthen adaptive capacity and reduce climate vulnerability of ecosystems and economic sectors	UNFCCC Objective 1	Direct contribution to GGA thematic targets on water (9a), food and agriculture (9b), health (9c), ecosystems and biodiversity (9d), and infrastructure and human settlements (9e), supported by the impact, vulnerability and risk assessment target (10a).
Mainstream climate change adaptation into national, sectoral and district development planning and budgeting	UNFCCC Objective 2	Direct contribution to the GGA planning target (10b), including mainstreaming adaptation into national, sectoral and local planning and budgeting, with implementation links to all seven thematic targets.
Promote inclusive, gender-responsive and socially equitable adaptation	UNFCCC Objective 1	Direct contribution to the poverty and livelihoods/social protection target (9f) and the cultural heritage and knowledge target (9g), with cross-cutting attention to gender equality, human rights, children, youth, older persons, persons with disabilities and other groups in vulnerable situations.
Strengthen institutional coordination, governance and capacity for adaptation planning and implementation	UNFCCC Objective 2	Contribution to the GGA dimensional targets on planning (10b), implementation (10c) and MEL (10d) through clearer mandates, coordination, institutional capacity and accountability.
Enhance evidence-based, iterative adaptation planning through climate risks assessments, monitoring and learning	UNFCCC Objective 1 and UNFCCC Objective 2	Direct contribution across the iterative adaptation cycle: up-to-date impact, vulnerability and risk assessment and climate services (10a); planning (10b); implementation (10c); and operational MEL systems (10d).
Mobilize and align climate finance to support long-term adaptation implementation.	UNFCCC Objective 2	Means of implementation supporting delivery across all seven thematic and four dimensional GGA targets, including domestic public finance, international climate finance and responsible private-sector investment.

2.1.1 Guiding Principles

The Malawi NAP is guided by six principles that will help achieve adaptation action that simultaneously advances economic and sustainable development objectives[2]:



2.2 POLICY AND REGULATORY FRAMEWORKS ON CLIMATE CHANGE ADAPTATION

Malawi is among the countries most vulnerable to climate change due to its high dependence on climate-sensitive sectors such as agriculture, fisheries, and forestry.[3] The government has made considerable efforts in adopting policy frameworks to address mitigation and adaptation needs.

2.2.1 Global and Regional Policies, Frameworks and Strategies

The Malawi NAP aligns with global development agendas by promoting an integrated approach to adaptation, sustainable development and disaster risk reduction. It recognizes the interlinkages with key international frameworks such as the Paris Agreement, the SDGs and the Sendai Framework, which collectively emphasize enhancing adaptive capacity, strengthening resilience, and reducing vulnerability to climate change.[4]

See **Table 4** for a summary of key global and regional policies and regulatory frameworks.

[2] Malawi's National Adaptation Plan Framework (2021).
[3] Ibid.
[4] Sendai Framework for Disaster Risk Reduction, 2015 - 2030

Table 4: Summary of Key Global and Regional Policies and Regulatory Frameworks.

Framework / Policy	Relevance to Malawi's NAP
UNFCCC, Kyoto Protocol & Paris Agreement	Malawi is a signatory and has committed to climate action through NDCs, focusing on adaptation in agriculture, forestry, energy, and water. Provides the overarching global mandate for NAPs. Paris Agreement includes the Global Goal on Adaptation.
Nationally Determined Contribution (NDC, 2021; NDC 3.0)	Outlines Malawi's climate priorities (2020–2040), including adaptation actions, institutional strengthening, financing, and resilience-building. Sets the baseline for aligning NAP priorities with mitigation and adaptation targets.
Biennial Transparency Report (BTR, 2022)	Provides transparency on GHG inventories, mitigation and adaptation actions, gaps, and support needs.[5] Strengthens MRV systems that inform NAP monitoring and evaluation.
Sustainable Development Goals (SDGs)	Particularly aligned with SDGs 1 (No Poverty), 2 (Zero Hunger), 13 (Climate Action). NAP contributes to strengthening resilience, integrating climate change into policies, and building awareness and capacity.
Sendai Framework on Disaster Risk Reduction (2015–2030)	Emphasizes reducing disaster risk and "building back better." Supports NAP goals of resilience-building, early warning, preparedness, and recovery.
Hyogo Framework for Action (2005–2015)	Predecessor to Sendai, highlighted systematic integration of DRR into sustainable development. Lessons learned inform NAP design and disaster-linked adaptation strategies.
SADC Climate Change Strategy	Promotes regional cooperation on adaptation and resilience. Malawi's NAP aligns with shared SADC priorities for climate action and knowledge sharing.
COMESA-EAC-SADC Tripartite Climate Change Framework	Encourages joint regional actions across economic blocs, supporting cross-border resilience and adaptation initiatives relevant for Malawi.
African Union Climate Change and Resilient Development Strategy and Action Plan (2022-2032)	Provides continental guidance for climate-resilient, low-carbon development. Ensures Malawi's NAP is consistent with AU adaptation priorities and the Global Goal on Adaptation.[6]
Kampala Ministerial Declaration on Migration, Environment and Climate Change	Regional political framework uniting 33 African countries to address human mobility in the context of climate change. Malawi as a signatory commits to integrate migration and displacement considerations into national climate policies and action plans, promote regional cooperation on data, finance, and capacity building, and advance the implementation of the Paris Agreement through inclusive and people-centered approaches.

2.2.2 National Policies, Frameworks and Strategies

In the national context, the NAP is aligned with both medium-term and long-term development strategies including the Malawi 2063 (MW2063)[7], Malawi National Resilience Strategy (MNRS 2018- 2030)[8] and the Malawi Implementation Plan I (MIP-I, 2021–2030). Malawi has developed several national policies, strategies and legislation that are relevant to the implementation of the NAP and they are detailed in **Table 5** below.

[5] Biennial Transparency Report (BUR, 2022)
[6] African Union Climate Change and Resilient Development Strategy and Action Plan (2022-2032)
[7] Malawi 2063.
[8] Malawi National Resilience Strategy (MNRS 2018- 2030).

Table 5: Summary of Key National Policies, Legislations and Regulatory Frameworks

Category	Policy / Framework/Strategy	Relevance to NAP
Overarching Law	Constitution of Malawi, 1994 (as amended)	Establishes environmental protection as a national priority. Section 13(d) commits to preventing environmental degradation, conserving biodiversity and protecting rights of future generations. Provides the constitutional foundation for embedding adaptation into governance, aligning NAP actions with rights-based and intergenerational principles.
Planning	Malawi 2063 (MW2063) & Implementation Plan I (MIP-I, 2021–2030)	Long-term vision for industrialization and resilience. MIP-I operationalizes MW2063 with climate adaptation projects in agriculture, forestry, land, and financing. NAP aligns with MW2063 by ensuring adaptation underpins Malawi's transformation; MIP-I integrates NAP and NDCs into sectoral plans.
	Malawi Growth and Development Strategies (MGDS II, 2011–2016; MGDS III, 2017–2022)	Medium-term blueprints prioritizing agriculture, water, DRR, governance, and resilience. NAP builds on MGDS priorities, especially water and climate change management, to enhance resilience. It should be noted that MGDS III expired in 2022; Malawi 2063 and MIP-I (above) are now the primary planning anchors.
	National Strategy on Sustainable Development, 2020	Mainstreams sustainability principles across sectors. Provides anchor for long-term resilience within NAP.
	National Adaptation Programme of Action, 2006	Identified urgent adaptation needs (drought-resistant crops, water harvesting, afforestation). Foundation for NAP's medium/long-term vision.
Climate Change	National Resilience Strategy (2018–2030)	Multi-sectoral resilience plan addressing food insecurity, floods, and shocks. Four pillars: agriculture, DRR, catchment management, social protection. Strengthens coherence with resilience building, ensuring NAP interventions are long-term and multi-dimensional. Links climate impacts, unplanned displacement and (potential) resettlement and calls for resilient livelihoods.
	National Adaptation Plan (NAP) Roadmap, 2016	Established vision, mandates, institutions, and milestones for NAP development. Provides structured foundation for NAP planning, stakeholder roles, and sequencing.
	National Adaptation Plan (NAP) Framework, 2020	Defines Malawi's approach to NAP under UNFCCC principles (sustainable development, inclusion, indigenous knowledge, accountability). Links NAP with NDCs, SDGs, and Global Goal on Adaptation; ensures international alignment. Instructs all line ministries to integrate adaptation priorities into sectoral policies, budgets, and plans.
	Physical Planning Act, 2016	Governs physical/spatial planning and land use in both urban and rural areas, establishing hierarchy of development plans (national, district, local).
	National Climate Change Management Policy, 2016	Provides an overarching climate governance framework, integrating adaptation, mitigation, gender, and finance. Central policy NAP builds on translating adaptation commitments into sectoral actions.
	National Climate Change Investment Plan (2013–2018)	Medium-term investment plan focusing on watershed management, DRR, resilient agriculture and infrastructure. Informs NAP financing priorities and investment design. This expired in 2018 and a successor investment plan had not been published at the time of this review.
	Nationally Determined Contributions (NDCs, 2015; updated 2021; NDC 3.0)	Commitments under Paris Agreement for adaptation and mitigation. NAP complements NDC adaptation priorities and strengthens sectoral implementation.
	Comprehensive National Climate Action Plans (NCAPs)	Provides climate-smart strategies across agriculture, forestry, health, and resilience. Provides sectoral baselines to be scaled under NAP.
	National Meteorological Policy, 2019	Framework for reliable weather & climate services, early warning, and research. Supplies climate data backbone for evidence-based NAP.

Category	Policy / Framework/Strategy	Relevance to NAP
	Malawi's Strategy on Climate Change Learning (2013; updated 2021)	Builds human and institutional capacity for climate response; emphasizes awareness, skills, and finance. Strengthens knowledge and skills for NAP implementation.
Water	National Framework for Water and Climate Services (NFWCS), Malawi, 2024–2029	Provides the strategic framework for hydrometeorological and climate services, organised around the five pillars of the WMO Global Framework for Climate Services (observation and monitoring; hydrometeorological information systems; user-interface platforms; and research, modelling and prediction, with capacity building as a cross-cutting element) and aligned with the UN Early Warning for All Initiative. Co-led by DCCMS and the Department of Water Resources with an estimated budget of US$63.4 million (2024–2028), it underpins the NAP's water-sector early warning priorities and DCCMS's cross-sectoral early warning mandate.
Finance	Domestic Revenue Mobilization Strategy (2021–2026)	Focuses on boosting domestic revenue and recognizes the role of climate shocks.
	National Disaster Risk Management Policy (2025; 2015) ; Disaster Risk Management Act (2023); National Multi-Hazard Contingency Plan (2021-2022)	Mainstreams disaster response and provides a legal framework for prevention, preparedness, response and financing under DoDMA.
	Integrated National Financing Strategy, 2024	Prioritizes climate adaptation through mainstreaming, mobilizing finance, and institutional strengthening. Supports costed NAP implementation and access to climate finance. *Incentives for Adopting Climate-Resilient Practices*: Prioritizes climate adaptation financing, including incentives for private sector engagement in renewable energy and climate-smart agriculture.[9]
Environment	Environment Management (Climate Change Fund) Regulations, 2018	Provides legal framework for operationalizing Climate Change Fund; establishes financing rules and sources. Supports long-term financing and resource mobilization for NAP. *Disincentives for Activities that Increase Vulnerability*: Uses levies, fees, and penalties to channel resources into climate action while discouraging environmentally harmful practices.[10]
	National Environmental Policy, 2004, currently under revision	Promotes sustainable land/water management and ecosystem conservation. Anchors NAP on environmental sustainability.
	National Biodiversity Strategy and Action Plan (NBSAP III)	Malawi's principal instrument for biodiversity conservation and ecosystem management under the Convention on Biological Diversity (CBD), for which the EAD is the national focal point. Anchors the NAP's ecosystem and biodiversity-related adaptation priorities (GGA thematic target 9(d)) and is reflected in the forestry priorities and ecosystems content. This also aligns with Malawi's commitments as a Party to the Kunming-Montreal Global Biodiversity Framework (GBF), adopted under the CBD in December 2022.
	National Environmental Health Policy, 2018	It links climate change to sanitation, water, air quality, disease control, and DRR. Supports health-related adaptation measures under NAP.

[9] Integrated National Financing Strategy (INFS, 2024).
[10] Environment Management (Climate Change Fund) Regulations (2018).

Category	Policy / Framework/Strategy	Relevance to NAP
	Environmental Management Act, 2017	Legal framework for ESIAs, environmental monitoring, and mainstreaming climate. Provides legal backing for NAP adaptation interventions. *Incentives for Adopting Climate-Resilient Practices*: Establishes a Climate Change Fund to finance adaptation and mitigation initiatives, drawing from levies, penalties, and appropriated funds. Provides an institutional incentive for scaling adaptation projects.[11]
Land	National Land Policy, 2002	Promotes equitable access, secure tenure, sustainable land management, and integrated land use planning. NAP builds on these for agriculture, forestry, and ecosystem-based adaptation. *Disincentives for Activities that Increase Vulnerability*: By formalizing land tenure, discourage unsustainable land-use practices (e.g., illegal encroachment, deforestation) and empower local communities (especially women) to invest in resilience.
	Land Act, 2016	Highlights land ownership models which include public, private, and customary tenure systems, and promotes sustainable land-use planning and management to prevent degradation.
Governance	National Decentralization Policy, 1998	Strengthens local governance structures (VDCs, CPCs) for DRR and adaptation. Provides decentralized entry points for NAP implementation.
	Local Government Act, 1998	Establishes the legal framework for decentralized governance and service delivery. It empowers local authorities to plan, implement, and coordinate development activities within their jurisdictions, including environmental management functions.
Gender, Youth & Inclusion	National Youth Policy, 2013	Encourages youth participation in development, agriculture, and green jobs. NAP promotes youth-led adaptation initiatives.
	National Gender Policy, 2025	Establishes Malawi's framework for gender equality and women's empowerment. Anchors the NAP's gender-responsive adaptation objective and the gender-related commitments.
	National Climate Change Gender Action Plan	Guides the integration of gender equality into climate change policy and action. Supports the NAP's gender-responsive adaptation objective, the sex-disaggregated monitoring commitments in Chapter Seven and the gender-responsive budgeting provisions in Chapter Five.
	Women in Climate Network Malawi Strategy	Promotes women's participation and leadership in climate action. Provides a channel for engaging women's groups in NAP implementation, monitoring and awareness.
	National Disability Policy ,2025	Provides the policy framework for persons with disabilities. Anchors the NAP's commitments to disability-inclusive adaptation.

2.2.3 Sectoral Policies, Frameworks and Strategies

Sector-specific frameworks are central to integrating climate change adaptation into Malawi's development pathways. These frameworks embed adaptation into the priority sectors e.g agriculture, water, forestry, fisheries, health, and infrastructure, while also addressing cross-cutting sectors including social, education, and disaster risk management. By aligning sectoral objectives with national adaptation goals, they provide the policy foundation needed to strengthen resilience, safeguard livelihoods and ensure sustainable development.

[11] Environmental Management Act (EMA, 2017).

Furthermore, while sectoral frameworks demonstrate progress in embedding climate change adaptation within Malawi's development agenda, the degree of integration remains uneven across sectors. In several cases, climate considerations are acknowledged but not yet fully operationalized through measurable adaptation targets or sector-specific action plans. Strengthening the link between sectoral priorities and the overarching national adaptation objectives would enhance coherence and ensure sustained implementation of resilience measures across all levels.

2.2.4 District Level Policies, Strategies and Frameworks

Malawi has made efforts to integrate climate change priorities into District Development Plans (DDPs) and Area Development Plans (ADPs). These planning instruments are designed to translate national development goals into localized actions, aligning with the country's broader decentralization framework. Through these plans, districts are expected to identify, prioritize, and implement development activities including those related to climate adaptation and mitigation, based on the specific vulnerabilities and needs of their localities.

Districts have made efforts to mainstream climate change through: District Climate Change Investment Plans (DCCIPs), Community-based resilience initiatives, District-level adaptation plans for the ADDs and District Environmental Action Plans. Malawi also has Disaster Risk Management and Climate Resilience Plans which are updated every 5 years. They are aimed at guiding the design and implementation of priority disaster risk management and climate resilience interventions in local authorities through identifying DRR measures.

Table 6: Summary of District Level Policies, Strategies and Frameworks

District Level Policies, Strategies and Frameworks
District Development Plans (DDPs) - Operational tools for local governments under Malawi's decentralization system. DDPs can integrate context-specific adaptation priorities, localized indicators and foster community ownership. For example, Zomba's DDP includes adaptation/mitigation programmes, stakeholders, financing sources, and lead organizations.[12] This will be a continuous process across all districts.
District Climate Change Investment Plans (DCCIPs) - Translate national climate priorities into district-level action, focusing on disaster-prone and vulnerable areas. Cover risk assessments (floods, droughts, storms), early warning systems, climate-smart agriculture, resilient infrastructure, and capacity-building for planners. Key challenge: fragmented funding and donor-dependency. Successes (e.g., water harvesting, salinity schemes) highlight potential if scaled with stronger finance and monitoring frameworks.
District Adaptation Plans – Development of adaptation options was replicated at local level, within the eight ADDs representing the different agro-ecological zones of the country. Adaptation Options were proposed by refining the nature of vulnerability and it is to those factors of vulnerability that the adaptation options were prioritized.
District Environmental Action Plans (DEAPs) - Legally mandated under the Environmental Management Act of 2017[13]; updated every five years. Identify district-specific

[12] Zomba District Council – District Development Plan (2017-2022)
[13] Environmental Management Act of 2017

environmental issues (deforestation, soil erosion, pollution) and propose targeted interventions. Structured at three tiers: community-led, joint government/NGO, and government-led. All development projects must align with DEAPs. Public participation through workshops is required. Execution varies as newer DEAPs are more strategic, older ones limited by resources.
Community-Based Resilience Initiatives - Grassroots programs demonstrate strong local ownership and capacity building: Village Civil Protection Committees (VCPCs) — lead disaster preparedness, awareness campaigns, and planning[14], Farmer Field Schools (FFS) — train farmers on climate-smart practices (pest management, drought-resistant crops)[15], Community-led reforestation with 25,000 trees planted across 10 villages to restore ecosystems, food security, and watershed health[16]. These participatory efforts enhance resilience through sustainable agriculture and ecosystem restoration.
Decentralization Policy (1998) - Empowers local governments to plan, budget, and implement development initiatives. Challenges: shortage of skilled staff in environmental planning, limited climate data, weak mainstreaming tools, budget ceilings/conditional grants, and underfunding of community-identified priorities. Bottom-up planning has limited influence on national budgets. Strengthening intergovernmental coordination, resource allocation, and district-level capacity is critical for NAP implementation.

2.2.5 Policy Gaps, Challenges and Opportunities

A review of Malawi's policy, legal, and institutional frameworks at the global, national, sectoral, and district levels reveals both significant progress and persistent shortcomings in advancing climate change adaptation. While the frameworks provide an important foundation, their implementation has been uneven, constrained by institutional, technical, and financial limitations. At the same time, new opportunities are emerging from global climate finance, innovation, and community-driven initiatives. **Table 7** summarizes the key gaps, challenges, and opportunities identified across levels and sectors. It serves as a reference point for strengthening Malawi's NAP by ensuring that lessons from past and ongoing efforts are integrated into future planning and implementation. **Table 7** highlights the policy challenges and opportunities.

[14] Charles Mkoka, 'Building Resilience to Climate Change in Rural Malawi', 2015. Available at: https://www.resilience.org/stories/2015-12-08/building-resilience-to-climate-change-in-rural-malawi/

[15] Increasing community resilience to climate change through Farmer Field School Master Trainers' course in Malawi

[16] Krisy Gashler, 'Collaborative reforestation in Malawi supports ag, climate adaptation', 2025. Available at: https://news.cornell.edu/stories/2025/01/collaborative-reforestation-malawi-supports-ag-climate-adaptation

Table 7: Summary of Policy Gaps

GAPS			
Policy and Legislative Gaps	**Planning and Implementation Gaps**	**Financing Gaps**	**Data and Technical Capacity Gaps**
The absence of an overarching climate change law has resulted in fragmented sectoral responses.	The Malawi Implementation Plan I (MIP-I) lacked critical indicators, baselines, and targets, leaving adaptation progress difficult to measure.	Malawi's adaptation programmes are highly donor-dependent, with minimal sustainable domestic financing.	Lack of robust climate data infrastructure, including meteorological, hydrological, and biodiversity monitoring systems.
Outdated frameworks such as the NCCMP (2016), the Agriculture (General Purposes) Act (1987), and the Public Health Act (1987) remain misaligned with current climate risks.	Key sectors like energy and infrastructure remain insufficiently integrated into national climate risk planning, heightening their vulnerability.	Accessing global funds such as the GCF or Adaptation Fund is constrained by complex eligibility and fiduciary requirements, while the National Climate Change Fund remains undercapitalized.	Data integration between national and district levels is weak, leaving many local councils without reliable risk maps or climate projections.
Sectoral policies frequently operate in silos, with competing objectives such as irrigation expansion versus water resource conservation, undermining coherence.	Adaptation policies remain heavily project-driven and donor-led rather than anchored in national systems, limiting sustainability.	Domestic frameworks such as the Domestic Revenue Mobilization Strategy 2021-2026 and the Integrated National Financing Strategy (2024) insufficiently prioritize adaptation.	Shortages of skilled personnel across ministries and district councils limit planning, enforcement, and implementation capacity.
At the subnational level, integration of climate priorities into District Development Plans (DDPs) is inconsistent, often depending on donor presence.	Poor uptake of climate-smart practices in agriculture, forestry, and fisheries reflects both weak extension services and limited farmer capacity.	Weak fiduciary and accountability systems further constrain effective resource mobilization and disbursement.	Research gaps persist in areas such as climate–health linkages, ecosystem valuation, and costed adaptation strategies.

GAPS			
Policy and Legislative Gaps	**Planning and Implementation Gaps**	**Financing Gaps**	**Data and Technical Capacity Gaps**
Climate risks are still weakly integrated into land use planning, tenure systems, and ecosystem valuation, while traditional and indigenous knowledge is rarely mainstreamed into planning frameworks.	Ecosystem services are rarely valued in planning, undermining evidence-based incentives for sustainable land and forest management.		Education and training systems are yet to adequately integrate climate science, leaving future generations underprepared for adaptation leadership
National strategies also lack systematic alignment with international commitments such as NDCs, with weak translation of global targets into operational local plans.	Weak enforcement of laws particularly those relating to water pollution, illegal charcoal production, and deforestation continues to drive environmental degradation.		
The nexus between climate/environmental change and human mobility (e.g. internal displacement) is complex, as mobility can be a consequence of climate hazards, but migration and its contextual effects can also have positive impacts as an adaptation measure. Currently, Human Mobility is not mainstreamed, and many relevant frameworks and laws lack the mobility dimension reducing policy cohesion (data standards, relocation safeguards etc.)	There are partially divergent notions, concepts, policy goals, planning horizons when it comes to human mobility in the context of climate change.	Relevant institutional funding is inadequate and very fragmented owing to fragmented policy landscape at the international level. Other forms of funding (e.g. Diaspora) are underutilized.	No standardized climate hazard and/or mobility tagging and limited empirical evidence on socio-economic and climate-related realities of migrants, IDPs, refugees and "trapped populations"

Table 8: Summary of Challenges and Opportunities

Challenges	Opportunities
Heavy dependence on donor-driven projects threatens sustainability, while political instability and policy discontinuity undermine long-term planning.	Expanding global climate finance mechanisms (e.g., GCF, Adaptation Fund, and the Loss and Damage Fund) offer pathways to scale investment.
High poverty rates and reliance on biomass exacerbate deforestation and soil degradation.	Ongoing policy reforms including the draft Energy Policy (2025), the Health Sector Strategic Plan III (2023–2030), and the Disaster Risk Management Act (2023), provide critical entry points for mainstreaming adaptation.
The country remains highly vulnerable to climate-induced disasters i.e. floods, droughts, heatwaves **and cyclones that are becoming more frequent and unpredictable, inflating response costs.**	Decentralization frameworks such as DDPs, DEAPs, and DCCIPs offer vehicles for vertical integration and community-driven ownership.[17] Grassroots innovations through Village Civil Protection Committees, Farmer Field Schools, and reforestation projects demonstrate scalable models of local resilience.
Rapid urbanization is increasing demand for water, energy, and infrastructure, often without climate-proofing.	Public-private partnerships present opportunities in renewable energy, climate-smart agriculture, and resilient infrastructure. Moreover, youth and women's active engagement provides a foundation for inclusive, innovative adaptation.
At the local level, limited technical capacity continues to constrain adaptation implementation, while adoption of climate-smart technologies remains slow due to cost barriers and lack of awareness. **Weak enforcement of environmental and social safeguards, particularly in infrastructure, mining, and energy development, exacerbates vulnerabilities.**	Expanding digital platforms and ICT tools can enhance early warning systems, climate information dissemination, and advisory services.
Many incentives and disincentives lack effective enforcement or financing mechanisms, limiting their ability to influence real behavior change.	Regional integration through SADC, COMESA, and AU frameworks creates opportunities for pooled resources, shared learning, and cross-border adaptation action
	Existing incentives such as the Climate Change Fund, renewable energy targets, and climate-smart agriculture policies present opportunities to drive adoption of resilient practices.

2.2.6 Synthesis of Policy Alignment, Gaps and NAP Contribution

While Malawi has established a broad and well-articulated policy framework for climate change adaptation, important gaps remain in implementation, alignment and sectoral readiness. Several national instruments including the National Climate Change Management Policy, NDC and the National Resilience Strategy set out clear adaptation priorities, but these are not consistently translated into coordinated, sector-specific actions. In particular, the National Climate Change Management Policy, now dated, does not fully reflect evolving climate risks or recent global commitments, while the National Climate Change Fund remains under-resourced, limiting the country's ability to finance adaptation at scale.

[17] Zomba District Council, District Development Plan (2017 -2022), (Government of Malawi, 2017).

At the sectoral level, readiness for adaptation is uneven. Sectors such as agriculture, water, and disaster risk management demonstrate relatively stronger integration of climate considerations, supported by existing strategies and institutional frameworks. However, other sectors including energy, infrastructure, and urban development remain insufficiently climate-responsive, with limited integration of climate risk into planning standards, investment decisions, and regulatory frameworks. This uneven readiness constrains the effectiveness of cross-sectoral adaptation efforts and weakens overall resilience.

The NAP provides a critical opportunity to address these gaps by serving as a unifying framework that translates high-level policy commitments into actionable, prioritized, and costed interventions across sectors. By strengthening alignment with the NDC, particularly in the context of the NDC 3.0, the NAP can ensure that adaptation actions are coherent, measurable, and mutually reinforcing. In addition, the NAP is expected to enhance coordination across institutions, support the integration of adaptation into sectoral and district planning processes, and provide a structured basis for mobilizing and tracking climate finance. In this way, the NAP moves beyond policy intent toward a more integrated and implementation-oriented approach to climate resilience.

2.3 FRAMEWORK FOR MALAWI'S NATIONAL ADAPTATION PLAN

2.3.1 Approach to NAP Development

The Malawi NAP process was officially launched on 2 September 2014.[18] Immediately after the launch, workshops were conducted across the country to build capacity and raise awareness of the process. A NAP core team of national experts was established, drawn from key ministries, departments, civil society, academia and development partners, including the Ministry of Finance, Economic Planning and Development; Ministry of Health and Population; Environmental Affairs Department; Department of Climate Change and Meteorological Services; Department of Disaster Management Affairs; FAO; CISONECC; UNEP, UNDP, and the International Potato Centre. This team has met regularly to steer the process forward.

[18] Malawi's National Adaptation Plan Framework.

Thematic areas considered during stocktaking for the medium- and long-term adaptation planning horizon of the NAP

- improving access to energy sources
- increasing resilience of food production systems
- improving weather and climate forecasting
- improving agriculture to ensure farmers are moving from subsistence to commercialization
- promoting catchment management practices
- integrated water resource management to encourage large scale commercial irrigation
- population change and human settlements
- civic education and adult literacy
- infrastructure development
- inclusiveness of gender, disability and other socially excluded vulnerable groups in implementation of climate change adaptation interventions
- monitoring of climate
- adequate database and easy access for all people
- development of collaborative wildlife management

Early outputs of the process included two policy briefs in 2015: one outlining the NAP process and another highlighting potential challenges and opportunities. In 2016, a stocktaking exercise provided the baseline information on climate change impacts, vulnerabilities, and adaptation efforts, while also identifying institutional, knowledge, and capacity gaps.[19] These milestones culminated in the adoption of a comprehensive NAP Roadmap in 2016, which defined the vision, mandates, institutional arrangements, milestones, and target timelines for the 17 steps of the NAP cycle.

The NAP Framework, developed in 2020, builds on this roadmap and provides an overarching structure for integrating climate adaptation into Malawi's medium- and long-term development planning. It validates and updates the vision and objectives of the roadmap, links the process to national and international policies, and ensures readiness to access GCF resources to support implementation.

2.3.2 Framing Adaptation under the Global Goal on Adaptation

Malawi's NAP is framed by the three dimensions of the Global Goal on Adaptation: enhancing adaptive capacity, strengthening resilience and reducing vulnerability and by the 11 targets of the UAE Framework for Global Climate Resilience. The seven thematic targets cover water, food and agriculture, health, ecosystems and biodiversity, infrastructure and human settlements, poverty and livelihoods, and cultural heritage. The four dimensional targets cover impact, vulnerability and risk assessment and climate services, planning, implementation, and monitoring, evaluation and learning (MEL).

[19] Stocktaking Report (2016).

Table 9: Position against the GGA dimensional targets 10(a)–10(d)

Target	Dimension	Status	Key evidence
10(a)	Impact, vulnerability and risk assessment and climate services	PARTIAL — substantially strengthened	The Multi-Hazard Risk Atlas (DoDMA 2024) supplies a nationwide probabilistic assessment across all 28 districts, seven hazards, losses as Sendai indicators under current climate and two projected pathways for 2061–2100. First quantified projected losses in any Malawi NAP. Boundaries: Atlas hydraulic modelling covers only catchments above 500 km², so dambo flooding (34% of flood-prone land) is not fully captured; the CRA covers eight of 28 districts and not all priority sectors. DCCMS is sole custodian of weather and climate data and holds primary early-warning responsibility. NAP §3.1, §3.3, §3.4, §6.2.1.
10(b)	Planning	IN PLACE — with a scenario-basis gap	The NAP is itself the instrument. §6.4 is new: three phases nested in the MIP-I cycle, sectoral sequencing in Table 43, roles, resource mobilisation, capacity building, safeguards and risk analysis. District delivery through DDPs, DCCIPs and DEAPs. Gender-responsiveness is carried here: mandatory GESI assessments, 40% committee representation, Gender-Responsive Budgeting, 15% community earmark. THE GAP: no priority, function, solution, flagship or concept states the scenario it is sized against. NAP §4, §6.3, §6.4, §5.5.1.
10(c)	Implementation	PARTIAL — financed for 22 of 51 priorities	Seven named flagships with CAPEX, NPV, finance sources, sequencing and bankability steps (§5.5.2, new), reconciling to US$4,582.21m. Institutional pathway in §5.6: Climate Finance Unit, climate budget tagging, Adaptation/Resilience Facility, concessional credit lines, carbon-market readiness, bond framework, climate-risk premium line, CPEIR update. CONSTRAINTS: adaptation-weighted financing gap of 80–90% (about US$700m a year); 71% of BTR1 external climate finance committed not received; debt at 88% of GDP. NAP §5.4, §5.5.2, §5.6.
10(d)	Monitoring, evaluation and learning	IN PROGRESS — not yet operational	A National Adaptation MERL Framework has been developed and a candidate indicator set exists across process, output, outcome and impact levels, to be finalised as a parsimonious core set with Indicator Definition Sheets. No indicator, baseline or target values appear in the NAP. The NAP's position is sound — responsible institutions will establish baselines through the first measurement cycle rather than assign unsupported values — but the plan cannot yet be tracked against numbers. NAP §7.1, §7.2, §7.5.

2.3.3 Priority Systems and Nexuses

Malawi's NAP recognizes that adaptation priorities must focus on interconnected systems that are most affected by climate risks.[20] These include:

- Food security and agriculture to safeguard smallholder farmers, fisheries, and nutrition.
- Water resources and energy by building resilience in hydropower and irrigation-dependent systems.
- Ecosystems and biodiversity involving conservation of forests and ecosystems to sustain rural livelihoods.
- Human health and social systems to address climate-sensitive diseases and to strengthening public health systems.
- Human mobility and environment to address climate-induced migration.

[20] Malawi's National Adaptation Plan Framework.

Within these, critical nexuses[21] are highlighted:

- Water–Agriculture–Energy nexus, vital for an economy reliant on rain-fed agriculture and hydropower.
- Forests–Biodiversity–Livelihoods nexus, recognizing the interdependence between ecosystems and rural well-being.
- Health–Environment nexus, where climate impacts on diseases, sanitation and sexual reproductive health threaten human development.
- Migration-Environment-Climate nexus: climate change is impacting migration, displacement and relocation; however, related mechanisms (e.g. remittances, labour migration, or migration as adaptation) also enhance adaptive capacity.

2.3.4 Stakeholder Engagement

The NAP process has been highly consultative, engaging over 20 institutions including government ministries, parastatals, NGOs, the private sector, academia, and development partners. The objectives of these consultations were to explain and validate the NAP vision and guiding principles, secure stakeholder commitment, and identify emerging adaptation issues. These engagements emphasized the need for clear coordination, strengthened institutional arrangements and a country-driven definition of adaptation.

At subnational levels, District Councils, community structures, and civil society organizations were involved, ensuring that local realities inform national adaptation planning.

2.3.5 Moving Forward

A well-structured National Adaptation Plan anchored in the NAP Framework strengthens Malawi's climate resilience by consolidating climate-related policies and sector priorities into a coherent adaptation roadmap. Subsequent NAP enhancement cycles should progressively deepen sectoral Integrated Risk and Vulnerability Assessments (IRVAs), expand ecosystem coverage, refine indicators and implementation metadata and incorporate emerging evidence without delaying implementation of already validated priorities.

The adoption of the NAP Framework demonstrated Malawi's commitment to embedding adaptation in its national planning systems. With readiness funding already secured from the GCF, implementation steps were expected to accelerate, focusing on strengthening institutional capacity, knowledge systems, and multi-stakeholder coordination. The Framework established a foundation for Malawi to mobilize resources, monitor progress, and align with global processes such as the Paris Agreement and the Sustainable Development Goals, while responding to the country's pressing adaptation needs.[22]

[21] Global Water Partnership (GWP) Southern Africa, Malawi WEF Nexus Dialogue discusses the role of the WEF nexus approach in advancing socio-economic development (3 March 2020). Available at: https://www.gwp.org/en/GWP-SouthernAfrica/About-GWP-SAF/more/News/malawi-wef-nexus-dialogues-discusses-the-role-of-the-wef-nexus-approach-in-advancing-socio--economic-development/.

[22] https://sdgs.un.org/goals

CHAPTER THREE: CLIMATE RISKS AND VULNERABILITY ASSESSMENTS OF SECTORS AND ECOSYSTEMS IN MALAWI

The Climate Risk Assessment methodology began with early, sustained dialogue with government, non-government and community stakeholders across eight focus districts, carried out through two structured field missions. An inception field mission in October 2022 engaged key ministries[23] and included consultations with multinational agencies (UNDP and FAO), civil society (CISONNEC) and a field visit to Chikwawa District, to gather stakeholder perspectives and secure support for the NAP process. The outputs were validated by government through the Expert Working Group on Adaptation[24] and later updated alongside a set of Impact Storylines.

A second field mission[25] led by the Environmental Affairs Department carried out participatory risk assessments in all eight districts through workshops in each, combined with site visits to areas of climate stress and adaptation activity and consultations with affected communities and livelihood organizations. These findings were combined with the DCCMS' Climate projections for the Eight Agricultural Development Divisions[26] to produce the impact analysis and future risk assessments that make up the CRA.

3.1 OVERVIEW

This section provides a summary of key natural hazards and their associated socioeconomic impacts in Malawi. The country is particularly prone to adverse climate hazards floods, extreme heat, drought and storms. Droughts and floods, the most severe of these hazards, have increased in frequency, intensity, and magnitude over the past twenty years, with dire consequences on food and water security, water quality, energy resources, and sustainable livelihoods of the most rural communities. From 1979 to 2008, about 2,596 people perished due to natural disasters, and nearly another 21.7 million people were adversely affected.

Floods and droughts are the leading causes of chronic food insecurity, which is endemic in many parts of the country. According to the Internal Displacement Monitoring Centre (IDMC, 2025), there were 87 climate-related disasters (mostly floods and cyclones) within the period of 2008 - 2024. This directly and indirectly (through impact on food availability, economic shocks etc.) contributed to the displacement of 667,678 people. Cyclone Freddy in 2023 alone displaced around half a million people in Malawi (IOM, 2023) whereas Tropical Storm Ana in 2022 led to 109,359 people having to reside in 143 emergency camps (IFRC, 2022). It is estimated that 1.5 million girls are at risk of becoming child brides due to the impacts of extreme weather events caused by climate change (Chamberlain, 2017).

This NAP draws primarily on the national Climate Risk Assessment (CRA, 2024), which remains the reference source for hazard, risk and vulnerability data. The CRA is complemented by the

[23] 10-14 October 2022: MDAs including Land Resource Conservation, Environmental Affairs, Disaster Management, Agriculture, Water Affairs, Forestry, Fisheries, Gender, Health, and the Department of Climate Change and Meteorological Services (DCCMS, a core data partner).
[24] 8 December 2022.
[25] 13 July to 4 August 2023
[26] October 2023

Multi-Hazard Risk Atlas for Malawi (DoDMA, 2024), a nationwide probabilistic risk assessment prepared for the Department of Disaster Management Affairs. The Atlas models riverine floods, flash floods, strong winds and their compound occurrence, droughts, landslides and earthquakes across all 28 districts, and estimates losses under current climate and under two projected scenarios for 2061–2100: a low-emissions (SSP1-2.6) and a high-emissions (SSP5-8.5) pathway. Its results, expressed as Sendai Framework indicators, are used in this chapter to add national coverage and quantified losses to the CRA's eight-district evidence; where the two sources differ, the CRA is retained. Historical records compiled for the Atlas show that between 2000 and 2024 Malawi recorded 26 riverine flood disasters affecting over 2.5 million people and causing about US$503 million in damage, and seven droughts affecting more than 25.8 million people in aggregate (EM-DAT, in DoDMA, 2024). Both the observed record and the Atlas model identify drought as the hazard affecting the most people, and floods and strong winds as the leading causes of economic and housing damage.

The risk analyses focused on the impact of four main hazards **(Figure 11)** to the priority sectors in Malawi.

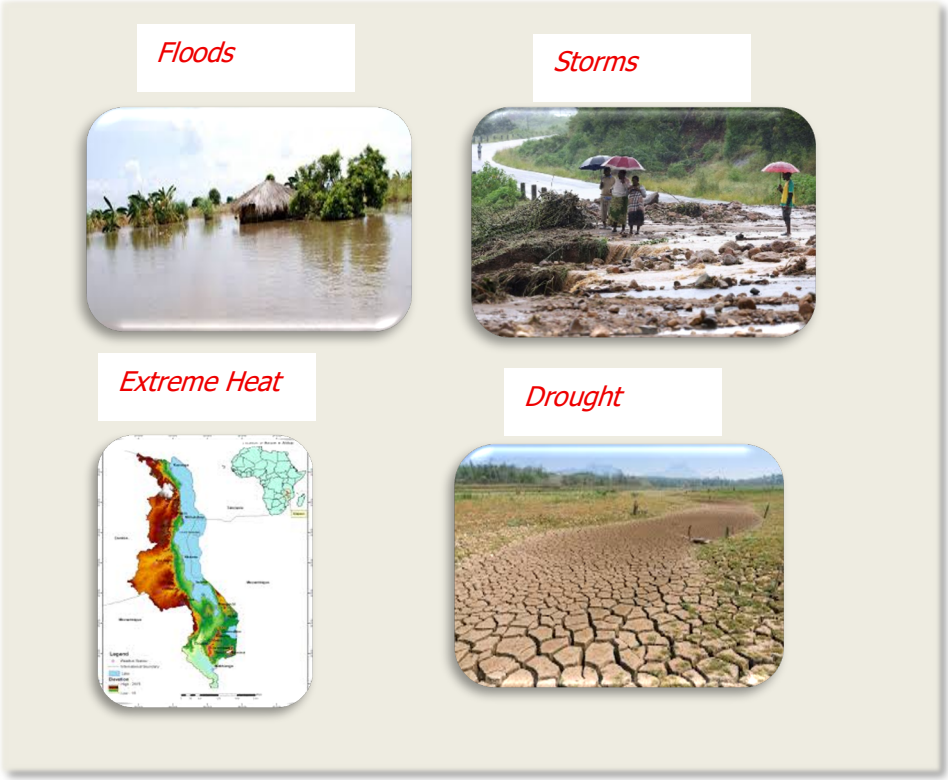


Figure 11: Main Climate Hazards in Malawi

Source: GoM (2024) Climate Risk Assessment Report

3.2 CLIMATE HAZARDS, RISKS AND VULNERABILITIES

Malawi is already experiencing climate variability and climate change impacts, including more frequent dry spells and heavy rainfall in recent years. These impacts manifest along two distinct but interacting pathways. Rapid-onset hazards such as floods, storms, cyclones and landslides strike suddenly, cause immediately visible damage and dominate disaster response and public attention. Slow-onset hazards and processes including drought and aridification,

rising mean temperatures, land and soil degradation, desertification, declining lake levels and biodiversity loss develop cumulatively over months, years or decades. Their damage is less visible at any single point in time but can be equally or more consequential for long-term food security, water availability and livelihoods (IPCC, 2022). Malawi can build economic and social systems that are better equipped to manage climate risk and secure a more resilient future by preparing for both pathways and the associated compound risks.

3.2.1 Rapid-Onset Hazards

3.2.1.1 Flooding

Since 2010 alone, Malawi has experienced 16 major flooding events and a rainfall-related landslide. Flooding is the natural hazard with the greatest impact on Malawi, often with disastrous consequences in terms of human health, housing, infrastructure and the economy; it can destroy crops thus driving up food prices and potentially leading to famine. Ten flood types have been identified and reflect diverse morphological, geological, and climatic settings, resulting and flood hazard maps have been produced for each type, which cover the entire country and highlight areas at risk based on flood type and magnitude. The total area exposed to flooding in Malawi is estimated at 16% of the country's surface area (around 15,000 km²).

Flooding, especially along the Shire River, poses a recurrent threat to people living in informal settlements and displacement camps. Poor drainage and inadequate housing reduce access to clean drinking water and exposes households to waterborne diseases such as cholera and typhoid. Children, the elderly and people with disabilities face heightened risk of injury during evacuation. There have been cases of women along the banks of Lake Malawi who, in times of limited income opportunities caused by floods, have been found to engage in transactional sex which are unsafe sex practices thereby exposing them to greater risk of HIV (Action Aid, 2006). Informal workers, including market traders and small-scale fishers experience loss of assets and income due to damaged infrastructure and disrupted transport routes. Migrant and displaced populations, already living in fragile conditions often endure repeated displacement with limited recovery support.

Flooding of plains along major rivers such as the Shire River, affects hundreds of thousands of people and accounts for approximately 37% (5100 km²) of Malawi's flood-prone areas. Flooding in *Dambo* areas account for 34% (4700 km²), and lake shores another 10% (1400 km²) (Garcin et al., 2025). Flooding has been identified as the hazard that causes the most damage to Malawi's social-ecological systems likely because as a rapid-onset event, its ramifications are immediately visible, whereas damage from a slow-onset hazard such as drought or desertification does not present such stark, visible processes of change although it can be just as impactful.

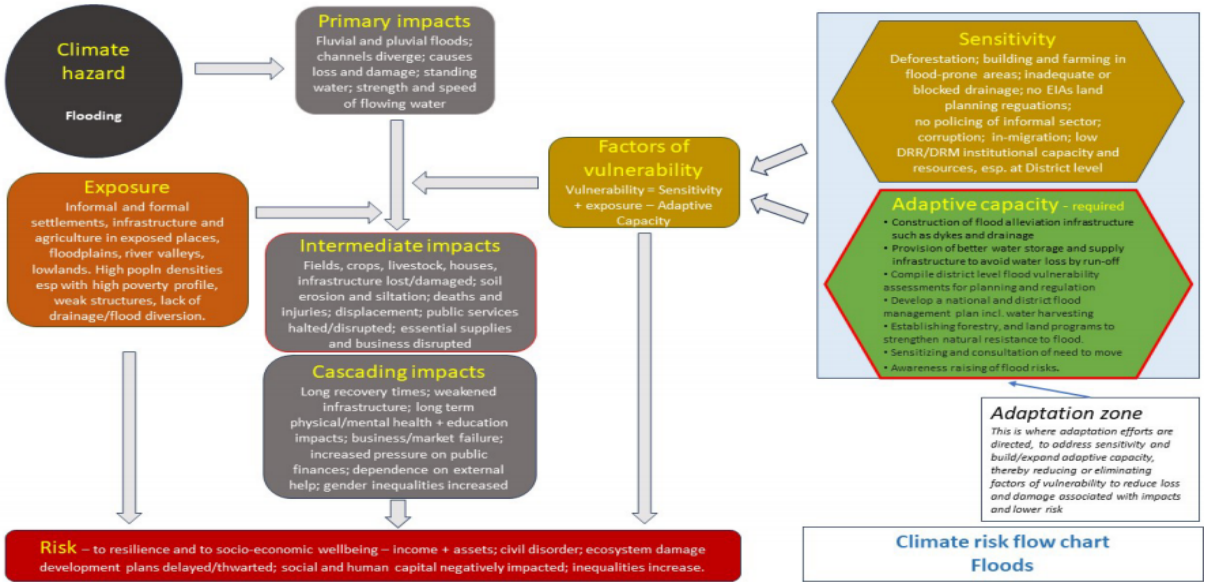


Figure 12: Climate Risk Flow Chart for Floods in Malawi

Source: GoM CRA Report, 2024.

Cyclone Freddy caused extensive flooding in March 2023 during the final landfall in Mozambique and Malawi. Malawi was especially hard hit with reports of 679 deaths. According to the United Nations in Malawi, the total recovery and reconstruction cost was estimated at USD 764 million, while the total disaster effect was USD 546.5 million. Floods have affected 17 of Malawi's 28 districts (UNOCHA 2023; UNEP 2024) with Chikwawa and Nsanje in the Lower Shire Valley being the worst affected **(Figures 14 & 15).** The low-lying areas along the Lake Malawi shoreline, especially in the Central and Southern Regions, are prone to recurrent flooding, with extreme rainfall expected to intensify in the 2030s and 2050s, exacerbating flood risks during the rainy season.

Floods stifle development at every level, affecting agriculture, health and sanitation, infrastructure, environment and education. While floods are a direct result of climate and extreme weather, the impacts of flood disasters are also a consequence of social and economic factors. High poverty levels mean people often lack access to land and work and are driven to settle in more exposed zones, and extensive deforestation increases run-off and overall flood risk (GoM, 2024) directly linked to land degradation processes.

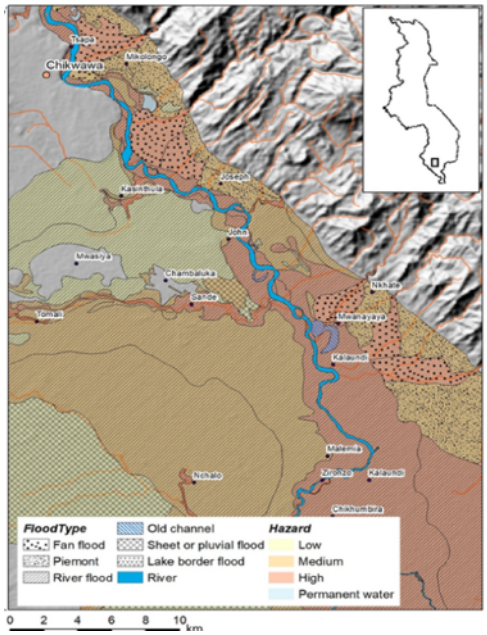


Figure 13: Flood hazard map of the area of Lower Shire

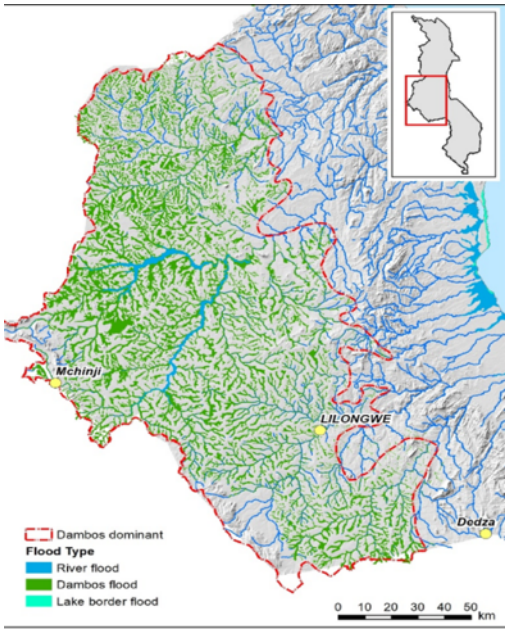


Figure 14: Map flood hazard areas linked to Dambos

Source: **Garcin et al., 2025**

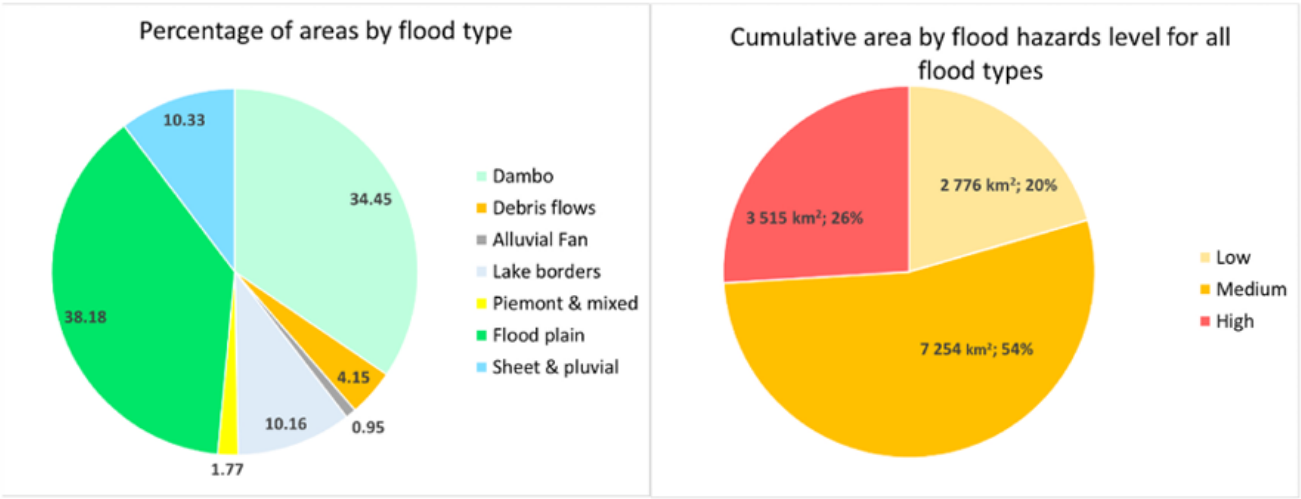


Figure 15: a) Percentage of areas by flood type and b) Cumulative area by flood hazard level for all flood types.

Source: Garcin et al., 2025.

The Multi-Hazard Risk Atlas (DoDMA, 2024) adds a probabilistic view of flood risk that is consistent with the CRA. Its riverine flood modelling, validated against 32 years of Landsat observations, confirms that flood-prone areas are concentrated along the lower Shire River in Nsanje, Chikwawa and Phalombe, while all major river systems, the lakeshore districts of Karonga, Salima and Mangochi, and urban centres such as Lilongwe are also exposed. Flood-prone areas are projected to expand even under the low-emissions scenario, particularly in the south. The Atlas estimates the average annual loss (AAL) from riverine floods at US$127 million under current climate, most of it in the housing sector (US$114 million), rising to

US$159.4 million under the high-emissions scenario. A flood with a 10-year return period can be expected to cause losses of around US$200 million, and under projected climate conditions losses of at least US$300 million become very likely. In terms of the number of people affected, however, both the historical record and the Atlas rank drought above floods.

Flash and urban flooding, driven by intense rainfall, rapid urbanization and inadequate drainage, carries a further AAL of US$60.3 million, which could rise to US$96.9 million under the high-emissions scenario; an event with a 10-year return period could cause losses of about US$100 million and a 25-year event close to US$200 million. The highest annual built-up losses from flash floods (more than US$4 million a year) are in Nsanje, Chikwawa and Phalombe, and the number of people affected is projected to increase substantially in Mangochi, Zomba, Mulanje, Phalombe, Salima and Dedza. The Atlas's hydraulic modelling covers only rivers with catchments larger than 500 km², so flooding along smaller tributaries, including many of the *dambo* areas identified above, is not fully captured; the CRA flood-type mapping therefore remains the reference for the extent of flood-prone areas.

Blantyre is among the areas most exposed to flash and urban flooding. It is listed among the current flash-flood hotspots in the CRA and Cyclone Freddy brought damaging flash floods to Blantyre and Zomba cities in March 2023 (DoDMA, 2024). Although no district-specific CRA was undertaken for Blantyre, the Multi-Hazard Risk Atlas also rates Blantyre City high for landslide losses. Nkhotakota, on the lakeshore, is exposed to riverine flooding and strong winds: it is among the districts with the highest share of roads, schools and hospitals affected by floods each year, and among the four districts with the largest numbers of people affected by compound weather hazards (DoDMA, 2024).

3.2.1.2 Storms and Cyclones

In 2019, Malawi experienced four cyclones, with Cyclone Idai among the most severe, affecting approximately one million people in the Southern Region. The cyclone destroyed over 300,000 homes, displaced 87,000 people, and resulted in 60 deaths. Heavy rainfall caused flooding in 15 of the country's 28 districts. Similarly, Cyclone Ana in 2022 affected nearly one million people, displaced more than 220,000 individuals, injured 206 people, and caused 46 deaths. Waterborne diseases remain prevalent in post-cyclone displacement sites due to compromised water and sanitation systems.

Cyclones significantly disrupt essential social services, including healthcare delivery, energy supply, transport networks, and food systems. Health system disruptions are particularly acute for sexual and reproductive health services, including maternal and newborn care, family planning, and protection services for survivors of gender-based violence. Damage to health facilities, supply chain interruptions and population displacement reduce continuity of care at a time when risks of maternal mortality, unintended pregnancy and GBV are heightened.

The Southern Region which is home to 75% of Malawi's hydroelectric power stations is especially vulnerable (CIF/CSF/World Bank, 2023). These patterns underscore the need for adaptation approaches that strengthen climate-resilient health systems, ensure continuity of SRHR and GBV prevention and response services during climate shocks, and integrate gender-

and age-responsive risk reduction measures within disaster preparedness and response frameworks.

Strong winds are not confined to tropical cyclones. Damaging winds also occur during the dry season as whirlwinds and with south-easterly high-pressure systems (DoDMA, 2024). On the 100-year return period hazard map, the most intense winds occur along the Lake Malawi shoreline in the north (up to 12–14 m/s) and in the central districts of Kasungu, Mchinji, Dowa and Lilongwe. Strong winds generate an estimated AAL of US$153.7 million, almost entirely in the housing sector (US$151.4 million), with the highest losses in Lilongwe, Kasungu, Salima and Mangochi, which lakeshore districts each record more than 50,000 people affected a year. Under the high-emissions scenario, wind intensity is projected to increase in the northern and central regions and to decrease in the south. Because a single storm can cause riverine flooding, flash flooding and wind damage at the same time, the Atlas also models these as compound events. Their combined AAL is US$341.2 million, rising to US$413.4 million under the high-emissions scenario, and the number of people affected by a 50-year event rises from about 500,000 today to 2 million under that scenario. Mangochi, Nkhata Bay, Nkhotakota and Salima are the most affected districts, with 50,000–100,000 people affected each year.

3.2.1.3 Landslides

The most vulnerable areas of Malawi to landslide risks are located in the country's highlands, mountains, and the isolated mastiffs of the Southern Region. Landslides often result from a combination of factors, most of which are not directly influenced by weather or climate (for example, terrain, tectonic activity, soil type, and land cover), except for intense or prolonged rainfall. Rainfall can trigger landslide events by saturating slope soils, therefore leading to slope instability and subsequent landslides. The conditions that produce landslide events can take hours or, in some cases, days to develop. The most devastating landslides in recent years include the 1991 Phalombe landslide, the 1997 Banga landslide, and the 2019 landslide event in Rumphi District (CIF/CSF/World Bank, 2023).

The Atlas (DoDMA, 2024) maps landslide susceptibility and hazard at district and slope-unit level. Susceptibility is highest in the southern highlands, with Mulanje and Zomba rated high to very high and Blantyre City, Chiradzulu, Phalombe and Thyolo high to moderate; mountainous areas in the North, including Rumphi, are also exposed. Recent events include the 2015 landslides in Phalombe and Mulanje following severe floods, landslides triggered by flooding in Chikwawa and Nsanje in 2019, and the Cyclone Freddy landslides of March 2023 in Blantyre and Chiradzulu, which swept away villages and killed dozens of people. Landslides larger than 0.5 ha carry an estimated AAL of US$65.1 million, mostly in housing. Mulanje bears the highest losses (more than US$5 million a year) and the largest number of people affected (1,000–2,000 a year), while Phalombe is the hotspot for larger landslides. The Atlas notes that deforestation, land degradation and poor watershed management amplify landslide risk, and that extreme weather events are projected to become more frequent and severe.

3.2.2 Slow-Onset Hazards

IPCC (2022) defines slow-onset events as the risks and impacts associated with increasing mean temperatures, desertification, decreasing precipitation, loss of biodiversity, land and forest degradation. For landlocked Malawi, the slow-onset spectrum most relevant to adaptation planning comprises drought and aridification, rising temperatures and declining freshwater lake levels.

3.2.2.1 Drought and Aridification

Drought is a slow onset hazard whose impacts accumulate over months to years rather than striking in a single event. Its damage is less visually dramatic than flooding and can be equally or more consequential for Malawi's social-ecological systems. The number and severity of drought events in Malawi have increased in recent decades with devastating consequences. The 2015–2017 drought alone left 6.7 million people people food-insecure, including 3.5 million children (DoDMA, 2024), and led to a significant reduction in hydropower production given Malawi's near-total reliance on Shire River hydropower. Most recently, the 2023–2024 El Niño-induced drought led the Government to declare a state of disaster in 23 districts (DoDMA, 2024).

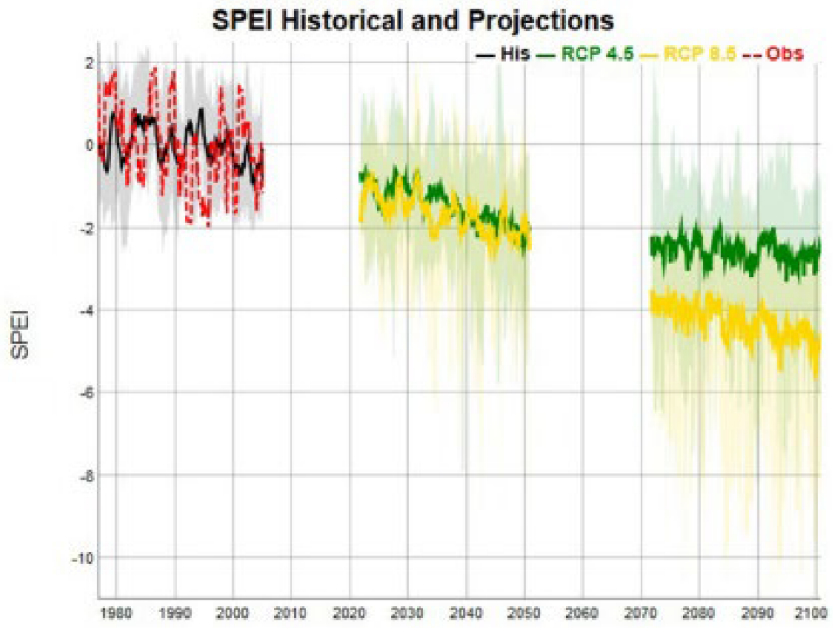
Drought impacts such as crop failure, livestock loss and widespread food insecurity disproportionately affect women and children who depend on rain-fed agriculture for subsistence. As water sources dry up, women and girls are forced to walk longer distances to fetch water, exposing them not only to physical danger but also to heightened risks of sexual assault and unwanted pregnancies, while further reducing time for education or their participation in various income-generating activities. Crop failure also drives up food prices, pushing households deeper into poverty and reducing their ability to afford essential social services such as health care and education. As families struggle to cope, girls are increasingly withdrawn from school, thereby compounding gender inequalities, and in some cases they are married off as a coping mechanism to reduce household economic pressure. Moreover, elderly and disabled persons are often left behind during migration in search of food or work, further deepening their vulnerability.

Malawi's CRA distinguishes meteorological drought (a rainfall deficit) from hydrological drought (a resulting deficit in surface and groundwater). Hydrological drought tends to follow meteorological drought after a lag of up to 24 months, is less frequent but more prolonged, and more than one meteorological drought may cumulatively produce a hydrological drought (Mtilatila, 2020). A noticeable increase in meteorological droughts occurred in Malawi between 1970 and 2013. DoDMA (2024) tracks the same progression through three complementary indices: the Standardized Precipitation Index (SPI) for rainfall deficits, a soil moisture anomaly index for agricultural drought and a standardized streamflow index for hydrological drought.

The CRA (2024) highlights the importance of considering the Standardized Precipitation and Evapotranspiration Index (SPEI) when seeking to identify drought risk in the future in Malawi as projections for changes in rainfall are so uncertain. Indications are that while overall rainfall totals may not be projected to change very much in the future, the distribution of rainfall will change to the extent that evapotranspiration rises and, therefore, the likelihood of deepe and

prolonged droughts is likely to increase (**Figure 16**). This represents the drought hazard risk together with an implied increase in the likely impacts of drought in terms of water availability and human security.

Drought affects more people than any other hazard in Malawi. The Atlas estimates that Lilongwe district has the highest number of people affected each year (100,000–240,000), followed by Kasungu, Mchinji, Dowa, Mangochi, Machinga and Thyolo (50,000–100,000 each). It puts the average annual direct agricultural loss from drought at US$158.2 million (range US$139.5–169.8 million), rising to US$204.6 million under the lhigh-emissions scenario and US$161.6 million under the low-emissions scenario. Maize, cassava and sweet potato account for most of the loss, and the pattern of risk intensifies in the Central Region under projected climate.



Source: **GoM CRA, 2024.**

Figure 16: The SPEI series for observations and the 16 bias-corrected GCM–RCM combinations and associated ensemble means for (i) the historical period 1976–2005, grey-ensemble members, black-ensemble mean.

3.2.2.2 Rising Temperatures and Heat Stress

Rising mean temperature is the slow-onset process that underlies and intensifies most of Malawi's other climate hazards and forms the backdrop against which all other climate change predictions for the country should be read. Mean temperatures are seen to have increased already by some 1.5°C between 1850 and 2020 and may rise by between 1.7 (SSP 2-4.5) and 4.5°C (SSP 5-85) by 2080. There will likely be an overall increase in the frequency and intensity of heatwaves. All models show an increase in the number of days with temperatures above 30°C (a threshold sometimes used to examine the sensitivity of maize to heat stress) and 35°C.

Maximum, minimum and mean temperatures are likely to increase across the country, especially during the hottest months of October and November and especially in those areas that already experience the warmest conditions such as the Lower Shire Valley including

Chikwawa District and also in the Lakeshore plain of Karonga District. There is high model agreement on temperature rise and increase in extra hot days and heatwaves. Malawi's CRA (2024) notes that there has been a drying trend in recent decades and projects a drying climate throughout the country in the future which will be more pronounced in the North and South, catalyzed by different climate drivers.

Residents of informal settlements in urban centres such as Lilongwe, Blantyre and Mzuzu are exposed due to overcrowding, poor ventilation and limited access to cooling or health services. Additionally, street vendors, construction workers and smallholder farmers face lost income and heat-related illnesses as working conditions worsen. Evidence also suggests that heat exposure during pregnancy increases the risk of perinatal mortality, particularly stillbirths, posing a significant threat to pregnant women and girls in a country with a high fertility rate.

As a slow-onset process, warming does not produce a single dramatic event but a cumulative narrowing of the conditions under which Malawi's ecosystems, agricultural systems and communities have historically operated. This is why, despite lower public visibility than floods and cyclones, it is treated in this NAP as a hazard of the first order, with knock-on impacts across virtually every sector.

3.2.2.3 Declining Lake Malawi Water Levels

Lake Malawi is the fourth-largest freshwater lake in the world by volume and the source of roughly 90% of Malawi's electricity supply via three hydropower stations on the Shire River. It is now subject to sustained decline in lake water levels, a slow-onset hazard specific to Malawi's geography. Since a stable, high-water period around 1980, the long-term trend in Lake Malawi's level has been one of decline, although the lake rose unexpectedly between 2021 and 2023 (reaching 475.93m asl in April 2023, its highest level since May 1980) as a result of three consecutive La Niña-influenced rainy seasons, before renewed drying is expected to resume the historical trend.

This volatility illustrates the wider risk. Evaporation from the lake surface already accounts for around 70% of its water losses, and deforestation in the lake's catchment has reduced the vegetation cover that once moderated run-off and evapotranspiration. Rising temperatures and more erratic rainfall are together projected to increase the frequency and severity of periods when the lake falls below the Lake Malawi Outflow Threshold (LMOT, 471.5m asl), the level below which no water passes into the Shire River (Bhave et al., 2022). Because Malawi generates 88% of its hydropower from the Shire River, a sustained fall below the LMOT would severely curtail electricity generation, causing prolonged power outages that in turn increase household and commercial reliance on charcoal and firewood for energy, which reinforces deforestation and land degradation pressures.

A drying lake also concentrates pollution and reduces oxygenated habitat in the lake's biodiverse but shallow surface layer threatening the fisheries on which many lakeshore communities depend and disrupts water supply for irrigation and domestic use along the lakeshore. Conversely, the highest-rainfall climate projections would cause the Lower Shire River to be flooded for between 5% and 20% of the time, far more than under baseline (1991–2020) conditions. As such, Lake Malawi's hydrology poses both drought-side and flood-side

risk depending on the climate trajectory realized. Infrastructure and livelihood planning around the lake and Shire River must therefore be designed for a wide range of future lake-level scenarios rather than a single expected outcome.

3.3 ECONOMIC AND FISCAL IMPACTS OF DISASTERS

The impacts of climate change impose large costs on the economy and on already vulnerable households. If Malawi stays on its current low-growth development trajectory, climate change could reduce GDP by 3–9 percent in 2030, 6–20 percent in 2040, and 8–16 percent by 2050 (**Figure 17**), Business as Usual, grey). The largest impacts from climate change are projected to come from damage to roads and bridges which reinforces what the country is currently experiencing in terms of large damage from climate shocks to infrastructure assets.

Heat impacts on labour productivity are also significant and point to compounding shocks on already poor and vulnerable households. The analysis finds that over the next 10 years, climate shocks on the economy could push another 2 million people into poverty (an increase in poverty rate by 8 percentage points), increasing to 4 million additional poor by 2040. The analysis also clearly demonstrates that development, as set out in MW 2063, provides a strong basis for strengthening resilience to climate impacts. If Malawi were to accelerate implementation of policies and programs envisioned in the MW 2063, the development trajectory would shift to a higher growth path and climate change impacts would be significantly reduced. Under this scenario, the magnitude and variability of the potential reduction in GDP from impacts of climate change are smaller: 3–7 percent in 2030, 3–9 percent in 2040, and 4–7 percent by 2050 (**Figure 17** MW 2063, blue).

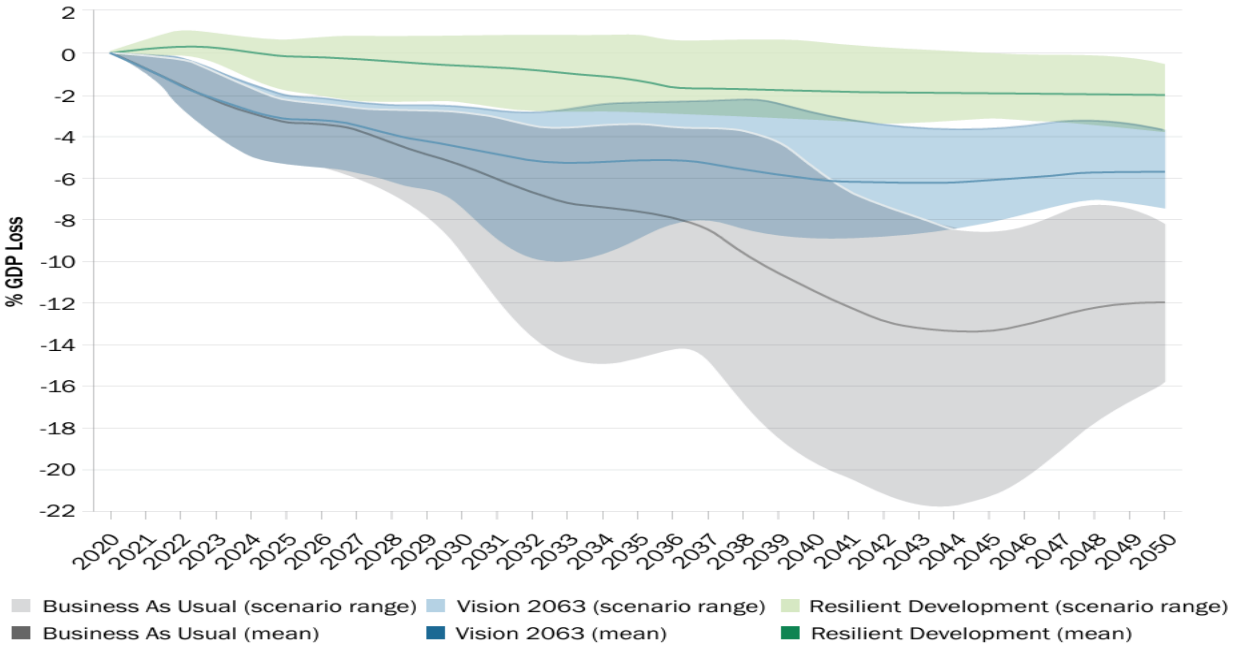


Figure 17: Climate change will impose large economic costs; development will strengthen resilience.

Source: World Bank Group (2022); Garcin et al. (2025)

By supporting higher-quality infrastructure and a more diversified economy, economic development is found to be one of the most powerful forms of adaptation. A push to achieve development objectives also protects the vulnerable from the impacts of climate change, in some cases reducing the households that would otherwise fall into poverty by as much as three-quarters.

Individual disasters already impose costs of this order. In 2016, drought related damages and losses to the economy amounted to US$ 370 million, which was equivalent to 5.6 percent of GDP. Droughts had the greatest impacts on agriculture (US$ 263 million), followed by the utility (US$ 14 million) and manufacturing sectors (US$ 6.9 million) (GOM, 2019). In addition, in 2015, damages and losses due to floods amounted to about US$ 335.0 million, equivalent to 5% of GDP with the sectors most hit being housing (US$ 139.0 million), agriculture (US$ 68.0 million), transportation (US$ 50.0 million), water and sanitation (US$ 26.0 million), education (US$ 12.0 million), health (US$ 12.0 million) and industry and trade (US$ 11 million).

The costs for repair and reconstruction of infrastructure placed an additional burden on the national budget. It is estimated that floods with a 20-year return period lead to a decrease of GDP by 3.2 percent while increasing government expenditure by 1.3 percent (GOM, 2019). Direct damages from Tropical Storm Ana, excluding infrastructure, are estimated at US$126–192 million, equivalent to 1.5–2.7 percent of Malawi's 2020 GDP. In addition, infrastructure damages are estimated at US$57–136 million, with the energy sector most severely impacted. This is due to damage to the Kapichira Hydroelectric Power Station, which accounts for 30 percent of the country's electricity generating capacity. Malawi is using an emergency World Bank operation to restore the hydropower infrastructure (World Bank, 2022).

DoDMA (2024) provides the first nationwide estimate of expected annual disaster losses across hazards (**Table 10**). Under current climate, the combined average annual direct economic loss from all hazards modelled is about US$597 million, of which US$409 million falls on housing, US$160 million on agriculture and US$7.6 million on critical infrastructure such as schools, hospitals and government buildings. Under the high-emissions scenario it rises to about US$672 million a year. Mangochi, Lilongwe and Salima bear the highest multi-hazard losses in absolute terms (US$30–40 million a year each).

The Atlas estimates direct damage to physical assets, most of which falls on housing, whereas the macro-economic projections above measure the wider effect on national output, where damage to roads and bridges weighs most; the two are therefore complementary. The modelled averages are also consistent with the observed cost of single events: agricultural losses in the 2016 drought (US$263 million) exceeded the Atlas's average annual agricultural loss from drought (US$158 million), as would be expected of a severe year, and the US$764 million in recovery needs after Cyclone Freddy exceeded the all-hazard annual average.

Table 10: Average Annual Loss by Hazard under Current and Projected Climate (US$ million per year)

Hazard	Current climate	Low emissions (SSP1-2.6)	High emissions (SSP5-8.5)	Of which housing (current)	Notes
Riverine floods	127.0	130.5	159.4	114.0	10-year event ≈ US$200 m; ≥ US$300 m very likely under projected climate
Flash floods	60.3	74.1	96.9	56.3	10-year event ≈ US$100 m; 25-year event ≈ US$200 m
Strong winds	153.7	107.0	157.2	151.4	Highest in Lilongwe, Kasungu, Salima, Mangochi
Compound fast-onset (riverine floods, flash floods, strong winds)	341.2	311.4	413.4	–	People affected by a 50-year event: 0.5 m today, 2 m under SSP5-8.5
Droughts (direct agricultural loss)	158.2	204.6	161.6	–	Range 139.5–169.8 (current); maize, cassava, sweet potato
Landslides (> 0.5 ha)	65.1	n.a.	n.a.	58.2	Highest in Mulanje, then Thyolo, Blantyre, Zomba, Phalombe, Mangochi
Earthquakes (non-climatic)	32.1	n.a.	n.a.	29.3	100-year event ≈ US$150 m
All hazards	596.6	613.2	672.2	409.2	Housing is the largest share for every hazard except drought

Source: DoDMA (2024), Multi-Hazard Risk Atlas for Malawi, Sendai indicator C1 (direct economic loss; C2 for droughts). Projected scenarios refer to 2061–2100.

3.4 CLIMATE RISK ASSESSMENTS

This section synthesizes findings from climate risk assessments at both national and sub-national levels for selected economic sectors in Malawi. Climate risk assessments provide evidence-based assessments of the risks climate change poses to the selection of sectors and identify pathways to strengthen resilience (**Table 11**). It should be noted, however, that the risk assessment is not covering all priority sectors of the economy, and expanding the scope and deepening the analysis should be a priority to ensure that all main impacts, risks and vulnerabilities would be covered to allow for more detailed adaptation planning.

3.4.1 National Climate Risk Assessments by Sector

Table 11: Sectoral Climate Risks Assessments

Sector	Hazards	Risks	Vulnerabilities	Impacts
Agriculture- Crop production	- Rising temperatures and heatwaves - Dry spells, droughts and reduced rainfall - Erratic and unpredictable rainfall patterns - Heavy rainfall and cyclones - Strong winds and storms	- create favourable conditions for pest infestation (maize stem borers, armyworms) - Spread of fungal diseases (maize rust, soybean rust, maize ear rot). - Enhanced evaporation & water shortage - Accelerated soil erosion and loss of fertile topsoil - Disrupted planting and harvest schedules	- Dependence on rain-fed agriculture. - Heavy reliance on climate-sensitive crops such as maize and soya - Limited adaptive capacity of smallholder farmers - Agricultural practices that leave soils exposed to erosion - Fragile infrastructure easily damaged by floods and storms	- Reduced/loss of crop yields and failures due to heat stress, water shortages and soil moisture deficiency - Biodiversity loss and reduced crop diversity - Increased food insecurity and malnutrition and weakened immunity among population especially children and pregnant women. - Damage to farm infrastructure such as wells, vehicles and housing - Soil fertility loss and reduced agricultural productivity. - Spillover of chemicals during floods -
Agriculture- Livestock	- Rising temperatures and extreme heat events - Droughts and prolonged dry spells - Floods and heavy rainfall - Shifting rainfall patterns - Changing climate regimes that favour invasive species	- Heat stress in livestock - Dehydration and poor health from water scarcity - Livestock losses; death, injury and displacement - Forage scarcity and reduced access to natural pasture - Spread of diseases - Disrupted migration and grazing patterns - Malnutrition and migration pressures rise in drought-prone areas like Balaka, Chikwawa and Nsanje	- Livestock with low coping capacity for high temperatures - Limited water storage infrastructure for herders and farmers - Dependence on natural pasture as the main forage source - Weak animal health systems and veterinary support - Reliance on traditional transhumance and open grazing systems - Limited access to climate resilient breed and feed alternatives - Lack of access to water and farmland by displaced persons exacerbates competition and social tensions in host areas.	- Reduced livestock productivity (milk, meat and eggs) - Increased animal mortality and reduced herd sizes - Decline in reproductive performance and birth rates - Economic losses and reduced livelihood security for livestock farmers - Malnutrition in livestock, weakening immune systems and disease outbreaks - Rising farmer-herder conflict over land and pasture. - Rising human-wildlife conflict over strained natural resources. - Increased hunger and malnutrition among children and the elderly. - Destruction of water sources for animals

Sector	Hazards	Risks	Vulnerabilities	Impacts
Fisheries and aquaculture	- Rising temperatures & heat - Heavy rainfall causing turbidity and fluctuating water levels - Stronger winds & storms - Introduction and spread of invasive species - Climate induced livelihood shifts (failed crops pushing people to fishing)	- Warmer waters leading to fish mortality and reduced reproduction - Disrupted fish migration patterns - Increased danger for small-scale fishers from stronger winds and high wave actions. - Loss of native species due to invasive species outcompeting indigenous food fish - Spread of diseases, parasites and pathogens in polluted or warming waters - Reduced fish stocks driving overfishing - Decline in ecosystem balance and services from degraded fisheries. - Loss of farmed fish to the wild through flooding - damage/scouring of pond infrastructure due to flooding - Water stress threatening seasonal aquaculture-based enterprises and investments	- High dependence of Malawian households on small-scale fishing - Use of fragile fishing boats and gears among artisanal fishers - High cost implications for monitoring and containment of the spread of pests and diseases, invasive species and restoration of the ecosystem health. - Communities already facing food insecurity and poverty have fewer options of sustained livelihoods. - Higher temperatures trigger algal blooms that in turn disrupt aquatic ecosystems thereby affecting fish spawning and breeding migration seasonality.	- Declining fish stocks and diversity leading to reduced catches - Loss of income and employment in fishing and related trade, especially for women. - Reduced household resilience when agriculture and fishing are simultaneously stressed - Collapse of fishponds or aquaculture systems from invasive species outbreaks - Knock-on economic losses at local and national levels from reduced fisheries output - Disrupted aquatic ecosystem balance affecting water quality and long-term sustainability.
Forestry	- Drought & prolonged dry spells - Extreme heat / rising temperatures - Erratic and variable rainfall - Heavy storms and strong winds	- Increased incidence & scale of forest fires especially Jul – Nov - High deforestation at 11,565 hectares annually;[27] 1 – 2.5%	- Heavy dependence on biomass (88.5%) for energy with power cuts pushing households to charcoal and wood fuel - Widespread illegal charcoal production	- Loss of forest cover, biodiversity and wildlife habitat - Reduced carbon sequestration (net sink of -915ktCO2e/year at risk) - Soil erosion and siltation of rivers, streams and lakes. - Reduced water availability and pressure on watersheds

[27] Ministry of Natural Resources (2026) Forest Turnaround Strategy, 2026 – 2036 (draft 2)

Sector	Hazards	Risks	Vulnerabilities	Impacts
	- Increasing frequency and scale of forest fires	annually, highest in Southern Africa.[28] - Forest degradation outpaces deforestation - More frequent and larger fires in dry season - Poor tree regeneration - Pest prone trees - Soil erosion - Loss of young trees undermining forest recovery.	- Southern Region's high population density and steep climate-impact gradient - Weak community forest management in high-degradation districts (Kasungu, Rumphi, Chikwawa) - Drought hit farmers resorting to charcoal burning for income	- Lost livelihoods from timber, non-timber forest products and ecotourism - Cyclic forest loss and worsening climate impacts.
Infrastructure	- Rainfall variability - Storms and flooding - Rising temperature and extreme heat - Drought and prolonged dry spells	- Disruptions to water supplies for households, health facilities and agriculture - Power outages from damage to hydroelectric installations and reduced water flows - Broken life-saving commodity (health) supply chains. - Cascading risks across sectors including agriculture, health, gender, education and business - Increased burden on government budgets and reduced investor confidence due to fragile infrastructure	- Heavy reliance on hydropower which is concentrated on the Shire River. - Much of Malawi's infrastructure is old or built without climate resilience standards - High proportion of population is reliant on pit latrines, vulnerable to flooding and collapse - Rural schools and health facilities often made with weak materials, easily damaged by storms - Limited capacity of relief systems to cope when schools double as emergency shelters - Dependence on imported fuel and fragile transportation networks for backup power	- Widespread service interruptions in water, power, education, health and sanitation. - Heightened spread of waterborne diseases including cholera and diarrhea due to sanitation failures and open defecation - Power losses affecting hospitals, clinics, businesses and industries - Damage to education systems when schools are destroyed or diverted as relief shelters - Livelihood and productivity losses due to blocked transport, reduced electricity and higher energy costs. - Increased poverty and reduced resilience as households, communities and sectors face cumulative disruptions - Diminished investor confidence and national economic growth due to recurring infrastructural shocks.
Health	- Storms destroying health posts, equipment, hospitals, medicine and collapsing structures, strained healthcare workforce.	- Worsening food insecurity and malnutrition & compounding health vulnerabilities	- Widespread dependence on fragile/weakly constructed infrastructure	- Increased morbidity and mortality from climate-linked diseases and hazards including maternal mortality - Malnutrition and stunting in children with long-term developmental effects

[28] CRA, 2024.

Sector	Hazards	Risks	Vulnerabilities	Impacts
	- Disruption of SRHR supply chains (contraceptives, lifesaving maternal commodities, HIV PrEP and PEP kits) - Climate shocks (floods, storms, droughts) disrupting primary healthcare services, including maternal neonatal, adolescent and reproductive health services. - Flooding causing drowning, injury, contamination of floodwaters, loss of medical supplies. - Drought leading to reduced hygiene, crop and livestock loss, and an increase in malnutrition. - Extreme heat increases risk of pregnancy complications and adverse birth outcomes. - Flooding and displacement increasing exposure to sexual and gender-based violence, sexual exploitation and abuse - Wildfires - Vector-borne diseases - Extreme heat	- Loss of access to critical healthcare during disasters - Increased maternal and neonatal mortality due to delayed or inaccessible emergency obstetric care. - Spread of infectious diseases - Displacement into overcrowded, unsanitary shelters heightening risk of outbreaks and gender-based violence and transactional sex. - Rising burden of non-communicable diseases linked to climate extremes. Insufficient national capacity to respond to medical health crises.	- High prevalence of chronic conditions such as HIV requiring uninterrupted treatment. - High proportion of adolescents and youth with limited access to youth-responsive SRHR services. - Pregnant and lactating women with increased nutritional and health needs. - Pre-existing gender inequalities, including child marriage, low decision-making power and high prevalence of GBV. - Poverty-related demand-side barriers limiting ability to pay for essential health services. - Reliance on climate-sensitive livelihoods that link food security directly to health. - Gaps in mental health services and limited public awareness or acceptance of care. - Structural poverty and limited resilience of households to shocks. - Weak data systems for sex, age and disability-disaggregated health data.	- Disruption of education and health services as schools double as emergency shelters - Deepening cycles of poverty as health crises erode productivity and income - Long-term mental health burdens with cascading effects on social cohesion and national development - Reduced national resilience as health systems already struggle under multiple and overlapping pressures. - Increased HIV incidence and teenage pregnancy rate.
Water	- Changes in rainfall patterns - Pluvial and fluvial floods - Dry spells and droughts - Extreme heat	- Reduced reliability of water supply for households, agriculture and energy - Water contamination from pollutants during floods, undermining safe supply - Power shortages from reduced hydropower flows - Increased competition and conflict over scarce water resources	- Heavy dependence on rainfall for water supply for domestic use, agriculture and hydropower - Limited water storage and treatment infrastructure - High reliance on freshwater ecosystems for livelihoods and biodiversity - Communities living in floodplains or drought-prone zones with few coping mechanisms	- Increased risk of water-borne diseases due to unsafe drinking water or contaminated water. - Unsafe hygiene and menstrual, maternal and HIV health complications. - Decline in agricultural productivity and livestock health from water stress - Power generation failures and electricity shortages

Sector	Hazards	Risks	Vulnerabilities	Impacts
		- Cascading risks to health, food security and economic productivity	- Weak sanitation systems easily disrupted by water shortages or contamination. - Dependence on unreliable urban water supplies exposes people living in informal settlements to water shortages and poor sanitation.	- Displacement of communities during floods that disrupts education, health services and local economies - Degradation of aquatic and terrestrial ecosystems with biodiversity loss and reduced ecosystem, services - Greater threats to human security as water scarcity and contamination undermine health and livelihoods. - Rural-urban migration leading to growth of informal settlements and increased pressure on urban services. - Rising child labour and gender inequalities including heightened risks of gender-based violence, school dropout and early marriages, especially for girls, as coping mechanisms in affected households.
Education	- Droughts (Six highly exposed districts; Nsanje, Ntcheu, Balaka, Chikwawa, Likoma, and Mangochi - Floods (Seven districts in flood prone areas; Nsanje, Chikwawa, Machinga, Zomba, Phalombe, Salima, and Nkhotakota	- Water supply interruptions from drought particularly Chikwawa (10%); Nsanje (11%) and Mangochi (8%). - Food insecurity in schools; Ntcheu (76% without coverage) risking malnutrition - Unpreparedness for drought shocks in highly exposed districts (Chikwawa, Mangochi, Balaka, Ntcheu, Likoma) increases likelihood of disruption to education.	- Geographical exposure i.e. Nsanje, Chikwawa and Mangochi schools are susceptible to shocks. - Weak infrastructure and systems due to limited water supply and absence of contingency planning - Uneven programme coverage given some districts like Chikwawa have 81% feeding coverage unlike in Ntcheu, thus systemic inequities in resilience. - Heavy reliance on national-level funding and limited local contingency planning increases vulnerability when aid is delayed or disrupted.	Access - Damaged school infrastructure leads to school closure, student displacement and school dropout, especially of girls. - Use of schools as emergency shelters - Recurring disruptions in highly exposed areas, thus higher dropout rates. - Households adopt harmful coping strategies such as early marriage and child labour especially in Phalombe, Machinga and Neno. - Disrupted education cycles especially for girls who go in search of water and sanitation facilities. Quality - Learning materials frequently destroyed by climate events - Teachers are displaced leading to psychological stress and loss of belongings thus reduced instructional quality - Overcrowding and weak infrastructure are worse in exposed districts since pupil-teacher ratios reach 70 to 74 compared to 61-63 elsewhere. - Exam performance and widened learning inequalities caused by Cyclone Freddy.

Sector	Hazards	Risks	Vulnerabilities	Impacts
				- Challenges with coordinating timely emergency response affects recovery and learning continuity. - Cumulative losses of USD 75.5 million caused by floods (2015-2023) was mainly in flood-prone districts - Tripled costs in recovery USD 12.4 million (2015) to USD 42 million (2023) - Limited climate resilience; a low-cost adaptation package (USD 18.51 per student) would require a 35.6% increase in per-student expenditure
Gender and Social considerations	- Floods, droughts and prolonged dry spells increasing scarcity of food, water, fuel and medicine - Extreme weather events disrupting schools, health facilities & safe shelters - Disasters intensifying household economic stress and social strain. - Heavy reliance on rainfed agriculture is influencing mobility decisions (rural-urban and cross-borders). - Food and resource scarcity disrupt migrant-host integration	- Women and girls carrying disproportionate care and household burdens during crises. - Increased exposure to gender-based violence, sexual exploitation and abuse at home and in temporary shelters. - Risks of dehydration and heat exhaustion especially for pregnant women. - Girls' education curtailed as they are withdrawn to provide domestic support or married off early. - Increased adolescent pregnancy linked to school closures, displacement and economic stress. - Women excluded from leadership roles and decision-making processes despite being key knowledge holders and agents of change. - Economic opportunities eroded as women divert	- Female-headed households with limited rights and access to resources - Lower access to education, early warning systems and adaptation knowledge - Social norms and systemic inequalities that restrict women's participation in decision-making and roles in leadership. - Limited access to, and control over land, income and productive assets. - Precarious reliance on small-scale trading subsistence farming or informal income streams. - Migrants and especially those displaced are disproportionately affected by climate change impacts (land ownership provisions, loss of assets, limited social networks), especially impacting women migrants. - Those without the resources to move to adapt to climate shocks to become "trapped	- Increased workloads and declining wellbeing for women and girls - Higher health burdens for women as caregivers and from direct exposure to unsafe conditions. - Food insecurity and malnutrition disproportionately affecting women-led households. - Stalled education for girls, reinforcing intergenerational cycles of inequality. - Early marriages, transactional sex, and exposure to violence increasing social health risks. - Lost economic productivity and resilience at household and community levels due to underutilized women's potential. - Exclusion of women and girls in national and subnational climate decision-making processes and leadership in climate action. - Reversal of gains in gender equality, adolescent health and women's economic empowerment. - Migrants and especially those displaced are disproportionately affected by climate change impacts (land ownership provisions, loss of assets, limited social networks), especially impacting women migrants.

Sector	Hazards	Risks	Vulnerabilities	Impacts
		time from business and farming to relief and care. - Pushing people in the informal sector and unmanaged migration to urban centers for livelihood diversification. - Increased competition for resources (food, fuel, basic provisions), threatening social cohesion in migration hotspots. - Reduced access to menstrual health supplies and dignity kits.	populations" with heightened vulnerability to future shocks. - High vulnerability to heat related illnesses for the elderly due to pre-existing health conditions and limited mobility. - Children and youth are more susceptible to heat stress, dehydration and missed school days. - Weak gender mainstreaming in national and subnational climate policies, plans and strategies. - Inadequate integration of gender-responsive climate action.	- Those without the resources to move to adapt to climate shocks to become "trapped populations" with heightened vulnerability to future shocks. - Increased mortality and morbidity among older persons and young children. - Increased vulnerability, lower adaptive capacity and weakened resilience for women and girls.

Source: GoM, Climate Risk Report, 2024; GoM, CRA for Education Sector, 2025

3.4.1.1 Agriculture Sector

The CRA (2024) identifies agriculture as central to Malawi's economy and food security, contributing approximately 30% of GDP and employing 80% of the economically active population. The sector is dualistic, comprising smallholder farms and large estates. Maize being the dominant staple crop covers over 92% of cultivated area and provides 54% of calorific intake for more than 80% of the population. Maize is highly climate-sensitive since rising temperatures and heat extremes reduce pollen germination and shorten kernel filling, while drought-sensitivity in early growth stages compounds yield losses. Climate projections point to 10–20% yield reductions by 2050–2100, concentrated in the Central Region where most of the national crop is grown. Maize output already fell 18.9% in 2021/22 due to drought, cyclones and fertiliser shortages, with 2022/23 losses compounded further by Cyclone Freddy.

Farmers are increasingly diversifying into more climate-resilient alternatives such as soy, legumes and groundnuts, though soy remains under-cultivated (2% of arable land) despite greater resilience to temperature increases, notwithstanding continued vulnerability to flood and inundation and to die-back above 35°C in the Lower Shire Valley. This shift carries the risk of continued reliance on volatile international markets for alternative cash crops which could undermine national food security. Women, who carry out 70% of agricultural labour and produce over 80% of subsistence crops yet hold only 32% of agricultural landholdings, remain disproportionately exposed to these pressures given unequal access to inputs, technology and markets.

Livestock, contributing under 40% of agricultural GDP, is similarly exposed, constrained by small average farm sizes (0.7 ha) that limit grazing and forage production. Heat stress reduces animal productivity and can be fatal for breeds lacking coping capacity, while drought drives water scarcity and forage die-back, and floods sweep away or injure animals and displace herds. Changing rainfall and drying conditions also disrupt transhumance and grazing patterns, heightening the risk of conflict between livestock keepers and crop farmers over scarce land. These conditions favour the spread of vector-borne disease and invasive, less nutritious forage species. Given the reliance of poor rural communities on livestock as a store of wealth and risk buffer, these pressures threaten to trigger chronic poverty where assets are lost.

Compounding hazards such as heat-driven pest and disease outbreaks, dry spells and erratic rainfall and increasingly destructive storms and flooding threaten crop yields, forage availability, soil integrity and farm infrastructure alike, deepening Malawi's exposure to food insecurity. Much of the Southern Region is currently classified in IPC Crisis Stage 3, and food consumption gaps and acute malnutrition are already evident. Because both crop and livestock production remain predominantly rain-fed, smallholder-based and reliant on limited extension support, production losses from extreme events pose a direct and compounding threat to livelihoods, animal health and the estimated 22% share of national GDP the agriculture sector contributes.

3.4.1.2 Fisheries Sector

The fisheries sector is an important source of rural income, food security and import substitution. It contributes around 4% to GDP and supplies 60-70% of the animal protein consumed nationally (CRA, 2024). Beyond its nutritional role, the sector provides direct and indirect employment to hundreds of thousands of people through fishing, processing and trading. Small-scale fisheries in particular remain a cornerstone of rural incomes across the country, with over 250,000 people directly dependent on fish resources in major fishing areas such as Mangochi, Salima, Nkhotakota, Nkhata Bay, Likoma and Karonga districts.

Climate change presents significant challenges to the sustainability of Malawi's fisheries. Rising temperatures, changing rainfall patterns, droughts and El Niño events are altering aquatic ecosystems, water levels and fish productivity. For example, Lake Chilwa dried up in 1990, devastating livelihoods across the basin. Lake Malawi which is a global biodiversity hotspot and home to 700-1,000 fish species has recorded declining water levels linked to rainfall variability (MoIWD, 2015). These shifts affect fish migration, spawning and species distribution, and iconic species such as *Oreochromis spp.* (chambo) and *Opsaridium microlepis* (mpasa) are under increasing pressure.

Projections indicate climate change could reduce Lake Malawi's water yield by nearly 9% in coming decades (Kaunda, 2016; Bhave et al., 2020) further affecting catches and community resilience. The changing water levels could have an impact on the type and amount of fish catches, regardless of the anthropogenic factors that have led to a significant decline in fish catches. For instance, substantial quantities of fish from Lake Malawi catchment which include the cichlids have diverged from the parent population over time in response to climatic conditions and fluctuating water levels. Rising temperatures, more frequent storms and flooding and increasing dry spells and drought now compound these existing pressures. They cause disruption to fish habitats, increase disease and extinction risk and degrade water quality through pollution and turbidity. These impacts cascade into other sectors, pushing more people toward charcoal production and further overfishing as coping strategies, deepening the sector's vulnerability.

Mitigating these risks calls for promoting and supporting aquaculture entrepreneurship and commercial investment, strengthening sustainable fisheries management and habitat conservation with local institutional involvement, and adopting climate-resilient fishing practices and technologies to build long-term resilience for fishing communities nationwide.

3.4.1.3 Forestry Sector

Malawi's natural resources and environment face growing pressure from climate change and unsustainable use. Weak institutional capacity and limited enforcement of policies have contributed to overexploitation. Women in particular, are disproportionally affected through energy poverty and reliance on degraded ecosystems for household needs (MGDS II Review Report, 2016).

The Forest Turnaround Strategy (2026) places the current Annual Deforestation Rate at 0.66% (approximately 11,565 ha/year). Forest cover fell from 3.9 million hectares in 1990 to

3.2 million hectares in 2010, with one of the fastest deforestation rates in eastern Africa (USAID, 2012). Drivers include farmland expansion, charcoal production and wood harvesting. This loss reduces biodiversity and weakens the natural safety net that many rural household rely on during food shortages.

Soil degradation compounds the problem, with annual losses of around 20 tons per hectare, cutting crop yields by 4%-25% (Coulibaly et al., 2015). These pressures undermine agricultural productivity and heighten vulnerability to climate shocks. Building resilience will require restoring forests and improving soil and water management.

On a positive note, Malawi has managed to develop an excellent array of polices and strategies, with a view to ensuring more sustainable use of the environment and natural resources, and better capacity to cope with climate change. The policies, however, need to be implemented and laws enforced. Overall, reflecting the Vision of the NAP, further work will be required on integrating forests and other natural resources and ecosystems into the NAP process.

3.4.1.4 Water Resources Sector

Malawi's water resources are increasingly under pressure from climate change as both floods and droughts are projected to intensify. Flooding can lead to siltation and debris buildup in large dams, reducing power generation capacity, while droughts reduce water availability for hydropower and cause localized groundwater depletion, making boreholes less reliable (USAID, 2012). The IPCC's Fifth Assessment Report (AR5) already shows impacts on freshwater ecosystems, including rising surface water temperatures in lake Malawi, which increase evaporation and water stress. By 2030, an additional 10,900 people may face river flood risks due to climate change and 12,400 due to socio-economic changes, compared to 14,400 affected annually in 2010 (WHO & UNFCCC, 2015).

Water plays a crucial role in agriculture, health, gender and livelihoods, yet current management practices are not adequate to handle future climate challenges. For instance, Malawi has an irrigation potential of about 471,000 ha, but only 21% has been fully developed (MGDS II Review, 2016). Expanding irrigation is key, as evidence shows that smallholder productivity could increase by 1.1 tons per hectare, and medium to large-scale farms by 2.0 tons with irrigation. The National Resilience Strategy, 2017 proposes to promote management systems and technologies that protect fragile land (riverbanks, dambo areas, steep slopes and hilly areas and water catchment areas).

At the domestic level, prolonged droughts lead to water scarcity, reduced access to clean drinking water and contamination, increasing illnesses like diarrhoea and cholera. Women and girls in drought-affected areas particularly experience unsafe hygiene and menstrual, maternal and HIV health complications. Water scarcity also intensifies gender inequalities and the risk of child labour. It particularly increases the vulnerability of girls and young women to gender-based violence, as they often carry the traditional gender role of water collection, which requires them to travel longer distances. Furthermore, water scarcity contributes to negative household coping mechanisms such as school dropout and early marriages, especially for girls.

On the other hand, floods from heavy rainfall may destroy water storage, health and sanitation facilities, safe shelters for protection and displace families thus increasing their vulnerability to waterborne diseases and gender-based violence risks. This impacts on overall health, livelihood and gender equality.

Freshwater ecosystems are also highly vulnerable. An increase of 5-8% (60-90 million ha) of arid and semi-arid land in Africa is projected by the 2080s (IPCC, 2008), which will further strain Malawi's aquatic ecosystems. These ecosystems are vital for biodiversity, portable water supply and fisheries but are already threatened by non-climate stressors such as overfishing and deforestation. Climate change will worsen these pressures, with negative consequences for fish stocks, biodiversity and livelihoods that depend on them. Addressing both climate and non-climate stressors together is therefore critical to safeguard Malawi's freshwater resources.

Malawi's protected wetlands anchor much of this freshwater biodiversity. Lake Chilwa, already discussed above for its 1990 drying event is one of Malawi's two Ramsar Sites of International Importance, designated in 1996; Elephant Marsh on the Shire River, designated in 2017, is the other. Alongside protected terrestrial and aquatic reserves such as Vwaza Marsh Wildlife Reserve, these areas provide ecosystem services such as water regulation, fisheries nurseries, flood buffering that are directly exposed to the climate pressures described in this chapter. Recognizing these designations explicitly and aligning their management with NBSAP III's wetland and protected-area targets under the CBD and the GBF would strengthen the NAP's contribution to GGA thematic target 9(d) and open a pathway to Ramsar/GEF-linked wetland financing alongside the climate finance sources discussed in **Chapter Five**.

3.4.1.5 Health Sector

Increased temperatures, droughts and floods will result in a range of direct and indirect impacts to health. Malaria is of particular concern to Malawi. As temperatures become warmer, it will become more suitable for breeding of mosquitoes even at higher altitudes, which historically have not been exposed to malaria. Additionally, Malawi has one of the highest rates of HIV/AIDS in sub-Saharan Africa. The disease has an effect on households' ability to cope with climate change by reducing available labour and income, reducing local knowledge and skill base and increasing healthcare expenditures. Climate-induced economic stress may further reduce household capacity to spend on health, leading to fewer visits to health facilities, delays in seeking care and increased reliance on traditional medicine. These dynamics can undermine access to a range of essential services, including HIV prevention and treatment, reproductive, adolescent maternal and child health care, and other preventive interventions, despite the considerable HIV prevalence rate nationwide. HIV/AIDS also increases the nutritional requirements of infected populations, increasing demand for food even as climate change enhances the pressures on food production (USAID 2012). Some of the world's most contagious infections are also highly sensitive to climate. Temperature, precipitation and humidity have a strong influence on the life cycles of the vectors and the infectious agents they carry and influence the transmission of water and food-borne diseases.

Heatwaves and air pollution are also growing threats. The elderly, children, pregnant women, the chronically ill, the socially isolated and at-risk occupational groups are particularly

vulnerable to heat-related conditions. On the other hand, over 95% of households rely on solid fuels for cooking, which exposes women and children to acute respiratory and chronic diseases. Household air pollution is responsible for more than 20,000 deaths in 2012 (WHO, 2012). Extreme weather events can also damage health infrastructure, disrupt supply chains and strain healthcare workforce capacity, while destruction of roads, water systems and communication networks further impedes access to services. In periods of displacement and economic instability, households may adopt negative coping strategies, contributing to increased exposure to violence, in particular gender-based violence and sexual exploitation, leading to higher rates of unwanted pregnancies and disease transmission, including HIV. Projections suggest that under both high and low emissions scenarios, around 34 million people could be at risk from malaria annually by 2070 (WHO & UNFCCC, 2015).

Expanding access to clean energy, water, sanitation and hygiene alongside improved healthcare services can minimize risks. Gender-responsive policies which prioritize women, children and vulnerable groups are critical to ensuring equitable adaptation and strengthening Malawi's health resilience (GoM, 2016; Irish Aid, 2018).

3.4.1.6 Infrastructure Sector

The infrastructure sector consists of several components, where communities living in built environments are impacted by higher mean temperatures and more intense weather events. This section focuses especially on energy and transportation aspects, and other infrastructure aspects, such as importance of green and blue infrastructure, will be further explored during NAP process.

a) Energy Sub-Sector

Economic diversification has been a challenge in Malawi that has affected the move to export-led growth. This would improve its foreign exchange reserves and allow for more public investment, including additional infrastructure (ICED, 2018). There are frequent and lengthy electricity shortages due to weak capacity and climate change; big issues for households and businesses, therefore the generation of power is increasing but distribution is not keeping pace with needs.

Malawi's energy sector, and in particular its infrastructure, is highly susceptible to climate shocks. The Shire River is the only outlet of Lake Malawi and is responsible for over 90 percent of the existing hydropower-generation capacity in Malawi (Bhave et al. 2019). This geographical concentration of Malawi's hydropower plants exposes the sector to losses from extreme events, such as flooding. For example, Tropical Storm Ana damaged the Kapichira Power Station, one of the three hydropower stations on the Shire River, reducing Malawi's power generation capacity by 32 percent. This resulted in prolonged power blackouts, lasting above eight hours per day at times. The GoM needed more than one year and a US$60 million loan from the World Bank to repair the plant and improve its resilience (Nzangaya 2023). Diversifying generation away from this single-river concentration, including assessing the hydropower potential of other perennial rivers beyond the Shire, alongside continued investment in solar and wind capacity, would reduce this exposure and strengthen the resilience of the wider energy mix.

Further, dependence on drought vulnerable hydroelectricity generation increases operating costs for firms, farmers and households. Inadequate coverage of irrigation (less than 3% as of 2015) is reducing the opportunities to move to a commercially based agricultural production. Alternatives to engineered irrigation, such as water harvesting and on-farm practices supplemented by small-scale irrigation structures, are insufficiently used. Malawi must become a 'land-linked country' rather than landlocked to ensure access to the international gateways through adequate infrastructure. Weak telecommunication infrastructure increases business costs, limits domestic and international trade and reduces access to finance (ICED, 2018).

That said, predicted changes to precipitation levels in Malawi are not expected to affect hydropower output significantly. Fant et al. (2015) find that Malawi is the least sensitive country in the Zambezi region to losses of hydropower generation due to change in general weather patterns (for example, excluding extreme tail events). Arndt et al. (2019) similarly do not find the implications of climate change for the Malawi hydropower output to be particularly large. This is in part because climate change is not expected to significantly affect precipitation levels in Malawi, and because Malawi is an upstream country within the Zambezi River Basin.

b) Transport Sub-Sector

Road transportation is the backbone to Malawi's socio-economic development by providing about 99% of passenger service; about 74% and 90% of the domestic and international freight movement in the country (Mmadi, 2023; World Bank, 2023; Atkins & Ernst and Young, 2017). The road network acts as a lifeline for rural areas, linking them to goods and services in other related sectors such as cities and urban centres, agriculture, health and water. Malawi has a road network of 25,000 kilometres, of which 28% constitute paved roads while the remaining 72% consists of unpaved, earthen roads. Their functionality is determined by weather seasonality. During dry periods, these roads are accessible, however, the situation deteriorates markedly in the rainy season, rendering these stretches difficult to traverse and, in some instances, completely impassable. Approximately 4,350 km of Malawi's classified road network is potentially affected by 1 in 50-year fluvial flooding events, of which 3,600 km (34%) is likely to be disrupted while about 1,400 km is assessed to be in poor condition and highly susceptible to heavy rain and flood (World Bank, 2023). Central East African Railways (CEAR) has made little investment to upgrade or repair, especially the two important rail links from Njingi to Nkaya and Blantyre to the Sena line in Mozambique.

Thus, climate change and more specifically the increased frequency and intensity floods significantly affects Malawi's road infrastructure causing increased damage to road infrastructure by increasing maintenance costs, especially for unpaved roads while higher temperatures could lead to faster degradation of paved roads (Mmadi, 2023). For example, World Bank Group (2023) estimates that climate change could increase the cost of building, operating, and maintaining Malawi's roads and bridges by US$100 million per year for 2036–2050 relative to historical levels. Further, Chinowsky et al. (2015) estimates that Malawi needs an annual average cost of US$165 million to repair its road infrastructure from climate change-related damages due to precipitation, temperature, and flooding under business-as-usual

scenario, translating to a 13% opportunity cost in total by 2050 (under median climate scenario) or a lost potential of expanding the existing paved road network or upgrading the existing unpaved roads by 3,530 km of paved road (Mmadi, 2023).

Overall, vulnerabilities to and impacts of climate change on the transport sector can be summarized as: susceptibility to erosion, flooding, and washouts of unpaved roads during extreme weather events; bridge and culvert failures due to intense rainfall and flash floods, which in turn disrupt connectivity and isolates communities, delays emergency services and hinders access to markets; urban drainage deficiencies brought on by poor drainage systems in cities like Lilongwe and Blantyre, hence exacerbated flooding and damaged roads; and, accelerated degradation of asphalt roads from rising temperatures, increasing maintenance costs and reducing road lifespan.

3.4.2 Synthesis of the District Level Assessments

The district-level climate risk assessments done for Chikwawa, Phalombe, Balaka, Salima, Dedza, Rumphi, Karonga and Kasungu provide a detailed analysis of climate-related hazards, vulnerabilities and potential impacts across Malawi. While each district experiences unique local conditions, there are overarching climate hazards that are common throughout the country, including rising temperatures, irregular rainfall patterns, heavy rainfall and flooding, and more intense droughts. These hazards interact with socio-economic and environmental vulnerabilities, affecting water resources, agriculture, fisheries, infrastructure, health, education and social systems. The country's susceptibility to these climate risks underscores the urgent need for adaptation measures to safeguard its economy and population against future climatic uncertainties. **Table 12** shows a summary of climate hazards and manifestation in the districts while **Table 13** provides a summary of climate risks per sector in districts in Malawi.

Table 12: Climate Hazards and Impacts in Districts

Hazard	Risk Manifestation and Impact in District(s)
Drought	- In the earlier decade most districts had positive or near-zero Standardized Precipitation and Evapotranspiration Index (SPEI) values, indicating relatively wet or balanced conditions. - Machinga recorded the highest average SPEI in the earlier period - In the recent period all districts show negative SPEI values, signaling increased aridity and water stress. - Nsanje, Mangochi and Balaka are the most affected districts with significant SPEI decline. - Findings indicate worsening drought conditions in Malawi over recent decades.
Floods	- Current flash flood hotspots include the districts of Nsanje, Chikwawa, and Blantyre, as well as Rumphi in the north. - Extreme rainfall is projected to increase in the coming years, which, in turn, would increase the risk of flooding, especially in the south of the region.
Tropical Cyclones	- Cyclone Freddy alone in 2023 affected more than 2,267,458 people, displacing 659,278 people and leaving 679 dead, 537 missing and 2,186 injured with most of the deaths recorded in the southern highlands, mainly due to landslides. - The districts along Lake Malawi have been the most affected by strong winds, and under projected climate scenarios, this number is expected to rise. - Districts affected by Tropical Cyclone Freddy registered high numbers of cholera cases in February 2023, with 5,191 of the country's 8,162 cases (almost 64 per cent) recorded across the 16 affected local authorities. - Importantly, cholera remains a serious concern in the country, with ten cholera outbreaks recorded since 2000 and over 3,500 deaths.

Hazard	Risk Manifestation and Impact in District(s)
Strong winds	- The districts along Lake Malawi experience the most intense winds (up to 12–14 m/s on the 100-year return period hazard map) and the largest numbers of people affected, with more than 50,000 people a year in Mangochi, Nkhata Bay, Nkhotakota and Salima. The highest wind-related losses to buildings are in Lilongwe, Kasungu, Salima and Mangochi. Damaging winds also occur outside the cyclone season, as dry-season whirlwinds and with south-easterly high-pressure systems. Under a high-emissions scenario, wind intensity is projected to increase in the northern and central regions and to decrease in the south (DoDMA, 2024).

Source: GoM, CRA for Education Sector, 2025; DoDMA (2024)

Table 13: Sector Climate Risks and District Prevalence

Sector	Risks	Districts where Present
Agriculture	Droughts/Dry spells Floods Extreme heat Crop failure Pests and diseases Soil degradation/erosion Reduced crop yields Water scarcity	Chikwawa, Phalombe, Balaka, Salima, Dedza, Rumphi, Karonga and Kasungu
Fisheries	Damage to fishponds/habitats Siltation of breeding grounds Overfishing Pollution Reduced fish stocks	Karonga, Kasungu, Phalombe, Rumphi, Salima
Forestry	Drought, heat and rainfall variability affecting forests; Climate-sensitive fire weather Pests and diseases Soil erosion and biodiversity loss Human-driven deforestation and forest degradation as non-climate stressors that amplify exposure, runoff, erosion and loss of ecosystem services.	All 8 districts
Infrastructure	Damage from extreme weather events Lake level and flood-regime changes Increased maintenance costs Transportation disruption	All 8 districts
Social Sector	Health impacts Food and water insecurity Livelihood and income losses Migration, displacement, forced immobility and planned relocation	All 8 districts

Source: **GoM CRA Report, 2024**

The Atlas includes a risk profile for every district, which allows the CRA's eight focus districts to be placed in national context. The two assessments point in the same direction. Drought is the hazard affecting the most people in six of the eight districts; riverine floods drive built-up losses in Chikwawa, Balaka and Rumphi; landslides are the leading cause of built-up losses in Phalombe, where the loss ratio is three times the national average; and strong winds lead in Kasungu and, with floods, in Dedza and Karonga. Salima has high multi-hazard losses of the

eight (about US$32.7 million a year) and more than 100,000 people affected annually, mostly by strong winds along the lakeshore. The Atlas also identifies hotspots outside the eight CRA districts, notably Mangochi (the highest multi-hazard losses nationally, about US$38.4 million a year), Lilongwe, Nkhata Bay, Mulanje (landslides) and Nsanje (riverine floods and drought). Extending district-level climate risk assessments to these districts should be considered in the next review of the NAP.

CHAPTER FOUR: PRIORITY ADAPTATION OPTIONS

4.1 OVERVIEW

This section covers the proposed priority adaptation actions and measures as per Malawi's agreed criteria on economic appraisal of cost benefit analysis. For each of the following sectors, the national adaptation priorities will be clustered into strategic actions as in **Tables 14** to **20**.

The priority adaptation actions in this chapter follow a single line of sight from evidence to implementation. The climate hazards, risks and vulnerabilities identified in **Chapter Three** are summarised as the priority issues at the head of each sector table. Each issue is addressed by one or more strategies and adaptation actions. Twenty-two of these strategies were appraised and costed through the National Economic Appraisal and CBA and form the NAP investment pipeline in **Chapter Five**. The sequencing of priority actions by phase is set out in **Table 34**, and progress is tracked through the MERL indicators in **Chapter Seven**. In total, the NAP identifies 103 adaptation actions across its seven sectors. The 22 costed measures are the subset with sufficient data for a full economic appraisal; the remaining actions remain part of the NAP and are to be costed and prioritised through sectoral and district planning and budgeting.

The NAP presents seven priority sectors: agriculture (crops and livestock), water (including water supply and sanitation), social (including health, social protection and human mobility), infrastructure (transport, energy and public buildings), forestry, fisheries and education. The structure follows the sectors identified through the CRA and consultations and used in the CBA. Health is presented as a distinct component within the social sector; presenting it as a standalone sector, as recommended by the NTCCC, should be considered at the first NAP review.

4.2 NATIONAL LEVEL ADAPTATION PRIORITIES

Adaptation plans should respond to climate projections, such as those presented in this report, alongside factors like vulnerability and exposure. These plans should also align with national development strategies, consider trends in the global economy, address socio-economic development goals, and account for the need to improve physical and psychosocial development and wellbeing, while remaining realistic and achievable. Adaptation can be categorized into five broad areas: i) enabling adaptive capacity; ii) building resilience; iii) replace harmful activities, iv) do things differently and v) do different things. These all lead to transformational change to, first, assure development to date and second, to fuel future positive development (**Figure 18**).

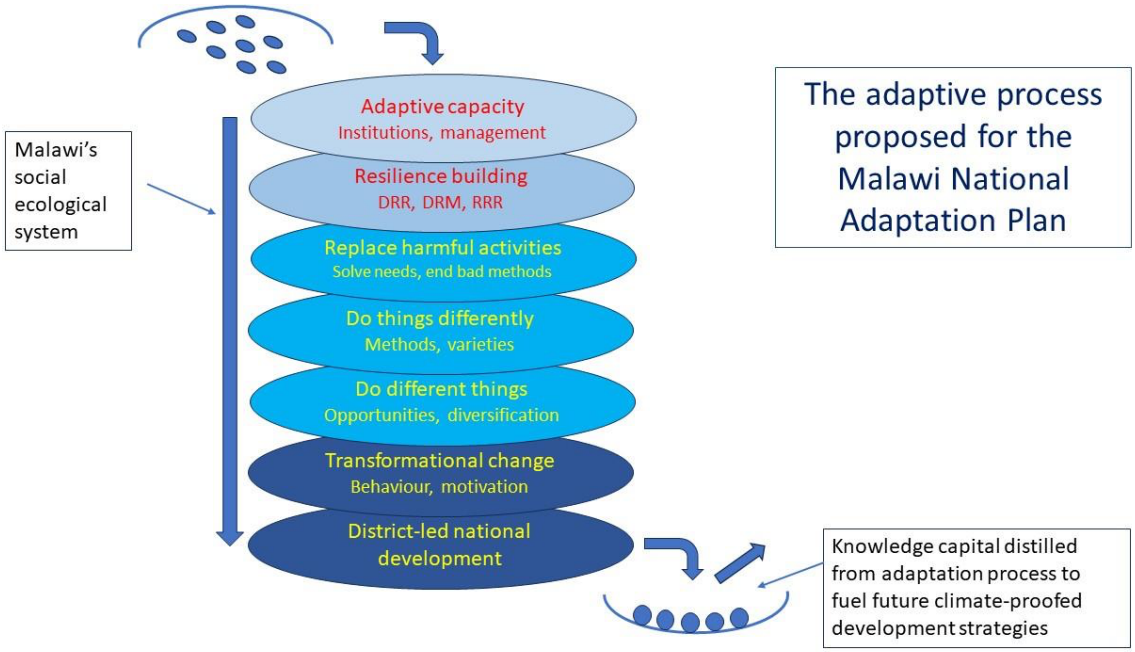


Figure 18: A flow diagram showing the adaptive process in Malawi as a set of juxtaposed filters through which adaptation passes in order to achieve transformational change leading to positive district-led national development in the face of increasing threats from climate hazards, thereby fuelling future development strategies.

Source: GoM, Adaptation Options Report 2024.

4.2.1 Agriculture

Agriculture is of central importance to the economy and human security of Malawi's 20.73 million people (NSO, 2025). In 2025, 34.4% of Malawi's GDP came from agriculture (NSO, 2025), while 80% of the economically active population are involved in agriculture, 59% women and 41% men. The agricultural sector in Malawi is dualistic, comprising smallholder farms and large estates. It is also closely linked to the water sector given that reduced water resources have a direct impact on agricultural outputs. The agriculture sector is composed of two sub-sectors: livestock and crop production.

Livestock both contributes to and is affected by climate change, especially in pastoral systems like those found in Malawi. For many, livestock serves critical economic and social roles but faces increasing threats from climate change, population growth, resource conflicts, and disease risks. Loss of livestock can worsen poverty for rural communities. To address these challenges, strategies include adopting better livestock practices, resilient breeds, disease early warning systems, and adequately resourced extension services. However, insufficiently trained staff are a common issue. Climate-smart agriculture and sustainable land management can also boost resilience and forage availability for livestock.

In crop production, extreme weather of any kind acting either alone in tandem or back-to-back can cause damage to natural ecosystems which do not have time to recover their balance before the next climate catastrophe strikes. This reduces habitats for beneficial insects, pollinators and other organisms beneficial for agriculture. The risk element centres on the worsening threat to yields and overall crop production by a combination of poor agricultural practices, over-exploitation of the land, lack of commercialization and mechanization crosscut

by climate change and extreme weather patterns that look set to exacerbate an already vulnerable sector. Adaptation options include climate smart agriculture, novel methods of soil management, climate resilient crop varieties, improved water management, and better disaster preparedness. **Table 14** highlights adaptation strategies in the agriculture sector.

Table 14: Adaptation Priorities for Agriculture Sector

Priority Issues in Agriculture Sector & Linked Adaptation Actions

- **Climate driven threats to livestock compounded by weak extension/ veterinary capacity**
- **Declining crop yields and productivity.**
- **Soil degradation and declining fertility.**

STRATEGY	ADAPTATION ACTIONS
Drought-tolerant Crops	1. Periodically update extension information with messages aimed at building farmers' adaptive capacity to climate change shocks. 2. Conduct demonstration sessions on drought-tolerant crop varieties
Afforestation / Reforestation	3. Increase tree cover on degraded, low-yielding cropland and pastures in agricultural landscapes through farmer-managed and assisted natural regeneration, direct seeding, agroforestry, crop rotation, etc.
Climate Smart Agriculture	4. Conduct capacity building (and/or refresher) sessions on CSA to all Extension Workers and Lead Farmers, cascading to the end-user farmer 5. Promote peer-to-peer transfer of climate-resilient farming practices that reduce vulnerability to climate variability. 6. Disseminate Climate Risk Maps in all Agro-Ecological Areas (AEAs) and generate the Maps where not available. 7. Strengthen Agrometeorological Services for Climate-Resilient Agriculture.
Conservation Agriculture	8. Strengthen Conservation Agriculture learning hubs that support widespread adoption of soil- and water-conserving practices to reduce climate-induced crop losses e.g. Farmer field schools. 9. Periodically update the curriculum for training Extension Workers/Agents in Conservation Agriculture
Improve Soil Fertility	10. Promotion of production of organic fertilizers and use of the same in targeted compost sites to increase soil carbon stock retention and reduce N_2O emissions. 11. Procure legumes and distribute other multiple impact crops for soil fertility and dietary improvement 12. Adopting use of Soil Fertility Monitoring Tools
Crop Diversification	13. Promote periodic research in alternative climate-suitable crop portfolios. 14. Identify and promote crop varieties that are better adapted to projected temperature increases and rainfall variability 15. Strengthen market access for climate-resilient crops to incentivize farmer adoption of diversified, climate-adaptive production systems
Animal Health and Livestock Development	16. Climate-proof livestock infrastructure (e.g. dip tanks, shelters, water points) to protect animals from climate-related stress and disease risks 17. Promote climate-resilient livestock breeds with improved tolerance to heat, drought, and disease. 18. Expand Drought-Tolerant Pastures (Napier and Brachiaria)

4.2.2 Water

Climate change and extreme weather jeopardiz water supply challenges specifically the reliability and sustainability of water supply systems. Enhanced evaporation induced by increasing temperatures, direct sunlight and lack of rainfall risks diminishing levels and volumes of water in lakes and other bodies risking water availability for lives and livelihoods

and supplies of water to power stations. This threatens power supplies to the country which depend almost wholly on hydroelectric generation. Diminished soil moisture, as a result of broken and diminishing rainfall patterns and enhanced evaporation exacerbated by deforestation, and reduced availability of surface water from surface water for irrigation impact agriculture, specifically crop production and livestock. As a result, already inadequate food supplies are reduced, with sharp price rises, risking food and health security which can only be solved by importing food from outside at great cost.

This priority area directly supports the GGA thematic target on water and contributes to the ecosystem and biodiversity target through catchment and wetland protection. It also aligns with NDC 3.0 water-resource measures on integrated watershed management, water-quality monitoring, IWRM and climate-risk planning, flood-risk assessment and early warning.

It is equally important to consider groundwater resilience and aquifer recharge, whose corresponding adaptation actions would include: establishing groundwater level monitoring networks; assessment of aquifer recharge rates and sustainable abstraction limits; development of groundwater abstraction control measures in stressed aquifers; and, establishing groundwater databases and abstraction inventories.

Strengthening these measures further, the water sector's early-warning systems should explicitly cover meteorological and hydrological monitoring stations, the generation and provision of scientific and climate information led by DCCMS, and complementary flood-risk mapping that links hazard extent to population exposure and vulnerability, informing land-use planning in flood-prone catchments. Institutional responsibility for this information is divided between DCCMS, which leads meteorological monitoring and forecasting, and the National Water Resources Authority (NWRA), which regulates and monitors hydrological data and, together with Catchment Management Committees, spearheads catchment management planning.

Groundwater development should also give explicit effect to the legal permitting and monitoring requirements for systematic groundwater abstraction under Malawi's water resources legislation. Beyond the community-based water-harvesting and WASH measures below, addressing water pollution will also require larger-scale wastewater and water-treatment infrastructure investment, particularly around the country's growing urban centres. Nationally occurring water shocks that do not cross international boundaries are addressed through this integrated catchment-management and governance framework, complementing the transboundary arrangements; and irrigation-related investments, while costed separately within their assigned sector to preserve the integrity of the national economic appraisal, are intended to be read together with the closely related irrigation actions under the agriculture sector.

Table 15: Adaptation Priorities for Water Sector

Priority Issues in Water Sector & Linked Adaptation Actions
• **Declining reliability of water supply arising from rising vaporization and reduced rainfall.** • **Reduced soil moisture and surface water for irrigation worsened by deforestation.**

- **Flood and drought risk in degraded catchments hence need for early warning systems and integrated catchment management.**

STRATEGY	ADAPTATION ACTIONS
Rainwater Harvesting	1. Install climate-resilient micro-catchments, check dams and storage tanks in drought-prone and flood-affected catchments 2. Train farmers on runoff capture and safe storage
Irrigation Schemes	3. Develop climate-resilient small-scale irrigation systems to reduce crop failure under erratic rainfall and drought. 4. Form Water User Associations (WUAs)
Access To Water and Sanitation (WASH)	5. Launch hygiene education campaigns
Expand Climate-Resilient Rural Water Supply Systems	6. Construct solar-powered boreholes in vulnerable districts
Implement Integrated Catchment Management (ICM)	7. Restore priority degraded catchments
Develop Medium-Scale Water Storage Infrastructure	8. Build sand/earth dams in dryland areas
Enhance Early Warning Systems for Riverine Flooding and Droughts	9. Establish flood and drought early warning systems
Build Capacity of Local Water User Associations (WUAs)	10. Train WUAs in Climate-Smart Water Planning

4.2.3 Social Sector

The social sector faces a growing set of climate-related risks that increasingly threaten human wellbeing, social stability and long-term development outcomes. Recurrent droughts, floods, extreme heat and storms undermine access to essential services such as education, healthcare, social protection, housing and community safety, while disproportionately affecting vulnerable groups. These hazards intensify existing socio-economic inequalities and strain already limited public resources. In turn, these inequalities weaken community resilience.

The social-sector priorities contribute directly to the GGA thematic target on poverty and livelihoods, including adaptive social protection, and to the cross-cutting equity considerations of the UAE Framework. Consistent with NDC 3.0, implementation should explicitly include women and girls, children and youth, older persons, persons with disabilities, displaced people, migrants in vulnerable situations and other groups whose exposure or adaptive capacity may differ.

Within this context, human mobility has emerged as a critical cross-cutting dimension of climate vulnerability and adaptation. Climate-related shocks and slow-onset changes are increasingly shaping patterns of displacement, migration and resettlement, particularly in districts prone to floods or drought. Recurrent or permanent displacement places additional pressure on host communities, heightens protection risks for migrants in vulnerable situations

and complicates the delivery of basic services. Climate-induced mobility additionally affects livelihoods and social cohesion, thus challenging government systems that are often designed around stable populations.

It is therefore crucial to identify climate risks in both the social and human mobility sectors and align them with targeted adaptation strategies that enable communities and institutions to anticipate and withstand climate shocks, while supporting safe and dignified mobility.

Table 16: Adaptation Priorities for Social Sector

Priority Issues for Social Sector & Linked Adaptation Actions • **Climate hazards disrupting access to essential services with disproportionate impact on vulnerable groups.** • **Deepening socio-economic inequality and strained public/social protection resources.** • **Climate induced human mobility straining host community and government systems.**	
STRATEGY	**ADAPTATION ACTIONS**
Healthcare System Strengthening	1. Upgrade health facilities in flood, heat and cyclone prone areas to withstand climate extremes and service disruptions 2. Implement climate-risk-focused community health preparedness campaigns for floods, heatwaves and disease outbreaks. 3. Pre-position emergency medical and nutrition supplies in flood prone districts 4. Establish climate-linked disease and heatwave early-warning systems.
Livelihood Diversification	5. Promote climate-resilient eco-tourism in degraded or climate-affected landscapes. 6. Facilitate market linkages for non-agricultural products 7. Facilitate Best Practices for Climate-Smart Agriculture to Women-Led Agriculture Cooperatives
Social Safety Nets	8. Expand shock-responsive cash-for-work triggered by floods, droughts and food insecurity. 9. Establish climate shock contingency funds for rapid disaster response. 10. Improve the sensitivity of Social Cash Transfer Program (SCTP) to lifecycle vulnerabilities and seasonal shocks
Resilient and Inclusive School Infrastructure Development	11. Construct and retrofit school infrastructure using climate-resilient and disaster-proof designs in vulnerable districts.
Emergency Preparedness Plans	12. Draft contingency and evacuation plans per district 13. Equip emergency shelters with water, power, and medical supplies 14. Train local disaster preparedness teams.
Internal Displacement	15. Identify vulnerable groups through household surveys 16. Expand climate-resilient WASH systems in IDP reception areas.
Migrants in vulnerable situations	17. Strengthen evidence-based planning
Trapped Populations	18. Promote local employment opportunities in high-risk areas 19. Support skills development and market access
Pastoralism and Transhumance	20. Strengthen evidence and monitoring of pastoralism and transhumance
Diaspora	21. Leverage diaspora capacities for climate adaptation
Planned Relocation	22. Promote participatory planned relocation in flood-prone districts
Refugees	23. Extend climate-resilient shelter pilots and solar-water systems to refugee camps.

4.2.4 Infrastructure

Malawi's infrastructure, including roads, bridges, and public buildings, faces increasing risk from climate change and extreme weather. Damaged structures are often not fully repaired before new storms hit, especially in the Southern Region and urban informal settlements. While some resilient roads are being built near Lilongwe, most of the network is already degraded and highly vulnerable to further damage. Old routes, such as the 797km narrow gauge railway and its bridges, are particularly prone to flooding without significant upgrades. To address these issues, Malawi should prioritize strengthening and upgrading existing infrastructure, improving disaster risk reduction measures, and promoting climate-resilient development. Further, all major physical adaptation interventions such as dam construction, irrigation infrastructure, and flood defence barriers shall undergo mandatory Gender Equality and Social Inclusion (GESI) Impact and Safeguard Assessments prior to project approval. Project designs must guarantee equal physical access, mitigate risk of gender-based violence or displacement, and establish a minimum quota of 40% representation of women, youth, and persons with disabilities on community asset management committees. International financial and technical support will be essential for successful adaptation and protection of critical infrastructure.

Table 17: Adaptation Priorities for Infrastructure Sector

Priority Issues for Infrastructure & Linked Adaptation Actions

- **Cumulative storm damage to roads and bridges especially in the Southern Region and urban informal settlements.**
- **Energy infrastructure highly exposed to floods, storms, heat with heavy dependence on hydropower and grid systems not yet designed for climate resilience.**
- **Gaps in disaster response and coordination.**

STRATEGY	ADAPTATION ACTIONS
Climate Resilient Transport **Infrastructure**	1. Mandate climate risk and vulnerability assessments for all National Transport Master Plan (NTMP) projects and programmes. 2. Update transport design standards to withstand projected floods, heat stress and extreme rainfall. 3. Integrate climate hazard scenarios into transport planning and investment decisions. 4. Construct climate-adaptive multipurpose dams to reduce flood risk and drought impacts on infrastructure.
Flood and Storm Defences	5. Construct flood protection infrastructure such as river embankments in high-risk river basins. 6. Rehabilitate urban drainage systems.
Upgrading and Maintenance	7. Adopt and implement demonstration projects using climate-resilient material standards, e.g. prefab.
Assessing vulnerability and integrating the findings into the Integrated Resource Plan	8. Conduct energy-sector climate vulnerability assessment to inform Integrated Resource Plan (IRP).
Develop standards for climate resilience of generation, transmission and distribution infrastructure, and off-grid systems including the integration of climate	9. Update the grid code to incorporate climate change considerations 10. Update the Mini-grid regulatory framework to include climate resilience measures

resilience into feasibility studies and grid codes.	11. Develop climate resilient standards for the generation, transmission and distribution infrastructure and off grid system
Develop standard procedures to coordinate responses to disasters affecting the energy sector, including a clear communication strategy between energy agencies and Department of Disaster Management Affairs (DoDMA), load shedding procedures, emergency repairs, and coordination with actions under the responsibility of DoDMA, including early warning systems	12. Develop disaster response procedures (with clear governance institutional structure with top management representation). 13. Map energy infrastructure exposed to floods, storms and heat.
Strengthen technical capacity to integrate climate resilience at all stages of the infrastructure life cycle	14. Prepare communication system/strategy on disaster warnings and ensure that all energy entities are working within the structure of the National DRM framework
Integrating energy storage into power generation and transmission	15. Prepare mechanisms on preparedness and response in line with ODSS Early Warning framework 16. Integrate energy/battery storage into power generation and transmission 17. Conduct grid studies for all prospective VRE projects 18. Develop Ancillary services market framework
Diversification of energy source from hydro source to other renewables	19. Reduce climate vulnerability of power supply through renewable energy diversification. 20. Expand decentralized and off-grid renewable energy systems for climate resilience. 21. Climate-proof energy infrastructure planning. 22. Enable climate-responsive energy policy and financing.
Strengthen grid infrastructure to withstand impact of climate change hazards	23. Migrate from wooden poles to steel/concrete powerline poles 24. Strengthen Climate and Weather Services for a Resilient Energy Sector.

4.2.5 Forestry

Forestry adaptation priorities respond to a compound-risk profile in which human-driven deforestation and forest degradation are major underlying stressors, while drought, heat, rainfall variability, erosion, pests and diseases, and climate-sensitive fire weather can further reduce ecosystem resilience. Accordingly, the priority sequence is to conserve and improve management of existing forests, restore degraded forests and landscapes, expand agroforestry and community-based management, and strengthen climate-informed monitoring and risk management. These priorities are consistent with Malawi's NDC 3.0, the National Forest Landscape Restoration Strategy and the National Resilience Strategy, while future sectoral risk assessments will refine targeting by forest type, location and forest-dependent population. Human-wildlife conflict arising from habitat loss, forest fragmentation and shifting wildlife ranges is also an emerging climate-related impact under this sector and should be monitored alongside these priorities as forest and landscape restoration progresses.

These forestry priorities also operationalize the ecosystem and biodiversity-related adaptation priorities set out in Malawi's NBSAP III and contribute directly to GGA thematic target 9(d) on healthy ecosystems and biodiversity. Restoration of native forest cover, agroforestry expansion and community-based forest and woodlot management under this section support NBSAP III's targets for forest ecosystem restoration and sustainable use of biological

resources and align with Malawi's commitments under the GBF adopted under the CBD in December 2022.

The national grid is affected by many power cuts and load shedding meaning that households rely on charcoal and wood fuel in the eventuality of being cut off from the power supply. Because climate change and deforestation are closely linked it becomes incumbent on decision makers to develop novel approaches to adaptation to solve the energy crisis in the country. To address these challenges Malawi has developed policy strategies and promotes reafforestation and afforestation programmes, sustainable forest management, agroforestry and conservation efforts. It is also recommended that community forest management is boosted.

Table 18: Adaptation Priorities for Forestry Sector

Priority Issues for Forestry Sector & Linked Adaptation Actions • **Deforestation and forest degradation compounded by drought, heat, rainfall variability.** • **Continued household reliance on charcoal and wood fuel accelerating deforestation and undermining biodiversity.** • **Loss of forest ecosystem services and forest dependent livelihoods.**	
STRATEGY	**ADAPTATION ACTIONS**
Sustainable Forest Management (SFM)	1. Scale up climate-resilient native forest restoration and tree-site matching in degraded conservation areas to buffer drought, floods and temperature rise.
Customary Afforestation & Reforestation	2. Scaling up climate smart natural regeneration programmes.
Community Based Forest Management (CBFM)	3. Restore forest cover on degraded customary land and nonarable land in agricultural landscapes by expanding area and improving management of village forest areas and woodlots through demarcation, strengthened community bylaws, and agreements for protection against uncontrolled cutting, grazing, and fire 4. Restore forest cover and improve management in deforested and degraded forests, including forest reserves, natural forests outside reserves, and plantations 5. Monitor enforcement of CFM by-laws and agreements 6. Conduct capacity building for Village Natural Resource Committees
Fire Prevention and Control	7. Install climate-informed wildfire detection systems. 8. Introduce firebreaks and early warning protocols 9. Strengthen the capacity of local communities in fire management
Pest and Disease Control	10. Establish biological control and pest management units.
Agroforestry Promotion	11. Scale up climate-resilient agroforestry systems across vulnerable farming landscapes. 12. Promote protective and climate-buffer forests prioritizing native and drought-resilient species.

4.2.6 Fisheries

Fisheries are a vital sector linked to livelihoods, food security and biodiversity. The sector was already endangered due to inappropriate methods, overfishing and lack of management/policing of the industry. Climate change and extreme weather such as warming waters, storms, floods, droughts and reduced lake levels are worsening these problems. These

risks threaten livelihoods, food security, and biodiversity, while increasing the chance of fish diseases and species loss. The interconnectedness between fishing and other sectors such as agriculture and forestry is revealed and intensified by the pressure exerted by these stressors acting together. To mitigate the risk of impacts on fisheries in Malawi, various strategies may be considered, including further promotion, education and start-up support for entrepreneurism in aquaculture and the encouragement of commercial operators in this sub-sector.

Table 19: Adaptation Priorities for Fisheries Sector

Priority Issues for Fisheries Sector & Linked Adaptation Actions • **Pre-existing overfishing and weak management worsened by warming waters, droughts and declining lake levels.** • **Threats to livelihoods, food security and biodiversity from fish disease and species loss.** • **Cross-sectoral pressure including sedimentation and runoff from agriculture and forestry compounding stress on aquatic systems.**	
STRATEGY	**ADAPTATION ACTIONS**
Sustainable Fishing Practices	1. Train fishers on gear selectivity and fishing seasons 2. Adopt best fisheries management practices that are responsive to climate variability and disaster risk.
Protect/Restore Aquatic Habitats	3. Restore community-led wetland/ sanctuaries. 4. Implement upstream conservation to reduce climate-induced erosion and sedimentation into water bodies.
Aquaculture Development	5. Construct fishponds with climate-resilient infrastructure. 6. Provide climate-smart agriculture extension using heat-tolerant and resilient species.
Reduce Pollution	7. Install waste control systems to protect climate-stressed aquatic ecosystems.
Monitoring and Regulation	8. Install systems to monitor climate impacts on fish stocks and lake conditions.

4.2.7 Education Sector

Some schools, particularly in the southern region, are located in areas highly prone to multiple hazards. This is notably the case for the districts of Nsanje and Chikwawa, for example, which are affected by both floods and droughts, compounding the challenges for educational planning and resilience. As of 2024, over 50% of all primary and secondary schools in Malawi were located in areas classified as having 'high' or 'very high' exposure to floods and droughts (GoM 2025, CRA for Education Sector). Additionally, 54% of primary and secondary students are enrolled in these districts. As extreme weather events are expected to become more frequent and intense due to climate change, this highlights the urgent need to implement climate-sensitive planning. Climate-change risks and vulnerabilities include interrupted access to schools, reduced enrolment numbers, lost learning and increased child marriage.

In addition to floods and droughts, strong winds and cyclones are a further hazard for the sector. Cyclone Freddy in 2023 damaged or destroyed school infrastructure across several affected districts, compounding the access and learning disruptions already described for this sector.

Table 20: Adaptation Priorities for Education Sector

Priority Issues for Education Sector & Linked Adaptation Actions • **High exposure of schools to droughts especially in districts like Nsanje and Chikwawa.** • **Compounding social effects of climate-driven disruption; reduced enrolment, lost learning and rising child marriage rates.** • **Institutional and curriculum gaps in education system on the subject of climate resilience and disaster preparedness.**	
STRATEGY	**ADAPTATION ACTIONS**
Strengthen the Resilience of the Malawian Education System for Equitable Access to Education	1. Strengthen the social protection system, including through implementing the school feeding programmes and rainwater harvesting.
Ensure Quality of Education in the Context of Climate Change and Disasters	2. Strengthen remedial lessons for equitable quality learning amidst climate challenges by reviewing, updating, implementing, and monitoring relevant guidelines 3. Enhance preparedness for climate and disaster resilience in schools by regularly conducting disaster drills and adjusting the school timetable 4. Establish early warning system for the schools/children. 5. Develop climate-proof learning continuity systems including digital backups for disaster-prone areas. 6. Build knowledge on climate change and sustainability by rolling out the revised primary and secondary curriculum and establishing climate change clubs in all schools 7. Include concepts related to climate change and environmental sustainability in teacher education and professional development by updating and making available in-service training materials and developing Continuing Professional Development (CPD) content on psychosocial support
Strengthen Effective, Efficient and Accountable Governance and Management of the Education System to Support Climate Change Adaptation and Environmental Sustainability Efforts	8. Enhance school safety through district and school-level planning for climate change adaptation and disaster risk management.

4.3 DISTRICT LEVEL ADAPTATION PRIORITIES

The district adaptation strategies presented in this section were identified through district consultations undertaken during the NAP process and were informed by DDPs, district risk evidence and other local planning instruments. They should be read as a menu of strategies identified across the eight assessed districts, not as a fully ranked investment list for every district. During implementation, each district should rank a manageable subset using local risk severity, feasibility, cost, co-benefits, institutional capacity and available finance.

Analysis across the eight assessed districts shows substantial commonality in the types of strategies identified, with local differences in risk severity, exposure, vulnerability and implementation capacity . The next step is therefore not to implement every listed measure everywhere, but to sequence and prioritize district-specific packages. Additional support should be directed to highly vulnerable districts and to districts where DDPs, DCCIPs, DEAPs, data systems or technical capacity are not yet sufficient to operationalize adaptation priorities. The NAP process should progressively extend comparable assessments to all districts.

In general, the greatest risk and matching adaptation options are in districts that are most remote from the capital and seat of government, not necessarily in distance but in connectivity. This is especially the case for the far northern district of Karonga and Phalombe in the south-east, in the Lake Chilwa Basin (where considerable poverty exists) which show the greatest risk and need for adaptation. Meanwhile, the lowest risk profile and, therefore the lowest expressed need for adaptation occurs in Dedza district which is also a district less affected by climate hazards but in which deforestation rates are high due to its close proximity to Lilongwe. **Table 21** shows the way in which impacts and risks have been linked to adaptation options, while **Table 22** summarizes adaptation options from four sample districts.

Table 21: District Adaptation Strategies across different sectors

Sector	Adaptation Strategies	Balaka	Chikwawa	Dedza	Karonga	Kasungu	Phalombe	Rumphi	Salima
Agriculture	Drought tolerant crops	✓	✓	✓	✓	✓	✓	✓	✓
	Afforestation/Reforestation	✓	✓	✓	✓	✓	✓	✓	✓
	Climate smart agriculture	✓	✓	✓	✓	✓	✓	✓	✓
	Conservation agriculture	✓	✓	✓	✓	✓	✓		✓
	Improve soil fertility	✓	✓	✓		✓	✓	✓	✓
	Rainwater harvesting	✓		✓	✓	✓	✓	✓	✓
	Irrigation schemes		✓		✓	✓	✓	✓	✓
	Crop diversification	✓	✓	✓	✓	✓	✓	✓	✓
Fisheries	Sustainable fishing practices		✓		✓	✓	✓	✓	✓
	Protect/restore habitats				✓	✓		✓	✓
	Aquaculture development					✓	✓	✓	✓
Forestry	Sustainable forest management	✓	✓	✓	✓	✓	✓	✓	✓
	Reforestation	✓	✓	✓	✓	✓	✓	✓	✓
	Community forest management	✓	✓	✓	✓	✓	✓	✓	✓
	Fire management		✓		✓	✓	✓	✓	✓
Infrastructure	Resilient infrastructure	✓	✓	✓	✓	✓	✓	✓	✓
	Flood management	✓	✓	✓	✓	✓	✓	✓	✓
	Early warning systems	✓	✓	✓	✓	✓	✓	✓	✓
Social Sector	Awareness and education	✓	✓	✓	✓	✓	✓	✓	✓
	Livelihood diversification	✓	✓	✓	✓	✓	✓	✓	✓
	Access to services	✓	✓	✓	✓	✓	✓	✓	✓

Sector	Adaptation Strategies	Balaka	Chikwawa	Dedza	Karonga	Kasungu	Phalombe	Rumphi	Salima
	Social safety nets	✓	✓	✓	✓	✓	✓	✓	✓

Source: GoM (2024) Adaptation Options Report.

Table 22: Summary of risks and corresponding adaptation strategies across different sectors for the 8 districts

Source: GoM (2024) Adaptation Options Report.

Sector	Risks	Adaptation Strategies	Districts where Present
Agriculture	Droughts/Dry spells Floods Extreme heat Crop failure Pests and diseases Soil degradation/erosion Reduced crop yields Water scarcity	Drought tolerant crops Afforestation/Reforestation Climate smart agriculture Conservation agriculture Improve soil fertility Rainwater harvesting Irrigation schemes Crop diversification	All 8 districts
Fisheries	Damage to fish ponds/habitats Siltation of breeding grounds Overfishing Pollution Reduced fish stocks	Sustainable fishing practices Protect/restore aquatic habitats Aquaculture development Reduced pollution Monitoring and regulation Research on resilient species	Karonga, Kasungu, Phalombe, Rumphi, Salima
Forestry	Deforestation Forest fires Pests and diseases Soil erosion Biodiversity loss Reduced productivity	Sustainable forest management Reforestation Community forest management Fire prevention and control Pest and disease control Conserve genetic resources Agroforestry promotion	All 8 districts
Infrastructure	Heat stress in built environments Flood, storm and landslide damage Freshwater level and flood-regime changes Drainage failure Increased maintenance costs Transportation and essential-service disruption.	Climate-resilient infrastructure Flood and storm defenses Early warning systems Emergency preparedness plans Robust materials Upgrading and maintenance	All 8 districts
Social Sector	Health impacts Food and water insecurity Livelihood and income losses Displacement and migration	Healthcare system strengthening Access to water and sanitation Livelihood diversification Social safety nets Awareness raising and capacity building	All 8 districts

Table 23: Summary of Adaptation Options in Sample Districts

District	Vulnerability Factors	Priority Adaptation Options
Chikwawa	- Deforestation - Weak infrastructure - High rates of poverty and malnutrition - Reliance on rain-fed agriculture - Limited economic diversification	1. Reforestation programs using drought-tolerant species to restore degraded areas and stabilize riverbanks. Promoting agroforestry also integrates trees into farming systems, enhancing resilience. Providing clean cooking alternatives like efficient stoves and solar power reduces dependence on fuelwood. Strengthening monitoring and law enforcement deters illegal logging. Establishing community woodlots sustains local wood fuel supply.

District	Vulnerability Factors	Priority Adaptation Options
	- Low adaptive capacity of communities - Irrigation schemes - Crop diversification	2. Climate-proofing infrastructure through flood protection measures for roads, improved drainage systems, disaster shelters, relocation of at-risk settlements, structural standards enforcement via permitting/inspection, and retrofitting of critical facilities like hospitals to maintain service continuity during extremes. 3. Diversifying livelihoods beyond climate-sensitive agriculture through skill training programs and enterprise development. Additionally, promoting climate-smart agriculture using resilient practices and stress-tolerant seed varietals reinforces productivity. Small-scale irrigation infrastructure provides buffer against rainfall variability. Food storage systems like community grain banks cushion against crop failure impacts. Index-based crop insurance also helps smallholders transfer climate risk. 4. Enhancing adaptive capacity via early warning systems upgrade, mainstreaming adaptation into development plans and budgets, facilitating vulnerable groups' access to climate risk financing for investing in resilience measures, investing in human capital through education and skills training, establishing community adaptation committees to drive local action expanding weather monitoring infrastructure and advisories, and scaling up awareness campaigns.
Balaka	- Natural system changes - Deforestation - Poor infrastructure development - Natural system changes - Deforestation - Inefficient resource use - Overreliance on the agriculture system for livelihood - Lack of community grain banks or strategic grain reserves - High adoption of livestock species that are less drought tolerant - Low investments in irrigation infrastructure	1. Climate resilient infrastructure development 2. Crop insurance schemes to cushion farmers 3. Supporting women and other vulnerable groups with skills development and entrepreneurship trainings to diversify income sources 4. Establish community grains or seed banks. 5. Promote investments in climate sensitive irrigation agriculture 6. Develop dams for multi purpose use 7. Adopt sustainable and efficient energy technologies and use 8. Promote livelihood diversification 9. Conservation agriculture adoption and scaling 10. Agroforestry to provide shade and cooling 11. Improved animal housing 12. Integrate indigenous knowledge in planning 13. Strengthen local and formal institutions in climate information services 14. Invest in research and development in climate smart agricultural crop varieties and livestock species.
Phalombe	- Floods - Drought and Dry Spells - Vulnerability and Exposure Factors - Deforestation - Poor Agricultural Practices - Poor Infrastructure Planning - Undiversified Livelihoods	1. Strengthening natural systems to support comprehensive agricultural production as well as providing insurance schemes to shield farmers from economic losses. 2. Extensive training programs are envisioned to educate farmers on the advantages of conservation agriculture. Thereafter, providing essential resources like tools, seeds, and technical support will be pivotal in facilitating the uptake of these practices. Establishing demonstration plots serves as a tangible means to showcase the effectiveness of conservation methods, encouraging farmer participation through practical, peer-learning experiences.
Salima	- Deforestation - Non-climate Smart Aquaculture - Non-flood resilient structures - Shallow ponds - Weak infrastructure - Poor land use planning practice - Poorly constructed ponds - Fish landing sites along the flood prone areas	1. Promotion of reaforestation programs 2. Use of disease resistant plants 3. Putting up food reserves 4. Crop diversification 5. Proper land use and planning 6. Storm resilient houses and structures 7. Training of rescue experts 8. Siting fish landing sites away from flood prone areas

District	Vulnerability Factors	Priority Adaptation Options
	- Building in the flood prone areas - Fishing without life jackets - Infrastructure designs that are not friendly to heat waves. - Overgrazing - Destruction of wetlands	9. Enforcement of land use bylaws 10. Having food reserves 11. Intensifying early warning signs

Source: GoM, Adaptation Options Report, 2024.

District level adaptation in Malawi must remain rooted in community priorities, as it is households, schools, farmers and local institutions that experience the direct impacts of climate hazards. While the hazards are broadly similar across the country, the risks and vulnerabilities they generate vary by district. Strengthening resilience therefore requires tailoring actions to local contexts, while ensuring that communities are active participants in planning and implementation. When district adaptation plans are grounded in community needs , they address both immediate risks and build long-term resilience to protect livelihoods and create pathways to sustainable development.

Although the district assessments focused on largely rural districts, the adaptation strategies apply in both rural and urban settings, and urban risks require explicit attention. The Multi-Hazard Risk Atlas places Lilongwe among the three districts with the highest multi-hazard losses and Blantyre City is exposed to flash floods and landslides. Informal settlements in Lilongwe, Blantyre and Mzuzu are also the most exposed to heat and flooding. Urban priorities include rehabilitation of urban drainage, climate-resilient housing and building standards, heat-sensitive design and safeguarding water and sanitation services. City Councils should integrate these priorities into urban development plans. Under the Physical Planning Act (2016), climate risk information such as flood and landslide hazard maps should also inform spatial and land-use planning in both urban and rural areas, including restrictions on development in high-risk zones.

CHAPTER FIVE: FINANCIAL RESOURCES AND BUDGETING

5.1 OVERVIEW

This chapter establishes the adaptation financing baseline, needs and gaps. It will also identify the possible financing window for climate change adaptation in relation to how much and where financial support is already being mobilized (from all sources including national budgets) to help calculate financing gaps.

It is important to note that the Cost Benefit Analysis widely referenced in this NAP was developed within the project '*Advancing the NAP process: climate resilience for sustainable development in Malawi*.' It applied a detailed economic appraisal that assessed Net Present Value, Benefit-Cost Ratio and payback period to 22 priority adaptation measures already identified through Malawi's CRVA across five sectors: agriculture, fisheries, forestry, infrastructure and the social sector. Its purpose was to provide an evidence-based costing of a subset of national priorities, to guide investment decisions and alignment with financing sources such as the Green Climate Fund. The CBA should therefore be read as a complementary technical input feeding into the NAP's financing chapters, rather than as the process that produced the NAP's own, broader set of priority adaptation measures.

5.2 REQUIRED FINANCIAL RESOURCES

Malawi loses an average of 1.7% of its GDP annually as a result of climate change-related disasters, predominantly floods and droughts (GoM, updated NDC, 2021). An economic vulnerability and disaster risk assessment conducted by the Global Facility for Disaster Reduction and Recovery (GFDRR) found that yearly flood damages in the Shire River basin, which is the country's most flood-prone area, account for an average GDP loss of 0.7%. Drought conditions elsewhere contribute to an additional 1% loss annually.

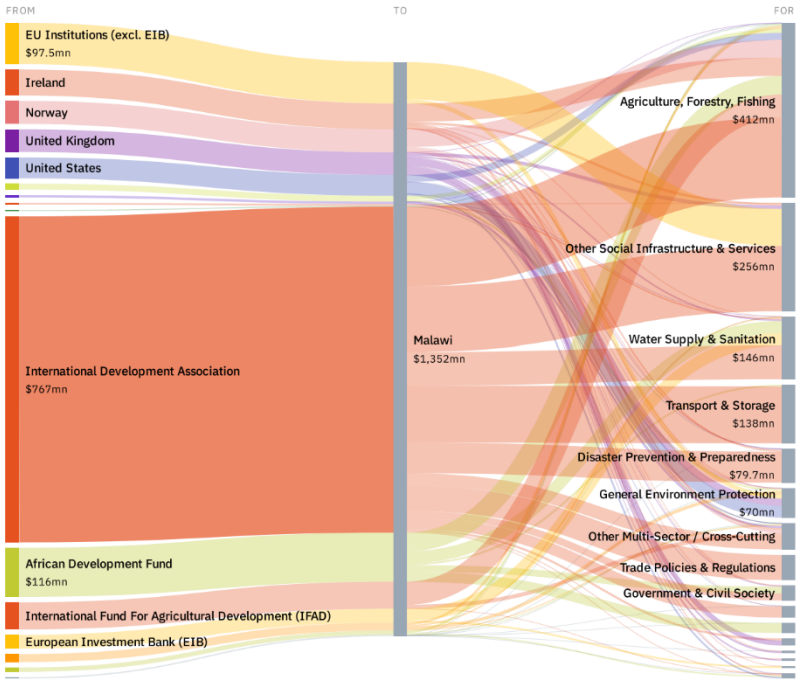


Figure 19: Adaptation finance to Malawi by funder, 2002–2021

Source: GoM Adaptation Financing Strategy, 2026

Underlying factors exacerbating Malawi's susceptibility to climate impacts include entrenched poverty, rapid population growth leading to excessive pressure on natural resources, and a heavy reliance on subsistence rain-fed agriculture.

Simultaneous financing for climate-resilient development is therefore critical. Cost estimates for the 22 prioritized adaptation measures developed through the National Economic Appraisal and CBA were also informed by consultations with stakeholders. Some initiatives will depend on external financial support ("conditional"), while others are expected to be realized through domestic funding ("unconditional") or co-financing arrangements.

Between 2002 and 2021, global funders committed US$1.35 billion in development finance to Malawi for climate adaptation, against US$ 22.4 billion of total development finance over the same period, thus a 6% slice of all development finance received.[29] **Figure 19** indicates that the International Development Association (IDA) accounts for 57% of two decades of adaptation finance, and four multilaterals together (IDA, the African Development Fund, IFAD and the EIB) for 72%. The implication is that a financing base this concentrated on one institution is exposed to its lending decisions.

The Disaster Risk Management Act (2023) provides the legal basis for disaster risk management and establishes a Disaster Risk Management Trust Fund as the repository for disaster risk management resources. As of August 2025, the Fund was not yet operational and, like the National Climate Change Fund, faced gaps in capitalisation (GoM, Gap Analysis Report on Climate and Disaster Risk Finance, 2025). Operationalising the Trust Fund, including its governance, capitalisation rules and ring-fenced resources, is a priority for the Ministry of Finance and Economic Planning and Decentralisation and DoDMA, in coordination with the NCCF so that the two funds complement rather than duplicate each other.

One domestic instrument by contrast, already functioning at a modest scale; a Carbon Levy capitalizes a Climate Change Account managed by the Malawi Environment Protection Authority (MEPA), with an initial cohort of community projects each receiving grants of USD 86.5 thousand from domestically generated funds. The near-term institutional priority is therefore to issue the outstanding NCCF regulations and capitalize the instruments already legislated, rather than to design new financing vehicles (Adaptation Financing Strategy- AFS, 2026).

5.3 CURRENT AND POTENTIAL FINANCIAL RESOURCES

Malawi's climate finance needs are informed by its revised Nationally Determined Contributions (NDC). The country needs a total US$ 4.5 billion for adaptation priorities (**Figure 20**) and US$ 41.8 billion for mitigation priorities, representing a combined funding requirement of over US$ 46.3 billion from 2020 through 2040 (GoM, NC4, 2025). Of these amounts, US$ 24.6 billion is required from external sources for mitigation actions, US$ 2.2 billion is the externally-sourced share of the US$ 4.5 billion adaptation requirement, and US$ 0.753 billion for cross-cutting climate action. As of August 2025, Malawi has received an estimated US$ 0.875 billion in climate financial support while a further US$ 2.17 billion has been committed by different funding institutions (GoM NC4, 2025). Based on the NC4 (2025), a total of US$ 1.7 billion (either committed or received) was allocated to adaptation

[29] Adaptation Financing Strategy, 2026

representing 56% of the committed or received funding. Cross cutting and mitigation funding amounted to US$ 0.72 billion and US$ 0.6 billion respectively.

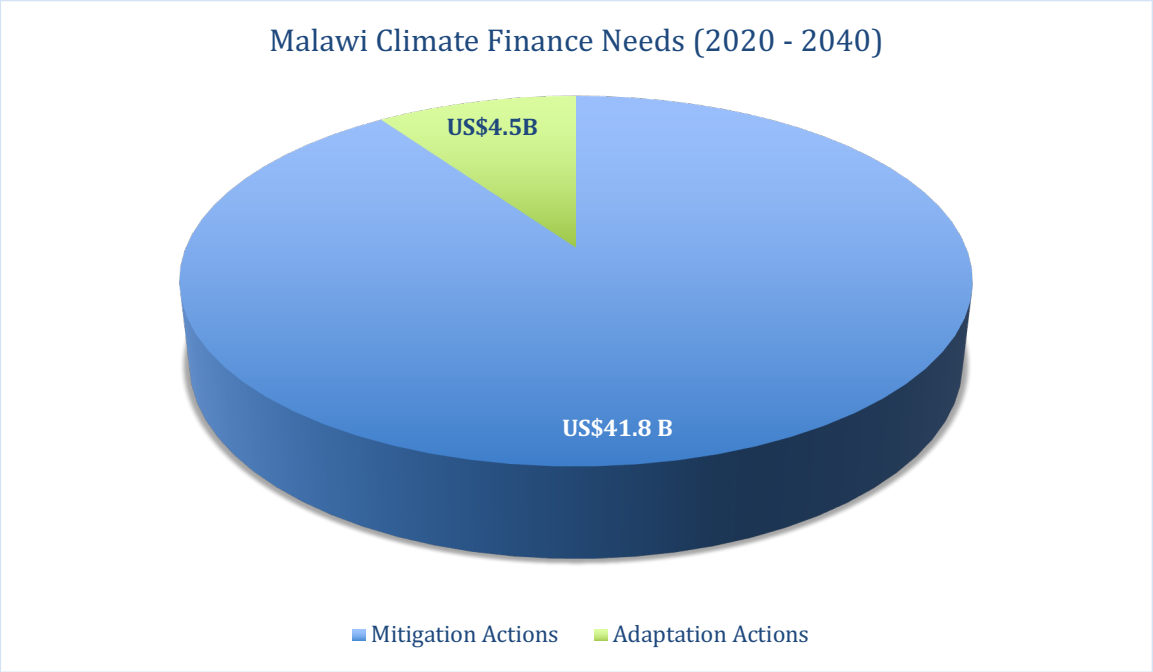


Figure 20: Malawi Climate Finance Needs (2020 – 2040)

Source: GoM, NC4, 2025.

This NDC-level requirement can be cross-checked against the more detailed, bottom-up CBA of the 22 NAP priority adaptation measures completed in 2026. The CBA estimates a national capital cost of US$4.5 billion (US$ 4,582.20 million) in CAPEX, to be deployed over a five-year investment phase, plus operating costs of US$ 437 million in the first year of operation, rising by 5% annually thereafter.

The NDC total of US$4.5 billion covering 80 measures over a 20-year period and the CBA total US$ 4.58 billion (covering 22 measures, capital costs only over 5 years) are close in size. This is a useful confirmation that the two costs are broadly consistent with each other. However, they are built on different scopes and time periods and therefore the two figures should not be added together.

When a measure is costed in both the NDC and the CBA, the CBA figure should be used as reference cost, since it reflects more detailed analysis. The sectoral breakdown of these costs is provided in **Section 5.5.1**.

5.3.1 Current Financial Resources

Malawi's adaptation efforts are supported by a mix of domestic and external financial resources, though these remain limited in scale compared to the country's adaptation needs. Domestically, resources are mobilized through the national budget, including sectoral allocations for agriculture, water, health and disaster risk management, with complementary funding from the District Development Fund and locally generated revenues. Externally Malawi benefits from bilateral and multilateral support, targeted donor initiatives, in addition to funds

from NGOs and development partners. **Table 24** lists current climate finance resources to Malawi.

Table 24: Select Current Financial Resources for adaptation

Partner	Project	Approximate Amount (US$)
Green Climate Fund / FAO Project	Ecosystems-based Adaptation for Resilient Watersheds and Communities (EbAM) project, under implementation to July 2030 in 11 districts. US$4.9 million disbursed (11% of GCF financing. Based on AFS consultations)	53.2 million (includes co-financing)
	Monitoring, Evaluation and Learning Framework for Ecosystem-based Adaptation in Forests and Agriculture (MELBA Malawi), under implementation from 2026 to 2029 at national level, with field application linked to EbAM target areas.	Approximately US$4 million financed by the Government of Norway
World Bank / IDA & Global Agriculture & Food Security Program (GAFSP)	Approved to scale up agriculture, support irrigation and resilience for smallholder farmers under the Food Systems Resilience Program	265 million
Least Developed Countries Fund (LDCF) / GEF / UNDP	Transform Project. Total amount from the LDCF while $1.75 million in cash co-financing to boost climate resilience in the Lake Chilwa Basin	25.87 million
African Development Bank & ADRiFi (Africa Disaster Risk Financing Initiative)	Grants to build climate resilience, early warning and risk transfer (insurance) in Malawi and Zimbabwe A smaller grant for Malawi to roll out climate disaster risk financing to protect vulnerable communities (e.g. smallholder agriculture)	34.8 million; 9.25 million
National / Domestic Tools & Frameworks	Integrated National Financing Framework (INFF) & Malawi SDG Investor Map launched to help better align and mobilize investment, including private sector capital.	n/a
GEF & AfDB	Project in the water sector 'Climate Adaptation for Sustainable Water Supply' to climate-proof water supply in several districts (Rumphi, Nkhotakota, Ntcheu, Mangochi and Phalombe)	42 million
World Bank	Budget & Policy / Reform support – Malawi's first Growth and Resilience Development Policy Operation with Cat-DDO (Deferred Drawdown Option for emergencies) to strengthen government capacity and resilience.	137 million
Green Climate Fund (whole of portfolio, for context)	Malawi's directly attributable GCF adaptation portfolio across three single-country projects (M-CLIMES, EbAM, CHWBRC) totals US$88.1 million approved. This is under 2% of the CBA's US$4.58 billion capital requirement, underscoring the fact that the GCF is an essential but not sufficient channel.	88.1 million (portfolio total)

Private sector participation in this portfolio remains minimal to date. Across 2002-2021, private development finance accounted for below 0.001% of all development finance committed to Malawi for climate adaptation (Climate Atlas, Stockholm Environment Institute). This forms the premise for the strengthened private-sector strategy set out in **Section 5.5.4**

5.3.2 Potential Financial Resources

To close the significant adaptation financing gap, Malawi can tap into a diverse range of potential financial resources that complement current domestic and international support. These include scaling up national budgetary allocations by integrating climate adaptation into sectoral and district-level planning, and exploring innovative financing mechanisms such as climate levies, green bonds and climate risk insurance schemes. At the international level,

Malawi can leverage multilateral climate funds, including GCF, Adaptation Fund, Global Environment Facility (GEF) and the LDCF. At the same time, the country can deepen bilateral partnerships with development partners.

Forestry and land-use measures carry a distinctive financing opportunity. The CBA recommends monetizing afforestation, reforestation and community forestry through Article 6.2 of the Paris Agreement and Voluntary Carbon Markets (VCM), with carbon sequestration valued at US$36-42 million per year. Given volatile carbon prices, the long lead times of forestry revenues and the still-unsettled state of Article 6.2 rules and corresponding adjustments, this Strategy treats carbon revenue as a complementary source rather than a core financing pillar (AFS 2026).

Separately, private sector engagement, blended finance and non-market mechanisms such as carbon markets present opportunities to mobilize new and sustainable funding sources. Harnessing these potential resources will be key to ensuring predictable, long-term and scaled-up financing for the effective implementation of the NAP.

5.3.3 Key Considerations for Resource Mobilization in Malawi's NAP

Effective resource mobilization for Malawi's NAP will require a strategic and coordinated approach that ensures financing is predictable and aligned with national priorities. First, climate adaptation must be fully integrated into national and district development planning and budgetary processes to guarantee domestic allocations and attract co-financing. Second, strengthening institutional capacity, including financial management systems, proposal development skills and fiduciary standards, is critical to access and manage funds from global climate finance mechanisms such as the GCF and LDCF. Third, transparency, accountability and robust monitoring and reporting systems are necessary to build trust with development partners, the private sector and communities. Fourth, Malawi should create incentives to leverage private sector investment and innovative instruments such as green bonds, climate insurance and blended finance. Finally, resource mobilization should be inclusive. Financing should reach vulnerable communities, particularly women and youth who are disproportionately affected by climate impacts.

On the gender dimension specifically, women make up the majority of Malawi's smallholder agricultural workforce, yet face systematically weaker access to credit, land tenure and extension services than men. This also applies to access to mobile and banking channels through which much adaptation finance is delivered. A financing strategy that is silent on this will, by default, reproduce the existing gap. Delivery channels for adaptation finance should therefore be designed to reach women directly. Village Savings and Loan Associations (VSLAs), SACCOs and mobile money reach women more reliably than formal banking. Finance indicators throughout the NAP's monitoring framework should be reported sex-disaggregated wherever the beneficiary is an individual or household.

5.4 THE FINANCIAL GAPS AND OPPORTUNITIES FOR ADAPTATION

The NAP highlights the urgent need for sustained and predictable funding to address growing climate risks. However, there's a wide financing gap between identified adaptation needs and

current financial flows. Malawi's first CPEIR (2018) found that climate related expenditure represented 34% of total public expenditure in FY2016/17 (US$ 223.8 million of US$ 656.02 million). This is a substantially higher share of the budget than is often assumed. However, only 11% of this climate-tagged spending was assessed as delivering genuine adaptation benefit once weighted for relevance (13% for development expenditure, 26% for donor-funded climate expenditure specifically).

On this adaptation-weighted basis, the CPEIR concluded that Malawi's adaptation financing gap lay between 80% and 90%, a finding corroborated by comparing the CBA's US$ 4.5 billion capital requirement with the current adaptation finance baseline in **Section 5.3**, which gives a coverage ratio of roughly 169% on a gross-tagged basis, 71% on an executed (received) basis, but only about 22% on an adaptation-weighted basis. This represents an annual funding gap of US$700 million, or US$3.5 billion across the five-year investment phase. The CPEIR is now approaching a decade old, and updating it is one of the most valuable statistical investments available to strengthen future NAP financing analysis.

Malawi has historically relied heavily on donor-financed projects for adaptation, such as those funded by the GCF, GEF and bilateral partners. While these projects have supported resilience in sectors like agriculture and water, they are often short-term, fragmented and geographically uneven. The gap between commitment and disbursement is itself a binding constraint. 71% of external climate finance recorded in Malawi's first BTR (2021-2023) remained committed rather than received, and the GCF-funded EbAM project had disbursed only 11% of its approved financing some eighteen months after approval. A strategy to close the funding gap must therefore treat absorption and disbursement capacity as an initial constraint alongside mobilization, not a secondary implementation detail.

Private sector participation in adaptation finance remains minimal, despite opportunities in renewable energy, climate-smart agriculture and climate insurance. Barriers include limited access to affordable credit, lack of incentives and weak risk-sharing mechanisms. Additionally, institutional and capacity constraints within MDAs reduce Malawi's ability to effectively absorb and report on adaptation funds.

This constrained fiscal space is compounded by Malawi's debt position. Total public debt reached 88% of GDP at the end of 2024, with an interest bill approaching 7% of GDP, leaving little room for additional non-concessional borrowing (around 90% of external debt is owed to development banks, so there's little restructurable debt). The adaptation program must therefore be financed overwhelmingly through grants and highly concessional resources. Instruments that add to the debt stock should be avoided except where they finance measures with demonstrable, near-term revenue (AFS, 2026).

There are, however, emerging opportunities to close these gaps. Domestically, Malawi is advancing Public Financial Management (PFM) reforms, including climate budget considerations, which can strengthen mainstreaming of adaptation in national and district budgets. Innovative approaches such as environmental levies, carbon market engagement and debt-for-climate swaps can provide additional resources. Decentralized financing

mechanisms such as the UNCDF LoCAL facility already piloted in Malawi offer a pathway to channel predictable, performance-based adaptation finance directly to districts and local governments. These instruments are most effective where the machinery that already exists (NCCF and the MEPA Carbon Levy) is capitalized and operationalized, rather than superseded by new vehicles.

5.5 RESOURCE MOBILISATION STRATEGY

Effective implementation of Malawi's NAP requires sustained and predictable financing. Climate adaptation priorities presented in the NAP cannot be realized without mobilizing resources from domestic and international sources, strengthening institutional capacity to access climate finance and ensuring alignment of investments with national development priorities. This section outlines approaches for securing and managing financial and in-kind contributions for the implementation of adaptation actions in Malawi.

5.5.1 Costing for Adaptation Implementation

Climate change costing is an essential process that helps Malawi understand the financial implications of climate-related hazards and the resources needed to build resilience. The costing exercise also provides evidence for better planning and budgeting. It allows the Government of Malawi to integrate adaptation priorities into national and district development plans, mobilize domestic resources and make a stronger case for international climate finance. Importantly, climate change costing demonstrates the economic benefits of early action, showing that proactive investments in adaptation are far less costly than emergency response. It also allows for monitoring progress and therefore strengthening accountability.

As has been mentioned, the detailed national economic appraisal evaluated adaptation options at the national level, encompassing costing and feasibility analyses which aligned with the CRA and adaptation options developed for the eight focus districts. Options were prioritized on feasibility, social contributions, and strategic climate/vulnerability considerations, complemented by cost-benefit profiles assessing NPV, Benefit-Cost Ratio and payback period for each measure. Health is treated transversally through the infrastructure /DRR and social sector measures rather than as a sixth sector, and education is integrated within the social sector. Further, each option was costed by estimating unit costs using market data or past projects and scaling these up to national or district levels over a set time frame. The potential benefits, such as avoided crop losses or reduced flood damages, are compared to the costs through a cost-benefit analysis. These estimates are then aligned with national budgets and sectoral priorities, validated with stakeholders and used to identify funding needs. Costing is reviewed regularly to ensure relevance and sustainability.

Education-sector adaptation costs are not yet presented as a standalone line, being folded into the Social Sector costing above; the scale of climate-related loss to the sector nonetheless warrants explicit reference pending a dedicated costing exercise with the Ministry of Education, Science and Technology (MoEST). Flood damage to the education sector was estimated at US$12.0 million in the 2015 floods alone, out of total economy-wide losses of US$335.0 million (5% of GDP); cumulative flood-related losses to the sector reached US$75.5 million between 2015 and 2023, with recovery costs more than tripling from US$12.4 million

(2015) to US$42 million (2023). A low-cost, climate-resilient adaptation package for the education sector, covering safe school infrastructure, disaster-resilient design and climate-smart curricula, is estimated at approximately US$18.51 per student, equivalent to a 35.6% increase in per-student expenditure. These figures support the need for MoEST's continued engagement in the Climate Finance and Resilience Committee and its inclusion as a line ministry in future costing updates.

The NAP financing strategy should adopt Gender-Responsive Budgeting (GRB) across all sectoral allocations. At least 15% of national climate adaptation funds should be earmarked for community-level adaptation initiatives directly led by or targeting female-headed households, youth, and marginalized groups. Accredited entities submitting proposals under Green Climate Fund and multilateral windows must submit a localized GESI action plan.

The CBA finds a national-scale capital requirement of US$4,582.20 million (US$4.58 billion) of CAPEX for the 22 priority measures, deployed over a five-year investment phase, with operating expenditure of US$437 million in the first year of operation (escalating 5% per year), bringing the full 20-year program cost to approximately US$14 billion undiscounted, or US$7.2 billion in present value at an 8% social discount rate. The portfolio NPV is US$5,760.56 million under RCP 4.5 (already net of discounted costs), with a portfolio IRR of 33% (measure-level IRRs range from 17% for reforestation to 89% for crop diversification); returns are higher still under RCP 8.5, since avoided losses are larger on a high-emissions pathway. The portfolio remains strongly positive under adverse assumptions. A 30% cost overrun reduces the IRR to 20% and the NPV to US$3,427.41 million, and a 30% shortfall in benefits reduces them to 16% and US$1,699.24 million. This is what should be presented to concessional funders. (**See Annex 4 – Adaptation Measures Financing Fact Sheet**).

Table 25: Estimated Cost of Adaptation Interventions per Sector- Summary of Capital Requirements by Sector (CAPEX)

Priority sector	Capital requirement (CAPEX, US$ million, Y1–Y5)	Share of total	Largest measures (CAPEX, US$ million)
Agriculture	3,237.51	71%	Irrigation schemes 1,760.00; drought-tolerant crops 400.00; crop diversification 260.01; afforestation/reforestation 260.00; climate-smart agriculture 200.00; improved soil fertility 175.00; rainwater harvesting 112.50
Forestry	580.05	13%	Reforestation 307.28; community forest management 165.46
Infrastructure and DRR	422.56	9%	Flood management 354.55
Social	249.41	5%	Not disaggregated by measure in the CBA
Fisheries	92.68	2%	Not disaggregated by measure in the CBA
Total 22 measures	4,582.20	100%	—

Source: AFS (2026).

Agriculture accounts for 71% of the capital requirement; irrigation alone for close to 40%, reflecting Malawi's underutilized irrigation potential and the importance of water security to

adaptation which is financed here through the agriculture measures rather than as a stand-alone sector. The four smaller sectors combined (forestry, infrastructure and DRR, social and fisheries) require US$1.34 billion but contain several of the highest-ranking measures on IRR, which is the central consideration for sequencing finance rather than sizing it. **Table 26** presents illustrative unit costs for each adaptation option, drawn from FAO, World Bank, UNCCD, WCS/WWF and other sectoral sources, for use in sub-national and project-level planning.

Table 26: Estimated Cost of Adaptation Interventions per Sector – Detailed Costing by Adaptation Option

Sector	Adaptation options	Description	CAPEX - Unit Cost (USD)	Source	Explanations
Agriculture	Drought tolerant crops	Introduction of drought-resistant crop varieties	50-150/ha	FAO report on drought risk management	This unit cost price is based on a minimum number of units per activity (for economies of scale): typically, this unit cost is for a targeted area of e.g., 500–1,000 ha with a minimum number of farmers/households involved in the intervention.
	Climate Smart Agriculture	Integrated approach to managing agricultural systems to enhance productivity, resilience, and sustainability	Approximately 100 to 400/ha	World Bank and FAO reports on Climate-Smart Agriculture implementation costs	The unit cost reflects the average investment required to implement CSA practices per hectare. This includes expenses related to training, acquisition of improved seeds and inputs, development of water management systems, and adoption of sustainable land management techniques. Costs can vary based on specific practices adopted, local context, and scale of implementation. Economies of scale may reduce per-hectare costs.
	Soil conservation/rehabilitation/improved soil fertility	Soil restoration practices like low tillage	50-200/ha	UNCCD soil restoration studies	This unit cost price is based on a minimum number of units per activity (for economies of scale): typically, this unit cost is for a targeted area of e.g., 500–1,000 ha with a minimum number of farmers/households involved in the intervention.
	Afforestation/Reforestation	Planting trees to restore degraded land	From 750 to 2,500/ha	WCS and WWF reforestation reports	This unit cost price is based on a minimum number of units per activity (for economies of scale): typically, this unit cost is for a targeted area of e.g., 500–1,000 ha with a minimum number of farmers/households involved in the intervention.
	Crop diversification	Intercropping or crop rotation integrating high-value crops, legumes, fruits, and vegetables, to also improve soil health and reduce pest and disease incidence	From 150 to 400/ha	Cost estimates are derived from studies from e.g. CGIAR centres, CIRAD, agronomic research centres, etc.	The unit cost encompasses expenses related to seeds for multiple crops, additional labour for varied planting and harvesting schedules, and potential investments in new tools or equipment.
	Irrigation /rainwater harvesting	Development of irrigation networks for climate resilience	1,750-7,000/ha	World Bank irrigation cost estimate	This unit cost price is based on a minimum number of units per activity (for economies of scale): typically, this unit cost is for a targeted area of e.g., 500–1,000 ha with a minimum number of farmers/households involved in the intervention.
Fisheries	Sustainable fishing	Adoption of sustainable fishing practices	50/per fisher or 200/per household	FAO sustainable fishing report	It reflects the training and provision of sustainable fishing gear or practices per person involved in fishing, as per the FAO sustainable fishing guidelines.

Sector	Adaptation options	Description	CAPEX - Unit Cost (USD)	Source	Explanations
	Protect/restore habitats	Conservation and rehabilitation of critical ecosystems such as wetlands, riverbanks, lake shores, and breeding grounds essential for sustaining fish populations	Between 1,200 and 4,500/ha	Adapted from habitat restoration benchmarks from FAO Inland Fisheries Guidelines, Trillion Trees initiative reports, and regional ecosystem rehabilitation case studies (e.g., Lake Chilwa Wetland Management Plan, Malawi).	This cost estimate includes ecological assessments, labour and materials for habitat restoration, community engagement, and monitoring. Investments vary depending on habitat type, degree of degradation, and accessibility. Restoration activities in fisheries typically focus on breeding/nursery habitats and water quality improvements, which are key to rebuilding fish stocks. Community co-management and local bylaws often reduce long-term maintenance costs and improve enforcement. The option includes many different activities (and hence costs) such as removing invasive species, replanting native vegetation, reducing pollution inflows, restoring natural water flows, and enforcing no-fishing zones in degraded areas.
	Aquaculture development	Investment in sustainable aquaculture systems	15,000/per aquaculture unit or 20,000/pond/farm	Research on aquaculture investment	It includes infrastructure (pond construction, water management), fingerlings, feed, training, etc.
Forestry	Sustainable forest management	Implementing forest management best practices	50-300/ha annually	FSC and REDD+ forest management data	It includes: technical planning, fire control, forest zoning, patrolling, basic silviculture, and sometimes certification costs. Typically applied across forest blocks or community-managed forest zones.
	Reforestation	Planting trees to restore degraded land	From 750 to 2,500/ha	WCS and WWF reforestation reports, CIFOR reports	This unit cost price is based on a minimum number of units per activity (for economies of scale): typically, this unit cost is for a targeted area of e.g., 500–1,000 ha with a minimum number of farmers/households involved in the intervention.
	Fire management	Prescribed burning, mechanical thinning, creation of firebreaks, and community education programs	Approximately 20 to 500/ha	Cost estimates are based on various studies and reports on fire management practices, including data from the Global Fire Management Platform (UNEP and FAO) and other regional fire management programs.	The unit cost reflects the average investment required for implementing fire management practices per hectare. This includes expenses related to planning, labour, equipment, and monitoring. Costs can vary significantly based on the specific methods employed, terrain, vegetation type, and local labour rates. For instance, prescribed burning may be less expensive in flat, accessible areas, while mechanical thinning in rugged terrain can be more costly. Certain expenses can be annual while others are every 5 to 7 years.
	Community forest management	Community-led initiatives for sustainable forestry	1,000/per community group or forest user group or 100 – 500/ha	Community forestry economic studies	It includes mobilization, training, legal setup, governance support, transaction costs (permits, monitoring, benefit sharing mechanisms). It is calculated per community forest initiative, not by area.

Sector	Adaptation options	Description	CAPEX - Unit Cost (USD)	Source	Explanations
Infrastructure	Resilient infrastructure	Infrastructure designed to withstand climate impacts	1,000,000/per infrastructure unit or project (e.g., bridge, school, health centre, road segment) or10-30% cost increase over standard infrastructure	World Bank and OECD resilience studies	It includes climate-proof design, elevated foundations, flood barriers, reinforced materials, and sometimes drainage/green infrastructure. However, it is highly variable depending on infrastructure type (road vs. school), but USD 1 million is a benchmark for a single small-to-medium facility.
	Flood management	Constructing and rehabilitating infrastructure to mitigate flood risks in urban and rural areas (e.g. stormwater drainage systems, flood protection bunds, culverts, and retention basins)	Approximately 1,500–3,500/ha or 500,000 - 2 million per km	Cost estimates are based on data from the Malawi Floods Emergency Recovery Project and other related infrastructure rehabilitation initiatives.	Expenses relate to the design, construction, and maintenance of flood management structures. Costs can vary depending on the specific interventions, terrain, and materials used. For instance, constructing flood protection bunds and rehabilitating drainage channels in flood-prone areas like the Shire River basin have been integral to reducing flood risks.
	Early warning systems	Systems for forecasting and disaster preparedness	50,000-150,000/per system installed or per district	UN early warning system reports	This covers installation of meteorological stations, software/hardware for communication, training, community drills. This is often scaled per district or sub-national area, and USD 50,000 is a baseline estimate (actual costs can range from USD 30k– USD 150k depending on complexity and coverage).
Social Sector	Awareness and education	Educational campaigns on climate adaptation	20,000/per district-level campaign or program or 10 – 50/participant	UNESCO climate adaptation education study	This cost assumes a full education/awareness campaign rolled out at the district level or to a defined target population.. The expenses involve development and dissemination of educational materials, workshops, radio/TV campaigns, community theatre, school-based outreach.
	Livelihood diversification	Income-generating activities beyond traditional subsistence farming for rural households	Between 200 - 1,000 per household	Various programs and studies, including the Climate Adaptation for Rural Livelihoods and Agriculture project and the Malawi Social Support for Resilient Livelihoods Project	The unit cost encompasses expenses related to training, provision of starter kits (e.g., livestock, seeds, tools), and initial capital for small enterprises. Costs can vary based on the specific livelihood activity, scale of implementation, and local market conditions. For instance, establishing a small livestock enterprise may require higher initial investment compared to initiating a handicraft business.

Sector	Adaptation options	Description	CAPEX - Unit Cost (USD)	Source	Explanations
	Health	Access to healthcare services and investment	20,000/healthcare package/intervention or per facility upgrade or 50 - 200 per person	Scientific research on health investment	It reflects basic investment, not full hospital builds. May cover a small clinic, or a specific climate-related disease response package. Investments are for basic climate-resilient health infrastructure improvements, disease monitoring capacity, vaccine cold chain enhancement, training for health workers.
	Social safety nets	Programs providing financial and social support to vulnerable populations	10/per beneficiary per month	World Bank social protection cost analysis	This is a monthly transfer value per person, typically used for poverty targeting in low-income settings. It includes direct cash transfers, food assistance, school stipends, or emergency relief.

Source: GoM, NAP Economic Appraisal, 2025.

5.5.2 Priority Investment Pipeline: Flagship Investments

The NAP investment programme is organised around seven flagship initiatives that together cover the 22 priority adaptation measures appraised in the National Economic Appraisal and CBA (**Table 27** and **Table 28**). Their combined capital requirement is US$4,582.20 million over a five-year investment phase, with operating costs of US$437 million in the first year of operation, rising at 5% a year. The programme is economically robust: it yields a portfolio NPV of US$5,760.56 million and an IRR of 33% under RCP 4.5 and remains viable under a 30% cost overrun or a 30% benefit shortfall. Irrigation and rainwater harvesting (F1) and climate-smart agriculture, resilient seed and soil fertility (F2) together account for about two-thirds of the capital requirement. Following the Adaptation Financing Strategy, and consistent with the sectoral sequencing in **Table 34**, financing will be sequenced by return and readiness: the lower-capital, high-return measures under F2, F5, F6 and F7 will be financed first; forest landscape restoration (F3) will proceed in parallel, since ecological returns lag investment; and the large irrigation and flood-management investments (F1 and F4) will be prepared scheme by scheme to concessional-lending standard, with operation and maintenance provisions ring-fenced in the MTEF. Given the fiscal constraints set out in **Section 5.4**, around three quarters of the requirement is expected to come from multilateral climate funds, concessional MDB finance and bilateral partners, with 10% from the domestic budget.

Table 27: Priority Flagship Investments – Cost, Returns, Finance Sources and Sequencing (US$ million)

Flagship investment	CBA measures	CAPEX Y1–Y5	Share	NPV (RCP 4.5)	Potential finance sources	Sequencing
National Irrigation and Rainwater-Harvesting Scale-up	5. Irrigation schemes 6. Rainwater harvesting	1,872.50	40.9 %	2,169.12	World Bank (IDA), AfDB, IFAD, GCF; PPPs / viability-gap funding; resilience bonds (MDB-intermediated, medium term)	Tranche 2 (hard infrastructure once pipeline, accreditation and disbursement record allow)
Climate-Smart Agriculture, Resilient Seed and Soil-Fertility Programme	1. Crop diversification 2. Climate-smart agriculture 3. Drought-tolerant crops 4. Improve soil fertility 8. Conservation agriculture	1,105.01	24.1 %	1,467.37	IFAD, FAO, AfDB, GCF, GEF, World Bank; concessional credit lines through MFIs/SACCOs; partial credit guarantees; results-based payments	Tranche 1 (highest-return, low-capital measures first)
Forest Landscape Restoration with Carbon Monetisation	7. Afforestation & reforestation 16. Community forest management 17. Sustainable forest management 18. Fire management 19. Reforestation	840.05	18.3 %	751.68	GCF, GEF; Article 6.2 ITMOs; VCM (Verra, Gold Standard, Plan Vivo); PES; results-based payments	In parallel with Tranche 1 (ecological returns lag; delay is costly)

Flagship investment	CBA measures	CAPEX Y1–Y5	Share	NPV (RCP 4.5)	Potential finance sources	Sequencing
Flood Management and Resilient Infrastructure (flood-prone districts)	13. Flood management 14. Resilient infrastructure	422.56	9.2%	790.45	World Bank (IDA), AfDB, GCF, EIB; PPPs; MDB-intermediated green bonds	Tranche 2
National / District Early Warning System Expansion	15. Early warning systems	incl. in flood management	–	24.81	GCF, WMO, UNDP, bilateral donors; recurrent budget for O&M	Tranche 1
Sustainable Aquaculture and Habitat Restoration	20. Sustainable fishing 21. Aquaculture development 22. Habitat protection & restoration	92.68	2.0%	88.25	IFAD, FAO, GCF, World Bank; blended finance with first-loss; commercial banks; blue bond (medium term)	Tranche 1 (aquaculture shortlisted by AFS)
Shock-Responsive Social Protection and Livelihood Diversification	9. Access to services 10. Livelihood diversification 11. Social safety nets 12. Awareness & education	249.41	5.4%	468.87	Government budget, World Bank (IDA), GCF, UNICEF, EU; ARC parametric payouts as contingent top-up	Tranche 1 (no-regret, early returns)
Total – 22 priority measures		4,582.21	100 %	5,760.55	Portfolio IRR 33% (RCP 4.5)	

Source: AFS (2026), Annex B Table 27, Tables 10 and 14, Revised National CBA. Note: F4 includes the US$68.01 million Infrastructure and DRR residual shared with early warning systems (F5); sector totals sum to US$4,582.21 million against the AFS headline of US$4,582.20 million owing to rounding. NPV is already net of discounted costs and should not be netted against CAPEX.

Table 28: Flagship Investment Profiles – Scope, Priority Districts and Next Steps to Bankability

Flagship	Scope and scale (CBA)	Priority districts	Next step to bankability (AFS)
National Irrigation and Rainwater-Harvesting Scale-up	Irrigate c. 290,000 ha (of 407,862 ha irrigable); rainwater harvesting (household tanks, micro-dams, community retention) on up to 375,000 ha	Dedza, Balaka, Chikwawa, Salima, Phalombe, Mangochi, Karonga (CBA Rec. 2)	Prepare a small number of schemes to full bankable standard; set tariff / water-user-charge basis before commitment; ring-fence O&M in MTEF
Climate-Smart Agriculture, Resilient Seed and Soil-Fertility Programme	CSA on up to 1 million ha; drought-tolerant seed for c. 500,000 smallholder households; crop diversification, soil fertility and conservation agriculture	National; all eight CRA districts	Grant-fund extension and seed systems; concessional credit line with first-loss guarantee; working-capital facility for seed multipliers; cost advisory as recurrent MTEF line
Forest Landscape Restoration with Carbon Monetisation	Afforestation, reforestation, community and sustainable forest management, fire management; supports NFLRS	National (NFLRS landscapes)	Complete fiscal/incentive review of tree-based carbon projects; Article 6 readiness (designated authority, CA guidance, benefit-sharing); settle customary tenure
Flood Management and Resilient Infrastructure (flood-prone districts)	Levees, dikes, riverbank stabilisation, drainage; resilient roads/bridges and public facilities; e.g. 5,000 ha flood infrastructure in Phalombe	Chikwawa, Phalombe, Salima, Lower Shire (CBA Rec. 8)	Revise building/road codes so resilience increment is mandatory and priced; package with DRF layer; prepare to concessional-lending standard

Flagship	Scope and scale (CBA)	Priority districts	Next step to bankability (AFS)
National / District Early Warning System Expansion	180 EWS covering 2,500 households each; up to 72 h lead time; builds on GCF FP002 (M-CLIMES)	National; priority Lower Shire	Fund O&M from recurrent budget as condition of new capital; link to ARC parametric triggers (reduces basis risk)
Sustainable Aquaculture and Habitat Restoration	Pond/cage aquaculture, sustainable fishing co-management and gear, wetland/breeding-ground restoration	Mangochi, Salima, Karonga, Nkhata Bay, Nkhotakota (CBA Rec. 5)	Dedicated aquaculture credit line with first-loss tranche and TA window; include habitat restoration in green/blue bond eligible list
Shock-Responsive Social Protection and Livelihood Diversification	Livelihood diversification for c. 400,000 households; safety nets for c. 30% of food-poor; resilient health facilities/schools; awareness	National; southern districts under-served by current SCTP targeting	Pre-link ARC triggers to SCTP; climate-risk premium budget line; capitalise VSLA/MFI channel; recurrent MTEF lines

Source: National CBA (social-impact assumptions; Recommendations 2, 5, 8 and 9); AFS (2026) and Annex C fact sheets

5.5.3 Climate Adaptation Funding Sources

Malawi's climate adaptation efforts are financed through a mix of domestic and external sources, each contributing different scales to priority actions under the NAP. These are categorized in **Table 29** and summarized in sub-sections that follow. The private sector is discussed separately due to the significant opportunities it advances in domestic sourcing of climate finance.

Table 29: Categories of Adaptation Funding Sources.

Category	Examples	Type of Support
Multilateral Sources & Financial Institutions	GCF, GEF, Adaptation Fund, CIF, SCCF and LDCF, FRLD; World Bank and regional development banks, notably the African Development Bank (AfDB); UN agencies (UNDP, UNEP, FAO, WFP, UNICEF, UNFPA, IOM, WMO)	They are central to providing large-scale grants and technical assistance for adaptation initiatives. They often fund projects, including loss and damage within the priority sectors. The Fund for responding to Loss and Damage (FRLD), hosted by the World Bank under decisions 1/CP.28 and 5/CMA.5, addresses loss and damage and has human mobility as one of its five pillars.
Bilateral Sources	Governments of Germany, Norway, the United States, India, United Kingdom, Australia. Development Partners; Irish Aid, NORAD, FCDO, China Aid, Arab Development Bank, JICA, Qatar Fund, GIZ, EU, ECHO, REDD+, Bill Gates Foundation, etc.	They provide direct funding, technical assistance and capacity building support. They also deliver targeted adaptation interventions at community and national levels.
Philanthropic Sources	Include global foundations and international charities	They play a complementary role by piloting innovative community-based projects, supporting climate-smart agriculture and funding grassroots resilience initiatives.
Regional and Economic Commissions	AfDB, COMESA, and African Union	Provide financing for climate-smart infrastructure, regional early warning systems and transboundary resource management which are important for Malawi given its vulnerability to climate and water related risks.

Category	Examples	Type of Support
National Budget for the NAP	Malawi domestic contribution through ministries of Agriculture, environment, education, water and health	These need to be supplemented by other sources.
Private actors	Commercial banks and insurers; pension and institutional investors; agribusiness, energy, water, ICT and infrastructure firms; public-private partnerships; impact investors; diaspora finance; philanthropy and foundations.	Equity, debt, guarantees, insurance, risk-sharing, blended finance, concessional co-finance, corporate investment and in-kind technical support, including public-private partnerships and corporate adaptation investments.
Other Funding Streams	NGOs, CSOs, Faith Based Organizations and CBOs.	Provide capacity building, training, and loans to groups towards climate resilience. For example, Development Aid from People to People (DAPP Malawi) with the Macadamia nuts value chain project.

5.5.4 Private Sector in Adaptation Financing

The private sector is an indispensable partner in building a climate-resilient Malawi. Given Malawi's Least Developed Country status and limited fiscal headroom, the critical public budgets and international climate funds cannot on their own deliver the US$4.58 billion of capital investment the CBA identifies, still less the recurrent costs that follow it. Banking, insurance, tourism, retail, manufacturing and communication, among other sectors, can contribute through corporate social responsibility and by providing finance facilities to priority sectors. Through banks, sectors can access advisory services, weather-based insurance to cushion communities from climate-related loss and damage, lines of credit and sector-specific packages; farmers can access inputs, working capital and guaranteed markets to support the agricultural sector. Private entities also need to invest directly in adaptation and resilience, which can be aligned with, or dependent on, public-sector investment (for example, in infrastructure).

A structured barrier analysis[30] identifies ten categories of barrier to private adaptation investment in Malawi: policy and regulatory uncertainty (unclear PPP and land-use frameworks); legal and contractual weakness (tenure uncertainty on customary land, weak standard contracts); fiscal and pricing distortions (tariffs that do not reflect resilience benefits); financial-sector constraints (short loan tenors, high collateral requirements, limited climate-risk assessment capacity); information and data gaps; low awareness of adaptation benefits among households, SMEs and financiers; weak demand (household spending prioritizes basic needs over adaptation goods and services); unfavourable fiscal treatment of carbon revenue for tree-based carbon projects; a lack of standing platforms for private actors in climate-related sectors to coordinate; and the physical exposure of enabling infrastructure itself (for example, recurrent flooding damaging telecommunications in the Lower Shire, disrupting early-warning dissemination).[31]

[30] Drawing on the CBA consultations and on two private-sector sensitization workshops held in Lilongwe (8 July 2026) and Blantyre (10 July 2026) with participants from carbon project development, insurance, microfinance and SACCOs, commercial banking, agribusiness, telecommunications, water utilities, construction, and off-grid energy and clean cooking

[31] Adaptation Financing Strategy, 2026

The Adaptation Financing Strategy allocates 15% of the capital requirement to private investment and carbon-market revenue, about US$687 million over the investment phase, or roughly US$137 million a year, starting from a private adaptation finance baseline that is currently close to zero. No private-sector share has been estimated for individual measures: this portfolio-level indicative allocation, which covers private investment and carbon-market revenue together, is the only private-sector figure in the Strategy. Private contributions to the specific actions in **Table 30** should therefore be treated as indicative and confirmed during project preparation. Sixteen of the 22 priority measures carry a private or blended finance archetype (**Table 29**). Priority actions to be taken to market first are micro-insurance and index insurance for smallholders, climate credit for MSMEs, aquaculture value chains, climate-smart agriculture inputs and drought-tolerant seed multiplication, and improved cookstove and biomass partnerships. Afforestation and reforestation carbon projects and resilient construction will become investable once the tax and payment treatment of carbon revenues has been reviewed, Article 6 readiness is in place and resilient design standards are adopted (**Table 31**). Carbon revenue, estimated at US$36–42 million a year, is treated as a complementary source rather than a core pillar. The enabling instruments needed to mobilise this investment are set out in the priority recommendations in **Section 5.6**.

Table 30: CBA Priority Measures with a Private or Blended Finance Archetype

#	Measure	Sector	Finance archetype (AFS)	CAPEX Y1–Y5 (US$ m)	IRR (RCP 4.5)	Unit costs (CBA)
1	Crop diversification	Agriculture	Blended	260.01	89.19%	US$150–400/ha; OPEX US$25–50/ha/yr
2	Climate-smart agriculture	Agriculture	Blended	200.00	40.97%	US$100–400/ha; OPEX US$25–75/ha/yr
3	Drought-tolerant crops	Agriculture	Blended	400.00	32.54%	US$50–150/ha; OPEX US$20–40/ha/yr
4	Improve soil fertility	Agriculture	Public + Blended	175.00	30.96%	US$50–200/ha; OPEX US$5–10/ha/yr
5	Irrigation schemes	Agriculture	Public + Blended / PPP	1,760.00	27.70%	US$2,000–7,000/ha; OPEX US$100–300/ha/yr
6	Rainwater harvesting	Agriculture	Public + Blended	112.50	22.32%	US$1,000–5,000/system; OPEX US$100–200/system/yr
7	Afforestation & reforestation	Agriculture	Public + Blended (carbon)	260.00	19.12%	US$750–2,500/ha; OPEX US$50–150/ha/yr
8	Conservation agriculture	Agriculture	Public + Blended	70.00 (residual)	18.53%	US$100–200/ha; OPEX US$5–10/ha/yr
10	Livelihood diversification	Social	Public + Blended	Within Social total	55.95%	US$200–1,000/household; OPEX US$50–150/household/yr
13	Flood management	Infrastructure & DRR	Public + Blended	354.55	48.25%	US$0.5–2 m/km levee or US$1,500–3,500/ha; OPEX US$50–200/ha/yr
14	Resilient infrastructure	Infrastructure & DRR	Public + Blended / PPP	Within Infrastructure & DRR total	44.86%	+10–30% over standard design; OPEX 2–5% of asset value/yr
16	Community forest management	Forestry	Public + Blended (carbon)	165.46	43.86%	US$100–500/ha; OPEX US$20–50/ha/yr

#	Measure	Sector	Finance archetype (AFS)	CAPEX Y1–Y5 (US$ m)	IRR (RCP 4.5)	Unit costs (CBA)
17	Sustainable forest management	Forestry	Public + Blended (carbon)	Within Forestry total	43.13%	US$50–300/ha; OPEX US$20–50/ha/yr
19	Reforestation	Forestry	Public + Blended (carbon)	307.28	17.09%	US$750–2,500/ha; OPEX US$50–150/ha/yr
20	Sustainable fishing	Fisheries	Public + Blended	Within Fisheries total	46.56%	US$50–200/fisher; OPEX US$20–50/fisher/yr
21	Aquaculture development	Fisheries	Private + Blended	Within Fisheries total	28.44%	US$5,000–20,000/unit; OPEX US$500–1,500/unit/yr

Source: AFS (2026), Table 14 and Annex C; National CBA, Tables 15–20. Unit costs carry the CBA ±20% range. Conservation agriculture CAPEX is derived as the residual of the Agriculture sector total.

Table 31: Adaptation Actions Requiring Private-Sector Finance

Private-sector adaptation action	CBA measure(s)	Private actors	Cost estimate (CBA/AFS)	Instruments to source funds	AFS priority
Micro-insurance and index insurance products for smallholders	9 (Access to services); supports 1–3, 11	Insurance companies; distribution via banks, MFIs, SACCOs, mobile money	Not costed in CBA/AFS. Reference: CBA lists index-based crop insurance within CSA initial investment; ARC sovereign payouts US$11.2 m (2023/24) and US$3.38 m (2024/25)	Premium support; risk pooling (ARC); micro-insurance regulation	Shortlist (high impact, high feasibility)
Climate credit for MSMEs and climate-friendly product lines (livelihood diversification)	10	Commercial banks, MFIs, SACCOs, VSLAs	US$200–1,000 per household CAPEX; US$50–150/household/yr OPEX; c. 400,000 households targeted. Part of Social sector CAPEX US$249.41 m	Green/resilience credit lines (RBM, DFIs); partial credit guarantees; first-loss tranche; matching grants	Shortlist
Aquaculture production and value chains (pond, cage, tank)	21	Aquaculture operators and investors; commercial banks; input suppliers	US$5,000–20,000 per aquaculture unit CAPEX; US$500–1,500/unit/yr OPEX. Part of Fisheries sector CAPEX US$92.68 m. IRR 28.44%	Blended finance with concessional first-loss; commercial loans; equity; corporate green / blue bond (medium term)	Shortlist — only measure classed private-led
Climate-smart agriculture inputs, advisory and drought-tolerant seed multiplication	2, 3	Agribusiness, seed multipliers, agro-dealers, carbon project developers	CSA: US$200.00 m CAPEX (US$100–400/ha; up to 1 m ha). Drought-tolerant crops: US$400.00 m CAPEX (US$50–150/ha; c. 500,000 households)	Working-capital facility for seed multipliers with first-loss tranche; concessional credit; results-based payments; soil-carbon revenue (not assumed)	Shortlist

Private-sector adaptation action	CBA measure(s)	Private actors	Cost estimate (CBA/AFS)	Instruments to source funds	AFS priority
Input credit for crop diversification, soil fertility and conservation agriculture	1, 4, 8	MFIs, SACCOs, agro-dealers, off-takers	Crop diversification US$260.01 m (US$150–400/ha); soil fertility US$175.00 m (US$50–200/ha); conservation agriculture US$70.00 m by residual (US$100–200/ha)	Concessional credit lines through MFIs/SACCOs; partial credit guarantee; transition-period input-credit holiday; PES pilot	Linked to shortlist (input credit)
Improved cookstove and biomass partnerships with farming households	10 (Livelihood diversification); forestry co-benefit	Carbon project developers; clean-cooking companies	Not costed in CBA/AFS	Carbon credits (VCM / Article 6.2)	Shortlist
Irrigation PPPs and outgrower schemes with recoverable water charges	5	PPP concessionaires, agribusiness / outgrower anchors, water-user associations	US$1,760.00 m CAPEX (US$2,000–7,000/ha; US$100–300/ha/yr OPEX); c. 290,000 ha. IRR 27.70%	PPP; viability-gap funding; concessional MDB co-finance; resilience bonds (MDB-intermediated)	Not screened in AFS Table 30 (AFS archetype: Public + Blended / PPP)
Household and community rainwater-harvesting systems	6	MFIs/SACCOs (micro-credit), tank manufacturers, construction SMEs	US$112.50 m CAPEX (US$1,000–5,000/system; US$100–200/system/yr OPEX)	Micro-credit for household systems; district-scale aggregation into one financing package	Not screened in Table 30 (archetype: Public + Blended)
Afforestation, reforestation and community / sustainable forest management carbon projects	7, 16, 17, 19	Carbon project developers; water boards; VCM buyers; Article 6.2 counterparties	Afforestation US$260.00 m; reforestation US$307.28 m (both US$750–2,500/ha); CFM US$165.46 m (US$100–500/ha); SFM within forestry residual (US$50–300/ha). Carbon revenue US$36–42 m/yr at US$8.5–15/tCO2e	Article 6.2 ITMOs; VCM credits; PES; grants for establishment phase	High impact, lower feasibility — enable then invest
Resilient construction materials, resilient infrastructure and Build Back Better	14 (and 13)	Construction and infrastructure firms; insurers; PPP concessionaires	Resilience increment 10–30% over standard design; OPEX 2–5% of asset value/yr (e.g. road US$500,000/km -> US$600,000/km). Flood management US$354.55 m (US$0.5–2 m/km levee)	PPP and concession structures; viability-gap funding; green bonds	High impact, lower feasibility — enable then invest
Sustainable fishing — gear replacement finance	20	SACCOs; gear suppliers; fishing co-operatives	US$50–200 per fisher CAPEX; US$20–50/fisher/yr OPEX. Part of Fisheries sector US$92.68 m	Micro-credit for gear through SACCOs	Not screened in Table 30 (archetype: Public + Blended)
Climate services and awareness / education delivery	12, 15	Telecoms; water boards; education sector	Awareness US$10–50 per person trained; EWS US$50,000–150,000 per system (US$5,000–15,000/yr O&M)	Co-investment / CSR; service contracts	Quick win (lower impact, high feasibility)

Private-sector adaptation action	CBA measure(s)	Private actors	Cost estimate (CBA/AFS)	Instruments to source funds	AFS priority
CSR-linked community programmes and income-generating activities	10, 11	Agribusiness; banks; cross-sector firms	Not costed in CBA/AFS	CSR funds; matching grants	Quick win
Consolidated adaptation investment portfolio presented to investors	All	MCCCI; insurance sector; business associations; Climate Finance Unit	Not costed; project-preparation platform listed in AFS Table 26	Blended-finance platform; sector financing roundtables	Cross-cutting enabler — first action for private strand

Source: AFS (2026), Tables 18–20, 33 and Annex C; National CBA, Tables 15–20. No private-sector share is estimated per measure; entry points reflect interest expressed at the July 2026 private-sector workshops and are a pipeline hypothesis, not committed capital.

Table 32: Risks and Government Enabling Actions for Private-Sector Adaptation Finance

Action	Key risk	Enabling action required from Government
Micro-insurance and index insurance products for smallholders	Microinsurance policy inconsistently applied; VAT on premiums; low demand; basis risk	Reassess VAT on premiums; apply microinsurance directive; national agricultural insurance scheme
Climate credit for MSMEs and climate-friendly product lines (livelihood diversification)	Thin collateral; correlated default in rain-fed loan book	Capitalise VSLA/MFI channel; blended credit line with TA window
Aquaculture production and value chains (pond, cage, tank)	No lending track record; 13% banking access; input-price and disease exposure	Dedicated credit line with first-loss tranche and TA window; fisheries licensing and water permits
Climate-smart agriculture inputs, advisory and drought-tolerant seed multiplication	Adoption risk; interaction with input subsidy programme; seed regulation	Link seed facility to input subsidy programme; input-quality regulation
Input credit for crop diversification, soil fertility and conservation agriculture	No revenue at point of delivery; multi-season payback; transition yield gap	Grant-funded extension; guarantee covering first losses
Improved cookstove and biomass partnerships with farming households	Carbon-revenue taxation and payment structure; carbon-price volatility; willingness to pay	Carbon fiscal review; Article 6 readiness and project registration
Irrigation PPPs and outgrower schemes with recoverable water charges	Debt headroom exhausted (88% of GDP); O&M failure after commissioning	PPP framework with resilience rules; tariff / water-user-charge basis set before commitment
Household and community rainwater-harvesting systems	Small ticket size; dispersed delivery; high transaction costs	Aggregate at district scale to reach viable ticket size
Afforestation, reforestation and community / sustainable forest management carbon projects	Taxation, annual payment structures, returns below effort; tenure; Article 6 rules unsettled	Fiscal/incentive review; Article 6 readiness; benefit-sharing and customary tenure rules

Action	Key risk	Enabling action required from Government
Resilient construction materials, resilient infrastructure and Build Back Better	Absence of resilient-design standards; weak PPP contracts	Resilient building and roads codes; standardised PPP contracts
Sustainable fishing — gear replacement finance	Very small ticket size	Separate public management cost from gear-finance component
Climate services and awareness / education delivery	Flood damage to telecoms in Lower Shire	Named budget line for awareness; protect enabling infrastructure
CSR-linked community programmes and income-generating activities	Low capital; demonstration value only	Convene through MCCCI
Consolidated adaptation investment portfolio presented to investors	Technical rather than decision-level participation	Pitch engagement at board/executive level

Source: AFS (2026), Tables 16, 17, 20 and 33.

The private sector can be engaged through:

a) Developing public-private partnership models to attract private-sector investment in climate-resilient infrastructure and technologies.
b) Sensitizing the private sector to facilitate private-sector mechanisms for financing climate action, including risk-sharing facilities for climate-smart agriculture credit, performance-based grants for SME resilience upgrades, and PPP models for resilient infrastructure.
c) Creating awareness and, where appropriate, mandating companies to direct corporate social responsibility spending toward climate action.
d) Incentivizing blended-finance mechanisms between government, the private sector and development partners, and building carbon-market readiness (Article 6.2 of the Paris Agreement and Voluntary Carbon Markets) so forestry and land-use measures can access carbon revenue directly.
e) Dialogue with the private sector should be convened through the Malawi Confederation of Chambers of Commerce and Industry (MCCCI) and existing sector associations rather than new bodies. It should be pitched at decision-making level, since technical-level attendance alone does not shift institutional policy, and it should include a standing forum for private-sector actors in climate-related sectors to meet one another, which the July 2026 consultations identified as largely absent. Awareness and education on adaptation investment should be treated as an enabling measure with its own budget line, rather than as a by-product of project implementation.

5.5.5 Priority Sectors for International Climate Finance

Malawi's NC4 2025 highlights the challenges Malawi faces in climate finance and resource mobilization drives which have ultimately led to climate finance gaps as follows; (i) GoM's heavy reliance on aid and international partners for financing development programms and

infrastructure, (ii) growing Balance of Payment (BoP) deficits due to an over-dependence on agriculture and tobacco as foreign currency earners, (iii) the limited involvement of private sector investment in environment and climate change activities, and (iv) high levels of informal economy which limits the scope of the government to collect taxes and initiate domestic resources mobilization strategies for climate change programmes.

Against this background, multilateral development banks such as the World Bank, the European Investment Bank and the African Development Bank are preferred sources given their attractive debt terms and their ability to unlock inflows from other sources. Malawi wishes to attract international climate finance for the following sectors: Water (drought management, flood management, integrated watershed management), Biodiversity & Ecosystems (conservation, resilient ecotourism), Agriculture, Livestock & Fisheries, and Human Well-Being (education, floodproofing, health, nutrition, social support), each supported through both bilateral and multilateral channels.

Mobilizing resources for Malawi's NAP requires a coordinated approach that draws on all available financing streams while ensuring accountability and transparency. By aligning adaptation priorities with existing development frameworks, building strong partnerships across government, the private sector, civil society and communities, and actively engaging bilateral and multilateral partners, Malawi can progressively close its adaptation financing gap. Given the scale of the adaptation ambition set out in this NAP, this financing strategy should be treated as a living strategy. It should be reviewed periodically against actual implementation costs and financing flows and adjusted to ensure it remains adequate to sustain the interventions it supports over time.

5.5.6 Just Transition: Protecting Livelihoods in the Shift from Carbon and Climate-Vulnerable Sectors

Malawi’s path to climate resilience runs directly through several livelihoods and revenue sources that are themselves carbon and climate-vulnerable. Reliance on charcoal and firewood, driven in part by chronic power cuts and load shedding, continues to accelerate deforestation and forest degradation even as it remains the only accessible energy source for many households. Tobacco remains one of Malawi's principal foreign-exchange earners despite its exposure to the same climate variability threatening food crops, while the country's large informal economy, a structural constraint on domestic resource mobilization is also where much charcoal production, small-scale trading and other climate-exposed livelihoods are concentrated outside the reach of formal social protection.

These dynamics are just-transition concerns in substance, even where the NAP has not yet named them as such. As Malawi shifts investment and policy attention away from carbon and climate-vulnerable livelihoods and toward resilient alternatives, the workers and households currently dependent on charcoal production, tobacco farming and informal economic activity need labour, livelihood and social protection safeguards to avoid being left behind. This is consistent with the NAP's own contribution to GGA thematic target 9(f) on poverty, livelihoods and social protection per the LEG Technical Guidelines' treatment of synergies between adaptation and just transition and should be reflected explicitly.

Priority actions for consideration include: (i) sequencing charcoal-dependent energy alternatives with parallel livelihood and skills-transition support for charcoal producers and traders; (ii) assessing the social protection implications of tobacco's continued climate exposure for smallholder tobacco-farming households, alongside crop-diversification measures; and (iii) extending the inclusion-focused social protection measures explicitly to informal-economy workers, who are both climate-exposed and largely outside existing formal safety nets.

5.5.7 Transboundary Climate Risk and Regional Cooperation

Malawi's climate risk goes beyond its borders. The country shares Lake Malawi with Tanzania and Mozambique and the Shire–Zambezi river system with Mozambique and is a member of the Southern African Development Community (SADC), Common Market for Eastern and Southern Africa (COMESA) and the Zambezi Watercourse Commission (ZAMCOM). Malawi's regional commitments, including the SADC Climate Change Strategy, the COMESA-EAC-SADC Tripartite Climate Change Framework and the Kampala Ministerial Declaration on Migration, Environment and Climate Change, and COMESA's role in financing transboundary resource management and regional early warning systems, point toward the same conclusion. Water resources, flood and drought risk and cross-border migration are shared priorities Malawi cannot fully manage through domestic action alone.

Strengthening engagement with these river basin organizations and regional economic communities is recommended as a cross-cutting priority specifically: (i) formal engagement with ZAMCOM on shared Shire-Zambezi water management and joint flood/drought early warning, alongside the equivalent trilateral arrangements needed for Lake Malawi with Tanzania and Mozambique; (ii) integrating regional early warning data-sharing arrangements under SADC and COMESA into the national systems; and (iii) using existing regional migration frameworks such as the Kampala Declaration to inform the human-mobility and cross-border displacement considerations.

5.6 PRIORITY RECOMMENDATIONS FOR STRENGTHENING ADAPTATION FINANCE

Drawing on the Malawi Climate Adaptation Financing Strategy (2026), the following institutional and financial actions are the near-term priorities for operationalizing this chapter:

1. Establish a Climate Finance Unit within the Ministry of Finance and Economic Affairs, most plausibly alongside the Debt and Aid Management Division, which already holds the National Designated Authority relationship with the climate funds. It will be mandated to maintain the adaptation-finance baseline and funding-gap analysis, steward the accreditation pathway and project-preparation pipeline, operate climate budget tagging and its link to the MTEF and consolidate finance tracking into the national MRV system. A small, senior, multidisciplinary core team is sufficient at the outset; the Unit coordinates rather than implements projects.
2. Operationalize climate budget tagging across line ministries, beginning with Agriculture, Water and Sanitation, Natural Resources and Climate Change and Lands/Forestry, sequenced with a limited set of budget votes before extending to expenditure tracking and later, performance-based elements.

3. Design and capitalize an Adaptation/Resilience Facility, anchored in the Ministry of Finance and Economic Affairs, with initial capital from the GCF, GEF, multilateral development banks and bilateral donors, able to aggregate smaller climate-resilient investments into bankable portfolios and to provide first-loss capital or partial credit guarantees.
4. Launch concessional green and resilience credit lines through the Reserve Bank of Malawi and domestic financial institutions for climate-smart agriculture, aquaculture and MSME adaptation.
5. Mobilize carbon-market revenues for forestry and land-use measures through Article 6.2 bilateral agreements and Voluntary Carbon Markets, earmarking a share for community resilience.
6. Develop a National Green/Resilience Bond Framework to access capital markets over the medium term.
7. Strengthen inter-ministerial coordination through a Climate Finance and Resilience Committee spanning the Ministry of Finance, the Ministry of Natural Resources, and key line ministries, assembling the institutional measures above into a single Climate Change Financing Framework that links national climate strategy to the annual budget cycle.
8. Establish a dedicated climate-risk premium line in the national budget for sovereign parametric insurance (currently paid through AfDB and KfW support via ARC Ltd.), with a trajectory toward domestic co-financing of premiums from Carbon Levy proceeds and concessional resources, and pre-link payout triggers to the Social Cash Transfer Programme and DoDMA contingency plans.
9. Update the 2018 CPEIR, the single most valuable statistical investment available to strengthen future NAP financing analysis, and complete a second-phase CPEIR examining actual payment requests in pilot ministries.
10. Increasing domestic budget allocations for adaptation and mainstreaming climate finance into national and sectoral planning remains the first and most foundational of these priorities: it is the precondition on which access to concessional and private finance, and the credibility of Malawi's NAP investment pipeline, ultimately depend.

CHAPTER SIX: IMPLEMENTATION AND INSTITUTIONAL ARRANGEMENTS

6.1 OVERVIEW

This chapter outlines the coordination and implementation framework for Malawi's NAP, detailing roles and responsibilities for climate change adaptation across government institutions, the private sector, civil society and local communities. The framework builds on existing mandates set out in the National Climate Change Management Policy (2016), the National Environmental Policy (2004, currently under revision), the Environmental Management Act (2017), the National Climate Change Investment Plan (2013), and the Environment Management (Climate Change Fund) Regulations and Operational Manual.

Implementation of the NAP will draw on sectoral, thematic, territorial, and programmatic approaches, depending on the nature of adaptation needs.[32] A phased approach will be adopted to prioritize interventions according to urgency, resource availability, and the level of support required. This ensures that immediate vulnerabilities are addressed while laying the groundwork for long-term resilience.

The NAP is firmly anchored in both national and international development strategies. Domestically, it aligns with the Malawi Growth and Development Strategies (MGDS I–III) and Government of Malawi MW2063, while internationally it supports the SDGs the Sendai Framework for Disaster Risk Reduction (2015–2030), and the African Union's Agenda 2063. In doing so, the NAP ensures coherence between climate adaptation and broader development priorities at all levels.

6.2 CURRENT INSTITUTIONAL ARRANGEMENTS AND COORDINATION

The coordination of climate change activities in Malawi is led by the Environmental Affairs Department (EAD) within the Ministry of Natural Resources (MNR).[33] The Climate Change Section of the EAD serves as the day-to-day secretariat for the NAP process, working closely with the NAP Core Team and sector experts to provide technical input.

Recognizing the cross-cutting nature of climate change, the National Climate Change Management Policy (2016) established a coordination structure that brings together stakeholders across sectors. Mainstreaming climate change into national and sectoral plans, policies, and programmes is central to this framework. To strengthen political and legislative support, the Cabinet Committee on Climate Change facilitates coordination across government arms, while the Parliamentary Committee on Environment and Climate Change plays a key role in lobbying for and reviewing relevant legislation.

At the institutional level, two permanent national committees provide oversight and coordination:

[32] Malawi's National Adaptation Framework.
[33] Ibid.

- National Steering Committee on Climate Change (NSCCC)[34]: Chaired by the Ministry of Finance, Economic Planning and Development, this body provides high-level policy guidance, facilitates dialogue on frameworks and priority-setting, and mobilizes resources and technology for climate change initiatives.
- National Technical Committee on Climate Change (NTCCC)[35]: Chaired by the Department of Climate Change and Meteorological Services, this committee ensures effective implementation of national, regional, and international partnerships. It provides a platform for collaboration among government agencies, the private sector, NGOs, CBOs, academia, and local communities, supporting both adaptation and mitigation efforts.

The Ministry of Finance, Economic Planning and Development also plays a crucial role in monitoring and reviewing progress, ensuring alignment of climate action with Malawi's broader development goals.[36] These national coordination bodies rely heavily on donor-funded technical and operational support, and their resource constraints are a recognised implementation risk. Strengthening their independent resourcing, including through the proposed Climate Finance Unit and structured private-sector engagement via the Malawi Confederation of Chambers of Commerce and Industry, is important for sustaining coordination capacity over time.

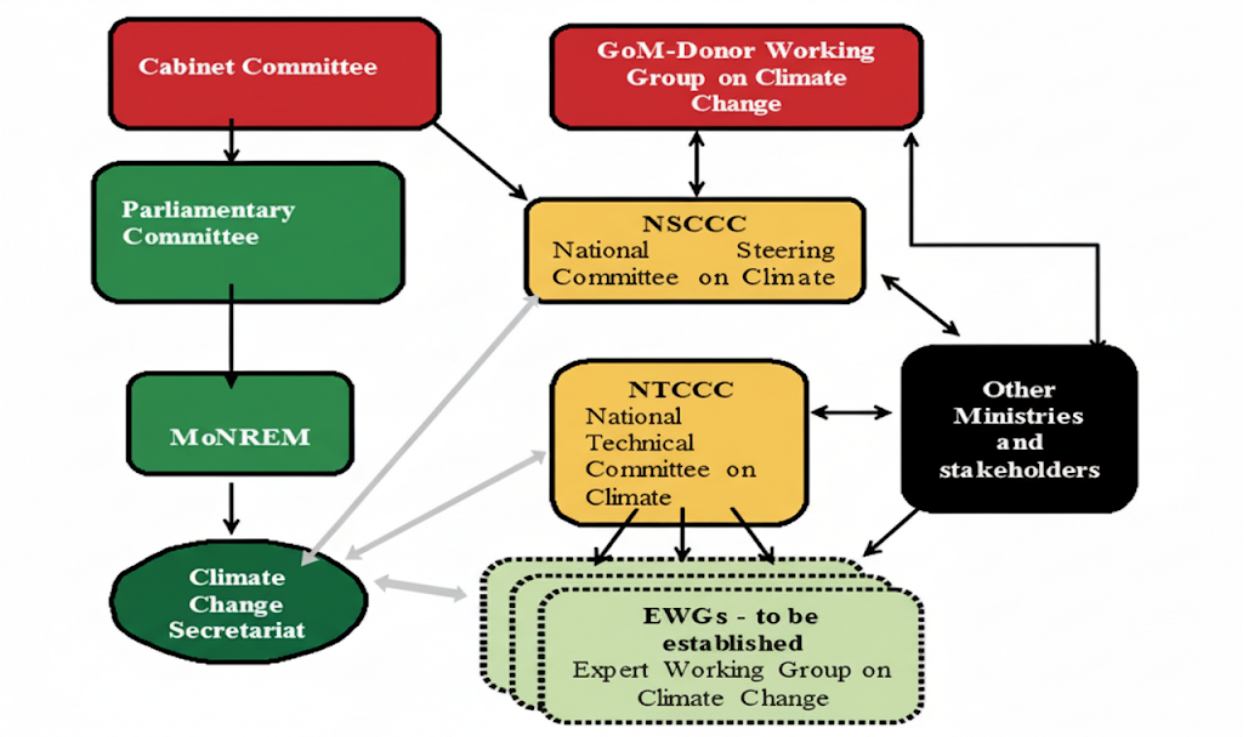


Figure 21: Climate Change Coordination Structure

Source: NCCMP (2016)

[34] Ibid.
[35] Ibid.
[36] https://www.finance.gov.mw/.

6.2.1 Institutions and Agencies in Climate Change Adaptation

Effective coordination among institutions is essential for advancing Malawi's climate change adaptation agenda. A range of agencies and organizations spanning national, sectoral, and district levels play distinct yet interconnected roles in planning, implementing, and monitoring adaptation actions. This section highlights how these institutions provide policy direction, technical guidance, and on-the-ground implementation support to ensure that adaptation priorities are mainstreamed into national development pathways through their specific mandates and responsibilities.

A. National-Level Institutions

These derive from overarching policies, laws, and strategies that guide climate governance and sustainable development. They play a central role in setting policy direction, coordinating sectors, and mobilizing resources for climate adaptation:

- **Ministry of Natural Resources (MNR) – Environmental Affairs Department** - Established under the Environmental Management Act, the EAD is the designated lead agency for environment and climate change in Malawi. It is responsible for coordinating the development and implementation of climate policies, including the NAP and NDCs, and serves as the UNFCCC focal point. The Department also oversees the integration of climate considerations into sectoral policies, ensures compliance with environmental impact assessments (EIAs), and supports access to international climate finance.
- **Ministry of Finance, Economic Planning and Decentralization -** Through its role in budget allocation and financial oversight, the ministry is responsible for medium-term and annual planning and budgeting, including the MTEF, the public investment programme and climate budget tagging, through which NAP priorities are financed. It is central in mobilizing and tracking climate finance. It is also responsible for aligning climate-related spending with the Public Finance Management Act and MW 2063. The Ministry plays a lead role in ensuring Malawi meets international transparency requirements under the Paris Agreement by developing budget codes for climate finance and supporting climate-related fiscal frameworks.
- **National Council for the Environment (NCE)** - A high-level advisory body established under the Environmental Management Act. The NCE provides policy advice to government on environmental and climate issues, ensuring that climate change is integrated into national decision-making. It serves as a forum for multi-sectoral coordination, bringing together representatives from ministries, academia, private sector, and civil society to deliberate on adaptation priorities.[37]
- **Department of Disaster Management Affairs** - Established under the Disaster Preparedness and Relief Act and reinforced by the Disaster Risk Management Act, 2023 (DoDMA), is the national authority for disaster risk management. It coordinates preparedness, response, and recovery efforts, while mainstreaming climate adaptation

[37] National Environmental Policy, Environmental Affairs Department Ministry of Natural Resources & Environmental Affairs, June 2004. Available at: https://faolex.fao.org/docs/pdf/mlw169499.pdf

into disaster governance. It chairs disaster coordination committees and ensures that district-level structures (DCPCs and VCPCs) align with national adaptation strategies.

- **Department of Economic Planning and Development (EP&D)** - Anchored in the Ministry of Finance, Economic Planning and Decentralition, EP&D ensures that climate adaptation is integrated into national development frameworks such as Malawi 2063 and the Malawi Implementation Plan (MIP-1). It provides strategic guidance on prioritization, resource allocation, and alignment of adaptation initiatives with long-term development goals.[38]
- **National Technical Committee on Climate Change (NTCCC)** - This technical body, composed of representatives from line ministries, academia, CSOs, and private sector, supports the government in providing scientific and technical advice on climate policy. It serves as the coordination platform for NAP implementation, monitoring progress, and ensuring inter-ministerial coherence across adaptation initiatives.
- **National Planning Commission (NPC)** - Established under the NPC Act, the Commission plays a critical role in long-term planning. It ensures that climate change is mainstreamed into the country's development priorities, including Malawi 2063. NPC also oversees monitoring of progress toward SDGs and climate goals, aligning adaptation with inclusive growth and poverty reduction targets.
- **National Council for Higher Education (NCHE)** - By regulating and supporting universities and higher learning institutions, NCHE ensures that research and academic curricula integrate climate change. It plays a role in advancing climate literacy, innovation, and human capital development for adaptation.
- **National Commission for Science and Technology (NCST)** Established under the Science and Technology Act, NCST coordinates research, innovation, and technology development. It supports evidence-based climate policy, promotes indigenous knowledge integration, and fosters innovation in adaptation technologies such as renewable energy, agriculture, and health systems.
- **Ministry of Agriculture, Irrigation and Water Development** - One of the largest ministries hosting eight departments, namely: Animal Health and Livestock; Agriculture Extension Services; Agriculture Research Services; Fisheries; Crop Development; Land Resources Conservation; Irrigation Services; Water Resources and Water Supply. The MoAIWD mandated to implement the Agriculture Sector Wide Approach (ASWAp) and is instrumental in generating and disseminating agriculture and water related adaptation knowledge and technology products to smallholder farming communities, who ultimately experience the greatest impacts of climate change.
- **Department of Climate Change and Meteorological Services** - Mandated to provide reliable, responsive and high-quality weather and climate services to meet national, regional and international obligations through timely dissemination of accurate and up to-date data and information for socio-economic development of Malawi. The DCCMS has manned and automated weather stations throughout the country and also manages district climate change information offices to disseminate climate change information to aid district development planning. It is the only official authoritative voice on weather and climate for the Malawi Government and manages

[38] https://epd.gov.mw/

all weather and climate data for Malawi as the official custodian of such information. Across sectors, DCCMS holds the primary technical responsibility for early warning systems, generating the forecasts, advisories and alerts that agriculture, fisheries, health, energy, infrastructure and education rely on; the respective sector ministries and departments remain responsible for sector-specific dissemination, application and response, as reflected in the MDA roles set out in **Table 33** below.

- **National Water Resources Authority (NWRA)** - Established under the Water Resources Act (2013), NWRA regulates the use and protection of water resources, including water abstraction, groundwater management and hydrological monitoring, and spearheads catchment management planning with Catchment Management Committees. It is the lead institution for the integrated catchment management and groundwater actions in the water sector.
- **The Ministry of Local Government and Rural Development (MoLGRD)** – Promotes and accelerates local governance and participatory democracy and social-economic development of local governance. MoLGRD is responsible for the district-led development efforts.[39] The districts, through the Decentralization Policy, are a vehicle of capturing developmental needs from the grassroots to inform central government planning processes.
- **Migration, Environment and Climate Change (MECC) Expert Working Group (EWG)**: The MECC-EWG was established under the National Climate Change Management Policy and under direct oversight of the National Technical Committee on Climate Change (NTCCC)/Disaster Risk Management (DRM). The EWG is multisectoral and addresses cross-sectoral issues related to human mobility in the context of climate change. It provides technical guidance on migration, environmental and climate change matters by developing and promoting relevant guidelines and tools for MECC programming. It also facilitates the development of national MECC-focused development programs, projects, and action plans.
- **Expert Working Group on Adaptation (EWGA)** - The EWGA is the technical working group on adaptation that reviewed the draft NAP and MERL Framework before their consideration by the NTCCC. Under this NAP, the EWGA will report to the NTCCC and will review annual NAP progress reports and MERL results, advise on updates to risk assessments and priority actions, and support cross-sectoral coordination to avoid duplication between sector actions.

B. Sectoral Institutions

Sector Ministries and Departments are responsible for establishing climate change units to mainstream the NAP (and NDC) in sectoral policies, planning and activities; relevant ministries are responsible for coordinating TWGs and CWGs.[40]

[39] https://localgov.gov.mw/unity.php
[40] Malawi's National Adaptation Plan Framework.

Table 33: MDA Roles and Responsibilities

Sector	MDA	Role
Agriculture	Ministry of Agriculture (MoA)	Overall lead on agricultural policy, food security, and climate-smart agriculture.
	Department of Crop Development	Oversees crop diversification and resilience programs.
	Department of Irrigation	Implements irrigation infrastructure and water-use efficiency programmes under the Irrigation Policy.
	Department of Agricultural Research Services (DARS)	Conducts climate-resilient research on seeds, soil, and cropping systems.[41]
	National Smallholder Farmers' Association of Malawi (NASFAM)	Strengthens farmer capacity for adaptation and market access.
	Seed Services Unit	Regulates seeds and supports availability of climate-resilient varieties.
Fisheries & Aquaculture	Department of Fisheries (DoF)	Regulatory and technical lead under the Fisheries Conservation and Management Act.
	Fisheries Advisory Board	Oversight and policy advice on fisheries management.
	Aquaculture Development and Management Unit	Promotes aquaculture innovation and expansion.
	Fisheries Research Unit	Generates data and innovations for sustainable fisheries under climate stress.
Forestry & Land	Department of Forestry	Manages Forest resources, afforestation, and climate-smart land use.
	Forest Research Institute of Malawi (FRIM)	Research and innovations in sustainable forestry and biodiversity.
	Malawi Forestry Investment Forum	Platform linking private sector, investors, and state for sustainable forestry.
	National Herbarium and Botanic Gardens of Malawi (NHBG)	Supports biodiversity conservation and ecosystem adaptation.
Infrastructure	Transport Ministry of Transport and Public Works (MoTPW) Roads Authority Road Fund Administration (RFA) Department of Civil Aviation & Malawi Airports Development Limited (ADL) Marine Services Unit	- Oversees road, rail, water, and air transport systems. - Constructs, maintains, and rehabilitates road networks under the public roads act - Mobilizes and manages financing for road development and climate-proofing. - Regulates aviation, ensures infrastructure resilience to climate risks. - Oversees inland water transport and safety, including resilience measures on Lake Malawi.
	Energy Ministry of Energy (DoE) Malawi Energy Regulatory Authority (MERA) Electricity Supply Corporation of Malawi (ESCOM) Electricity Generation Company (EGENCO) Rural Electrification Management Committee (REMC)	- Leads policy development and renewable energy initiatives. - Regulates energy generation, distribution, and tariffs. - Transmission and distribution utility. - Public utility for energy generation. - Oversees Malawi Rural Electrification Programme (MAREP).

[41] Irrigation Policy (2016). Government of Malawi.

Sector	MDA	Role
	National Commission on Sustainable Energy (NCSE)	- Emerging coordination platform for renewable and clean energy investments.
Water & Natural Resources	National Water Resources Authority (NWRA)	Regulates, allocates, and monitors water use
	Catchment Management Committees	Local-level institutions for watershed and catchment protection
	Regional and City Water Boards (Lilongwe, Blantyre, Northern, Central)	Utilities mandated to provide potable water and sanitation services.
	Ministry of Water and Sanitation	Policy oversight and coordination in the water sector.
Education	Ministry of Education (MoE)	Provides overall policy direction and integration of climate change into curricula.
	National Council for Higher Education (NCHE)	Oversees universities and colleges, ensuring climate science and adaptation research are mainstreamed.
	Malawi Institute of Education (MIE)	Develops curricula, including environmental and climate change education.
	Universities and Research Institutions (e.g., Lilongwe University of Agriculture & Natural Resources, University of Malawi)	Generate knowledge, training, and innovations for climate adaptation
Social Development (Gender, Youth, Children, Vulnerable Groups)	Ministry of Gender, Children, Disability and Social Welfare	Leads on gender equality, women empowerment, and protection of vulnerable groups in adaptation.
	Ministry of Health	Leads on health system strengthening actions in climate adaptation.
	Ministry of Youth and Sports	Supports youth empowerment and participation in climate resilience programmes.
	National Youth Council of Malawi (NYCOM)	Coordinates youth engagement in climate adaptation.
	Disability Council of Malawi	Ensures inclusion of persons with disabilities in climate and development planning.
	Civil Society Organizations & Community-Based Organizations	For example, women's groups, child protection networks, play a critical role in delivering adaptation support to vulnerable populations.

C. District-Level Institutions

Institutional mechanisms established through decentralization policies and frameworks (DDPs, DEAPs, and DCCIPs)[42]:

Institutions	Mandate
District Councils	Mandated under the Local Government Act and Decentralization Policy to lead local governance and integrate climate priorities into DDPs.
District Environmental Sub-Committees (DESCs)	Technical advisory arms under DEAPs, usually chaired by District Commissioners.
District Civil Protection Committees (DCPCs)	Disaster preparedness and response units established by DoDMA.
District Disaster Risk Management Committees & Village Disaster Risk Management Committees	Community-level structures for disaster risk management and adaptation planning.
Farmer Field Schools (FFS)	District-level knowledge and training hubs for climate-smart agriculture.
District Climate Change Investment Plan (DCCIP) Steering Committees	Locally driven coordination platforms linking national priorities with district needs.
Area Disaster Risk Management Committee	Traditional authority disaster risk management.

See **Annex 2** – Consultation list from various institutions

6.2.2 Roles and Responsibilities of Stakeholders

Effective implementation of Malawi's NAP requires a shared responsibility across multiple stakeholders. Each has a unique role in ensuring that adaptation actions are inclusive, sustainable and aligned with national priorities.[43]One of the challenges highlighted is fragmentation and duplication which manifests when projects are anchored in different institutional set ups under various MDAs with inadequate or ineffective coordination mechanisms. The NAP seeks to link institutions to roles and responsibilities towards effective implementation.

Government

The Government of Malawi, through the Environmental Affairs Department and sector ministries, provides overall leadership, coordination, and policy direction for climate change adaptation. It establishes the legal and policy frameworks, mobilizes and allocates resources, ensures enforcement of climate and environmental laws, and integrates adaptation into national and sectoral development planning. District councils operationalize adaptation priorities at the sub-national level through District Development Plans (DDPs), District Climate Change Investment Plans (DCCIPs), and District Environmental Action Plans (DEAPs).

[42] District-level institutions are anchored in Malawi's decentralization framework, notably the Decentralization Policy (1998) and the Local Government Act (1998, revised 2010), which mandate local authorities to prepare District Development Plans (DDPs), District Environmental Action Plans (DEAPs), and District Climate Change Investment Plans (DCCIPs).

[43] National Climate Change Management Policy, 2016.

Communities

Communities are at the frontline of climate impacts and play a critical role in identifying context-specific adaptation needs. Their participation through bottom-up planning enhances ownership, inclusivity, and the integration of indigenous knowledge into adaptation actions. Vulnerable groups, including women, youth, children, the elderly, and people with disabilities, contribute unique perspectives and innovations that strengthen resilience.

Private Sector

The private sector contributes to adaptation through sustainable investment, innovation, and public–private partnerships. Beyond reducing their environmental footprint, private actors coordinated through umbrella bodies such as the Malawi Confederation of Chambers of Commerce and Industry (MCCCI) can support climate-smart agriculture, renewable energy, resilient infrastructure, and insurance schemes. Their engagement is essential for financing and scaling up adaptation solutions.

Media

The media plays an essential role in awareness-raising, knowledge dissemination, and accountability. With its wide reach across radio, television, print, and digital platforms, the media ensures that climate adaptation information is accessible to all citizens. Associations such as the Association of Environmental Journalists amplify adaptation messages, highlight good practices, and support behavioural change at the community level.

Civil Society and Non-Governmental Organizations

Civil Society Network on Climate Change (CISONECC) is an umbrella organization that coordinates activities of their members with respect to related thematic area of climate change. It currently has 41 members coming from a diversified group consisting of local and international NGOs, faith-based groups and networks/associations passionately involved in climate change and disaster risk management (DRM) in Malawi. CISONECC members work in various areas which include livelihoods related interventions; capacity building and awareness; providing inputs such as seedlings; fertilizers, cassava cuttings, potato vines; early warning systems; exchange visits; tree planting; provision of health interventions; youth engagements; generation of energy efficient technology; and land administration. During the consultative process, CISONECC particularly highlighted the plight of the urban poor; women and girls are vulnerable groups whose needs should be taken on board in adaptation plan.

Academia and Learning Institutions

All learning institutions in Malawi are supporting climate change adaptation learning as shown by the number of initiatives including the Climate Change Handbook, training of teachers to deliver climate change adaptation teaching and university curricular on climate change adaptation. Lilongwe University of Agriculture and Natural Resources (LUANAR) has probably the most extensive climate change programme among the public universities. The Polytechnic and Chancellor, constituent colleges of University of Malawi, as well as Mzuzu University have implemented a number of studies initiated by the government and cooperating partners. Kamuzu College of Nursing, College of Medicine and Malawi University of Science and Technology have not been actively involved in climate change issues despite the link between disease epidemiology and climate change.

Development Partners

Development Partners play a fundamental role in Malawi in addressing climate change adaptation. Some of the selected development partners who are supporting climate adaptation related projects and programmes in Malawi include: the European Union, United Kingdom Foreign, Commonwealth and Development Office (FCDO), Royal Norwegian Embassy (RNE) and Irish Aid, GIZ, African Development Bank, JICA, World Bank, USAID, UNDP, UNEP, Food and Agriculture Organization and World Food Programme.

Some of the selected climate adaptation initiatives by the development partners in Malawi include:

i. *European Union (EU)*: focused on strengthening the dialogue and cooperation with developing countries, in particular least developed countries (LDCs) and Small Island developing states (SIDS). The Malawi project ran from December 2013 up to December 2019. EU has also supported rural communities in the Chikwawa and Nsanje Districts through the construction of mini grids (15 to 30 kW) for productive use in irrigation schemes as well as supplying schools and village energy kiosks.[44]
ii. *UNEP:* a) NAP project where UNEP provides support to Malawi for developing and implementing its NAP, with the goal of reducing vulnerability and promoting community and ecosystem resilience; b) Climate information and early warning systems where UNEP has supported projects to enhance weather and climate monitoring, including installing stations and equipment, to provide better forecasts and early warnings to vulnerable communities, farmers, and fishers; and c) Ecosystem-based adaptation which are projects focusing on restoring ecosystems in areas like the Lake Chilwa Basin, enhancing the capacity of local communities to manage natural resources and implement ecosystem-based adaptation.
iii. *Multiannual Indicative Programme (MIP) 2021-2027 for Malawi* has included support to actions that will increase the country's resilience to climate change, disaster risks and natural resource scarcity and degradation, and in so doing also protect and increase carbon sinks, thereby contributing to Malawi's Nationally Determined Contribution.
iv. *Kutukula Ulimi m'Malawi (KULIMA)* and AFIKEPO-Nutrition Programmes, and their successor Greening and Growing Malawi - Ulimi ndi Chilengedwe m'Malawi (UCHI), as well as Skills for Jobs Programme (Zantchito), Improving Secondary Education in Malawi (ISEM II), and Gender Responsive Social Protection programme.
v. *Development-Smart Innovation through Research in Agriculture (DeSIRA)*: A multidisciplinary research action, seeks to identify, develop and test integrated technology options to address complex and diverse challenges affecting the agricultural and food systems in Malawi under an increasing threat of climate change.
vi. *United Nations Development Programme (UNDP)* has been the largest multilateral entity supporting environmental and climate change programmes and projects in the country. A number of climate change projects have been implemented with

[44] Practical Action et al, *Sustainable Energy for Rural Communities (SE4RC) Project: Chikwawa & Nsanje (Malawi)* (EU, 2015-2019) https://www.practicalaction.org/our-work/projects/se4rc/

support from UNDP and partners including: Initial and Second National Communication, National Adaptation Plan of Action (NAPA), Africa Adaptation Programme (AAP) , Building Capacity for integrated and comprehensive approaches to Climate Change Adaptation in Malawi, Community Empowerment for Sustainable Land Management and Livelihood Improvement Project, Disaster Risk Reduction, and Public-Private Sector Partnership on Capacity Building for Sustainable land Management in the Shire River, Supported the establishment and operations of National Climate Change Programme (NCCP) office in the Environmental Affairs Department, as the coordinator of the programme.

vii. *Deutsche Gesellschaft für Internationale Zusammenarbeit* (GIZ): Digital Climate Services for Smallholder Farmers in Zambia and Malawi, Providing social protection for ultra-poor people in Malawi and more income and employment in Rural Areas in selected sectors.

viii. World Bank: Strategic Program for Climate Resilience (SPCR) in Malawi is due to start up a US$50 million programme aimed at investment projects in agriculture, fisheries and water resources as well as in climate information services, Resilient and Strategic Transport Operational Enhancement (RESTORE) Project.

ix. FAO: The Ecosystems-based Adaptation for Resilient Watersheds and Communities in Malawi (EbAM) project is a US$53.2 million GCF-financed initiative led by FAO and implemented with the Government of Malawi across 11 districts, through July 2030. FAO is also implementing the MELBA Malawi project (2026–2029), financed by the Government of Norway (approximately US$4.2 million), to strengthen national monitoring, evaluation and learning systems for ecosystem-based adaptation and complement EbAM implementation.

x. UNFPA: As part of broader efforts to strengthen health system climate resilience through gender-transformative climate adaptation, UNFPA is supporting Malawi through initiatives equipping individuals and institutions with capacity to enhance gender-transformative climate adaptation policies, plans and actions including the NDC. Training of national experts and government officials on conducting vulnerability assessments that integrate sexual and reproductive health and rights, GBV protection, and gender equality is due to be conducted in 2026.

6.2.3 Climate Change Adaptation Coordination and Governance

Effective coordination and governance are essential for ensuring that climate change adaptation efforts in Malawi are coherent, inclusive, and aligned with both national priorities and community needs. Malawi's institutional arrangements for adaptation are guided by the National Climate Change Management Policy (2016) and the National Adaptation Plan (NAP) Framework (2020), which provide the overarching framework for organizing institutions, defining roles, and ensuring accountability.[45]

Malawi's governance system for adaptation rests on three interlinked pillars: vertical coordination that connects national strategies to district and community action, horizontal coordination that ensures coherence across ministries and sectors, and multi-stakeholder

[45] Malawi's National Adaptation Plan Framework (2020).

coordination that embeds inclusivity and shared ownership.[46] Strengthening these mechanisms through clearer mandates, improved resourcing, and enhanced accountability will be critical for translating the ambitions of the NAP into effective action that builds resilience for all Malawians.

i. Vertical Coordination (National → District → Community)

Vertical coordination ensures that adaptation priorities flow from the national level to districts and communities, while local realities and priorities are integrated back into national planning.

National level	**The EAD in the Ministry of Natural Resources serves as the NAP Secretariat, coordinating implementation and providing policy guidance. The Ministry of Finance, Economic Planning and Development integrates adaptation into national planning and budgeting processes, ensuring alignment with MW 2063 and the Sustainable Development Goals.**
District level	District Councils integrate adaptation priorities into District Development Plans (DDPs), District Environmental Action Plans (DEAPs), and District Climate Change Investment Plans (DCCIPs). These frameworks help operationalize national adaptation priorities in locally relevant ways.
Community level	Village Civil Protection Committees (VCPCs), Farmer Field Schools (FFS), and community-based organizations mobilize local participation in adaptation and disaster preparedness. These structures provide feedback to district and national authorities, creating a two-way flow of information and decision-making.

This vertical system enhances ownership and accountability, though capacity gaps and uneven implementation across districts remain key challenges.

ii. Horizontal Coordination (Across Ministries, Sectors, and Agencies)

Climate change adaptation is inherently cross-sectoral, requiring effective collaboration across ministries and agencies. Malawi has established institutional mechanisms to support this:

The **National Steering Committee on Climate Change (NSCCC)**, co chaired by Economic Planning and Development and UNDP provides high-level oversight and policy direction on climate adaptation and resilience.
The **National Technical Committee on Climate Change (NTCCC)**, co-chaired by DoDMA and DCCMS, coordinates technical inputs and ensures sectoral integration.
Line ministries, including Agriculture, Water, Health, Energy, Forestry, Fisheries, Education and Transport, are mandated to mainstream adaptation priorities into sectoral policies, strategies, and budgets. Technical working groups support coordination across these ministries, although overlaps and sectoral silos remain a challenge in practice.

[46] Ibid.

Horizontal coordination allows Malawi to address interlinked risks, such as irrigation expansion and water resource management, or health outcomes linked to environmental degradation, but requires stronger harmonization and enforcement mechanisms.

iii. Multi-Stakeholder Coordination (Civil Society, Private Sector, Academia, Communities)

Multi-stakeholder engagement is a cornerstone of Malawi's NAP process, reflecting the guiding principles of participation, inclusivity, and equity.

Civil Society Organizations (CSOs)	Play a key role in advocacy, awareness-raising, and delivery of adaptation projects at community level.
Private sector	Contributes through investments in renewable energy, climate-smart agriculture, and innovative finance mechanisms.
Academia and research institutions	Provide climate data, vulnerability assessments, and capacity development for evidence-based decision-making.
Communities	Youth, women, indigenous groups, and persons with disabilities, participate in planning and implementing adaptation interventions through local structures such as VCPCs and district consultations.

This multi-stakeholder system ensures that adaptation is not only government-led but also community-driven and supported by diverse knowledge systems and resources. However, coordination between these actors often depends on donor-supported projects, underscoring the need for more sustainable mechanisms for engagement.

6.2.4 Institutional and Implementation Gaps

Malawi has made significant progress in developing climate change policies, frameworks, and institutions. However, the effectiveness of these arrangements is constrained by persistent gaps in institutional capacity, coordination, governance, and implementation. These gaps undermine the ability of the country to fully achieve its adaptation goals and to translate policy commitments into tangible results at the community level (**Table 34**).

Table 34: Institutional and Implementation Gaps

Implementation Gaps	Institutional Gaps	Governance Gaps
Data and indicators: The Malawi Implementation Plan I (MIP-I) lacks critical indicators, baselines, and targets, making it difficult to track adaptation progress. Missing datasets delay the establishment of annual climate adaptation targets in areas such as urban development, agricultural diversification, and climate finance mobilization. **Weak enforcement of laws**: Despite progressive legislation, implementation is undermined by weak monitoring and enforcement, particularly in forestry (illegal charcoal production), water management, and land use.[47] **Sectoral silos**: Energy and infrastructure remain poorly integrated into climate risk planning, leaving them highly vulnerable to floods, droughts, and extreme weather events. Irrigation expansion also sometimes conflicts with sustainable water management.[48]	**Weak inter-sectoral coordination**: Overlapping mandates among ministries, departments, and agencies lead to duplication, fragmentation, and poor accountability. While coordination platforms exist (e.g., through EAD), they lack authority, resources, and follow-through. **Limited institutional capacity**: Most sector ministries and district councils face acute shortages of trained personnel, particularly in climate science, data management, monitoring, and enforcement of environmental regulations.[49] **Knowledge and information gaps**: Key institutions, such as the DCCMS, lack adequate research capacity and sustained collaboration, leaving significant gaps in climate data, early warning systems, and sector-specific climate modelling.	**Institutional fragmentation**: Lack of clarity on mandates and responsibilities across different ministries weakens overall governance of climate change. **Limited participation**: Engagement of civil society, private sector, academia, and vulnerable communities in decision-making remains sporadic and often donor-driven rather than systematically embedded. **Weak decentralization linkages**: Although District Development Plans (DDPs), DCCIPs, and DEAPs provide entry points for local-level adaptation, their influence is undermined by top-down budget ceilings, conditional grants, and insufficient technical support.[50] **Transparency and accountability**: Inconsistent reporting systems and weak

[47] Review of Malawi's Policies Laws and Regulations (draft).
[48] Ibid.
[49] Malawi's National Adaptation Plan Framework, 2020.
[50] Review of Malawi's Policies Laws and Regulations (draft).

Implementation Gaps	Institutional Gaps	Governance Gaps
Financial constraints: The national climate change fund remains underutilized due to limited capitalization, while public spending for adaptation is constrained by competing priorities and reliance on donor-driven projects.	**Poor mainstreaming of adaptation**: Adaptation is acknowledged in sectoral policies (e.g., agriculture, water, forestry) but is not systematically integrated into institutional mandates, budget processes, or development planning.	climate finance tracking reduce accountability in adaptation investments.

6.3 PROPOSED COORDINATION AND INSTITUTIONAL ARRANGEMENT

Effective implementation of the Malawi National Adaptation Plan requires a robust, inclusive, and well-coordinated institutional framework that builds on existing structures while addressing gaps identified in capacity, participation, and enforcement. The proposed coordination arrangement seeks to integrate lessons learned, seize emerging opportunities, and strengthen institutional coherence at national, sectoral, and district levels.

At the national level, the EAD will continue to serve as the NAP focal institution, providing technical leadership and overall coordination of adaptation processes. The existing NTCCC will be strengthened by expanding its membership to include additional relevant sectors and ensuring adequate representation of the private sector. This inclusion is vital, as green economy measures and climate-smart investments require active private sector participation.

Oversight of the institutional coordination framework will be provided by the Natural Resources Sector Working Group (NRSWG). The NRSWG, through its sub-committees, the National Steering Committee on Climate Change, the National Steering Committee on Forestry Management, and the National Steering Committee on Meteorological Services, will ensure harmonization across related sectors, minimize duplication, and align climate adaptation with natural resource management priorities.[51]

To ensure horizontal integration across sectors, specialized sectoral coordination platforms will be established or strengthened in key areas such as water, agriculture, health, infrastructure, and energy. These platforms will harmonize adaptation actions, promote joint planning, and resolve potential conflicts (e.g., irrigation expansion versus water resource conservation). Stronger collaboration will also be pursued with universities, research institutions, and civil society organizations to close knowledge and data gaps.[52]

For vertical integration, the arrangement will empower District Councils to mainstream adaptation priorities into DDPs, District Climate Change Investment Plans (DCCIPs), and District Environmental Action Plans (DEAPs). Local-level structures, such as Village Civil Protection Committees (VCPCs), Farmer Field Schools, and community-based organizations, will be systematically linked to district and national coordination mechanisms. This will ensure that bottom-up priorities inform national planning, while national strategies provide technical and financial support to communities.[53]

Multi-stakeholder engagement will be institutionalized through structured mechanisms that bring together government, private sector, academia, NGOs, development partners, women's and youth networks, and vulnerable community representatives. These platforms will enhance inclusivity, transparency, and shared ownership of adaptation initiatives.

[51] Malawi Country Climate Risk Assessment Report, 2018.
[52] Malawi's National Adaptation Plan Framework, 2020.
[53] Ibid.

To address capacity and resource gaps, targeted investment will be directed towards training, technical support, and knowledge exchange across institutions. The framework will also prioritize resource mobilization by strengthening Malawi's capacity to access international climate finance (e.g., Green Climate Fund, Adaptation Fund) and improving climate budget tagging at the national level.

Finally, the coordination framework will be closely linked to the emerging Monitoring, Evaluation, Reporting and Learning (MERL) system for adaptation. This will enable continuous tracking of progress, transparent reporting under both national and international obligations (e.g., NDCs, Biennial Transparency Reports, Adaptation Communications), and adaptive learning to inform future adaptation priorities.

By reinforcing existing institutions such as the NTCCC and NRSWG, filling gaps in coordination and representation, and embedding vertical and horizontal linkages, Malawi can establish a more coherent, inclusive, and effective institutional framework for implementing the NAP. **Figure 23** reflects the proposed NAP institutional and coordination framework.

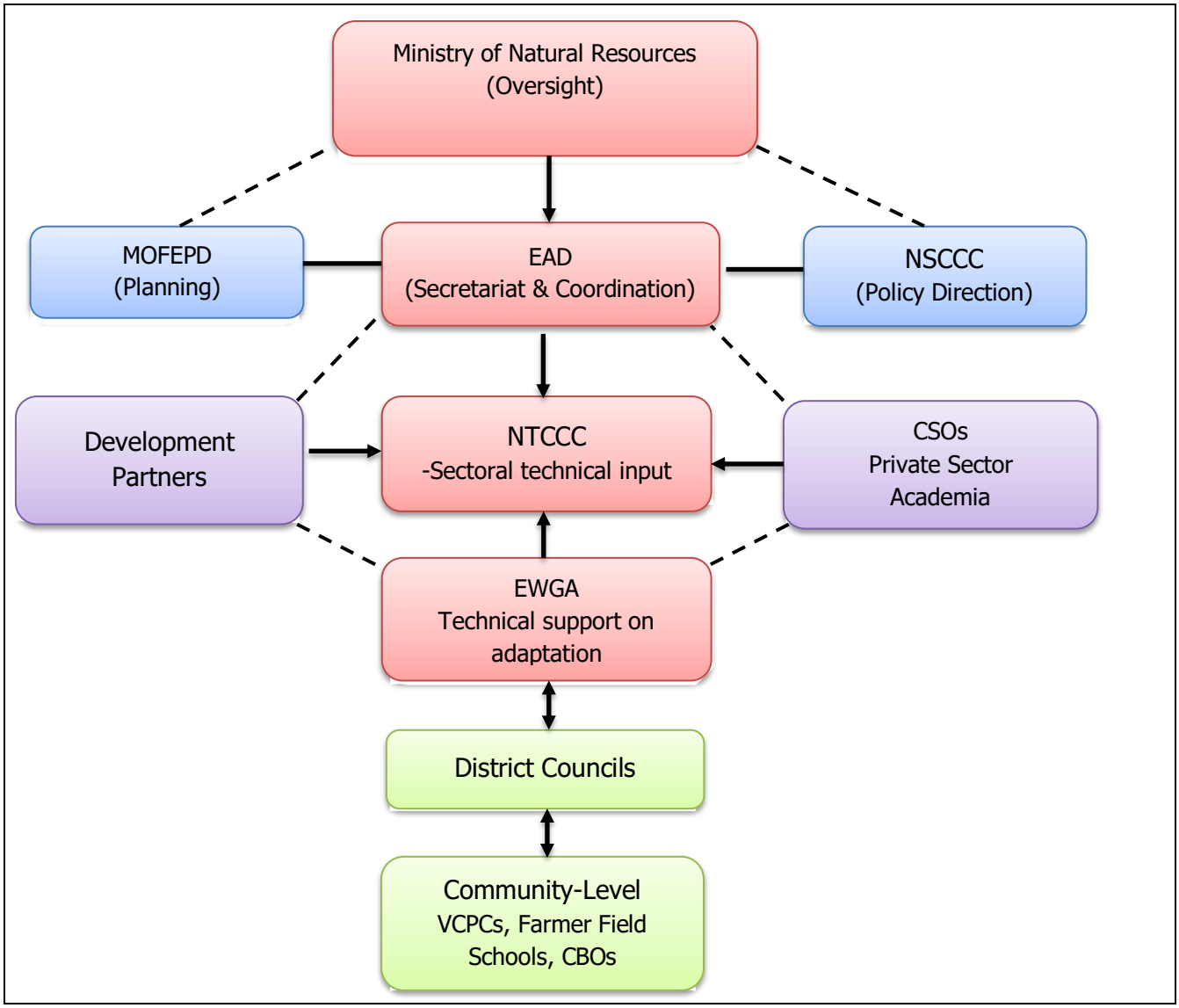


Figure 22: Proposed NAP Coordination Framework

6.4 IMPLEMENTATION PLAN

This section sets out how Malawi will operationalize the priority adaptation options identified in Chapter Four, using the institutional architecture described in Sections 6.2 and 6.3 and the financing strategy set out in Chapter Five. It provides the NAP-specific implementation detail on phasing, sequencing, roles, risks and indicators that the Malawi Implementation Plan I currently lacks for climate adaptation, as identified in Section 6.2.4 (**Table 34**). This section is intended to feed directly into MIP-I and its successor rather than duplicate them.

6.4.1 Implementation Approach and Phasing

Building on the phased approach introduced in Section 6.1, and nested within Malawi's existing MIP-I cycle (2021–2030) and the NAP's own 2020–2040 costing horizon, implementation of this NAP proceeds in three phases:

- **Phase 1 – Foundation (through 2030, within the current MIP-I cycle):** Operationalize the coordination arrangement in Section 6.3; close the indicator, baseline and target gaps identified in **Table 34**; execute the near-term financial-institutional priorities in Section 5.6; and begin no-regret, low-cost priority actions across sectors, such as community-based forest management, early warning system upgrades and extension on climate-smart agricultural practices.
- **Phase 2 – Scale-Up (2031 onward, aligned with the MIP-II period):** Scale investment-intensive measures such as irrigation expansion, climate-resilient infrastructure, water-security investments, as financing diversifies per Section 5.5; strengthen District Climate Change Investment Plans and District Environmental Action Plans as the primary vehicle for sub-national delivery.
- **Phase 3 – Consolidation and Mainstreaming (toward 2040):** Fully mainstream adaptation into sector budgets and the Medium-Term Expenditure Framework (MTEF); complete the transition from donor-dependent project financing to domestic and blended sources (Section 5.3.3); and feed the lessons of implementation into the next NAP enhancement cycle.

6.4.2 Sequencing of Priority Actions by Sector

Table 35 summarizes the sequencing logic applied to the priority adaptation options in Section 4.2, indicating the phase in which each sector's priority actions are expected to reach full-scale implementation. This does not preclude earlier action where readiness and financing allow. This sequencing is aligned with the budget cycle through the climate budget tagging and MTEF linkages, so that phased implementation is matched, as far as possible, by phased financing commitments.

Table 35: Sectoral Sequencing of Priority Actions

Sector	Phase 1 Focus	Phase 2 Focus	Phase 3 Focus
Agriculture	CSA extension and training hubs	Scale-up of Conservation Agriculture and irrigation	Full sectoral mainstreaming into MoA budget
Water	Baseline assessments, catchment protection pilots	Water-security infrastructure scale-up	Institutionalized water-resource climate risk management

Sector	Phase 1 Focus	Phase 2 Focus	Phase 3 Focus
Social Sector	Inclusion-group targeting, social protection linkages	Scaled, shock-responsive social protection	Mainstreamed into national social protection systems
Infrastructure	Climate risk screening of new infrastructure	Priority resilient-infrastructure investment	Standard climate-proofing in all public infrastructure
Forestry	Community-based forest management, fire prevention	Landscape restoration at scale, agroforestry expansion	NBSAP III/GBF-aligned ecosystem management institutionalized
Fisheries	Habitat conservation, resilient-practice pilots	Aquaculture investment scale-up	Sustainable fisheries management mainstreamed
Education	Curriculum and facility risk assessment	Climate-resilient school infrastructure	Institutionalized climate education programming
District level priorities	DCCIP/DEAP alignment in pilot districts	Roll out to all districts	Full integration into District Development Plans

6.4.3 Roles and Responsibilities for Implementation

Implementation responsibilities build directly on the institutional arrangement proposed in Section 6.3 and the stakeholder roles described in Section 6.2.2 and are not repeated here in full.

For this Implementation Plan specifically, the EAD retains overall coordination and progress-reporting responsibility as the NAP focal institution; the NTCCC provides technical oversight and cross-sector harmonization of the phasing; and the NSCCC provides high-level policy guidance and endorses resource mobilization decisions. The NRSWG oversees natural-resource-linked adaptation coordination, particularly for the forestry, fisheries and water sequencing. Sector ministries and their Technical Working Groups are responsible for executing the sector-specific priority actions in Section 4.2, while District Councils deliver sub-nationally through DDPs, DCCIPs and DEAPs as described in Section 6.3.

The private sector, including bodies such as the Malawi Confederation of Chambers of Commerce and Industry, contributes co-financing and investment; civil society organizations, academia and the media sustain community mobilization and accountability; and development partners provide catalytic and technical financing.

The EWGA supports the NTCCC with technical review of progress reports and MERL results. The lead implementing department or agency for each adaptation action, rather than the ministry alone, is specified in the MERL Indicator Definition Sheets, and sector working groups coordinate actions that cut across sectors to avoid duplication.

The Communication Strategy prepared during the NAP process will guide the dissemination of the final NAP following its launch, including simplified and translated versions for District Councils, communities and the private sector, and use of the media, schools and extension networks.

6.4.4 Resource Mobilization and Budgeting for Implementation

Financing for this Implementation Plan follows the Resource Mobilisation Strategy and the nine near-term financial-institutional priorities set out in full in Sections 5.5 and 5.6 including climate budget tagging, capitalization of the Climate Change Fund, the proposed Climate Finance Unit and Adaptation/Resilience Facility, and the blended and innovative instruments

described there. This Implementation Plan's role is to place each phase onto the Medium-Term Expenditure Framework (MTEF) budget cycle, so that implementation funding requirements are visible in national budget planning rather than tracked only through individual project agreements.

6.4.5 Capacity Building for Implementation

Delivering this plan requires a workforce and knowledge base able to continue planning, implementing, monitoring and adjusting adaptation actions after external technical assistance ends. Continued investment in the training of public officers at national and district levels, including extension workers, will be prioritized towards lasting institutional capability, complemented by succession planning to reduce the loss of expertise through staff transfers and attrition. Partnerships with LUANAR, the University of Malawi and Mzuzu University and other research and training institutions will help institutionalize climate change within academic curricula. Similarly, postgraduate research and continuing professional development ensure a continuous domestic supply of technical expertise rather than reliance on short-term consultancies.

In order to safeguard the climate services, vulnerability assessments and early warning information that this Implementation Plan's decisions depend on, it is necessary to strengthen the DCCMS as the custodian of weather and climate data and consolidate climate information within national systems rather than stand-alone project databases. Regional and South-South learning through platforms such as the NAP Global Network will keep Malawi's implementation practice aligned with evolving good practice and emerging evidence from other Sub-Saharan African NAPs.

6.4.6 Environmental Safeguards

Implementation depends on ensuring that adaptation measures strengthen the ecosystems on which Malawi's economy and communities rely. Prioritizing ecosystem-based adaptation and other nature-based solutions, sustainable land and water management, catchment protection and the restoration of degraded landscapes including through ongoing work in areas such as the Lake Chilwa Basin and the Shire River catchment will help maintain the natural resource base that underpins agriculture, fisheries, energy and water security as implementation scales up. Adaptation investments under this plan should be screened for the risk of maladaptation for example by ensuring that irrigation expansion under Phase 2 does not undermine downstream water availability, or that infrastructure development does not increase flood exposure elsewhere. They should also be embedded within sectoral planning and environmental impact assessment processes at each phase, so that short-term implementation gains do not create longer-term vulnerabilities for other sectors, districts or generations.

6.4.7 Risk Management and Assumptions

Implementation of the plan is subject to risks that should be actively managed and are summarized in **Table 36**.

Table 36: Implementation Plan Risk Analysis

Type of Risk	Assumption	Mitigation Measure
Financing	Reliance on donor-dependent financing before domestic instruments (the NCCF, the Carbon Levy account) are fully capitalized.	Mitigated through the diversification strategy in Section 5.5.2
Institutional	Political and leadership transitions disrupting coordination continuity	Anchor implementation in permanent structures (EAD, NTCCC, NRSWG) rather than project-based units and pursue formalised inter-institutional agreements and private-sector partnerships that are less exposed to changes in political leadership, supporting continuity of commitments beyond the current administration..
Legal and Political	Adaptation priorities being deprioritized or reversed across successive administrations, election cycles and budget planning periods	Legal and policy anchor provided by the Malawi Climate Change Management Policy (2016) and the Environmental Management Act (2017), together with sustained engagement of the Cabinet Committee on Climate Change and the Parliamentary Committee on Environment and Climate Change.
Climate	Extreme events disrupting implementation timelines or damaging completed investments	Climate-resilient design standards and contingency budgeting.
Environmental	Maladaptation arising from poorly sequenced or poorly screened investments	Environmental safeguards as in Section 6.4.6.
Capacity	Staff turnover eroding institutional memory	Succession planning and training measures identified in Section 6.4.5

6.4.8 Monitoring Implementation Progress

Progress against the phases, sequencing, roles and risks set out in this section will be tracked through the MERL system using the indicators, baselines and targets identified. This directly closes the gap identified in Section 6.2.4: unlike MIP-I, which **Table 34** shows lacks critical indicators, baselines and targets for adaptation, this NAP's implementation can be tracked against clear, agreed benchmarks from the outset and those results can in turn inform MIP-I's own successor plan.

CHAPTER SEVEN: MONITORING, EVALUATION, REPORTING & LEARNING

Terminology note: the UNFCCC/GGA framework generally uses Monitoring, Evaluation and Learning (MEL) for the adaptation-cycle function and treats reporting as a related transparency and communication function. Malawi retains the term MERL in this NAP because the national framework intentionally integrates domestic and international reporting workflows with monitoring, evaluation and learning. This does not change the substantive alignment of Malawi's system with the GGA MEL target.

7.1 REVIEW OF METHODS AND TOOLS

Malawi has established national and sectoral monitoring and reporting systems that provide a foundation for adaptation MEL and reporting, including Results-Based Management (RBM), District M&E Systems (DIMS), sectoral Management Information Systems (MIS), National Communications (NC1-NC4), the first Biennial Transparency Report (BTR1), NDC monitoring arrangements and sector administrative data systems. The NAP MERL framework should integrate with and draw from these systems rather than create parallel reporting chains. Remaining challenges include fragmented climate indicators, uneven subnational capacity, incomplete baselines and metadata, and limited interoperability across ministries and districts.

The National Adaptation MERL Framework, developed as part of this NAP process, seeks to address these limitations by integrating climate indicators into sectoral and district systems, promoting consistent data quality assurance, and ensuring evidence is available for decision-making and learning. Importantly, the MERL Framework is designed not only as a compliance mechanism but as a learning system that strengthens national decision-making while ensuring coherence with regional and global reporting obligations.[54]

7.2 INDICATORS, BASELINES AND TARGETS

Malawi, supported by technical experts, has developed a candidate set of indicators to measure adaptation processes, outputs, outcomes and impacts. The indicator-development process drew on sector consultations, the NAP Theory of Change, national development priorities, existing sector indicators and data systems, NDC 3.0, the SDGs and UNFCCC reporting requirements. The framework will be finalized as a parsimonious core set based on policy relevance, climate-risk linkage, measurability, data availability, reporting burden and institutional capacity. It will be accompanied by Indicator Definition Sheets specifying definitions, baselines, targets, disaggregation, methods, sources, frequency and institutional responsibilities.

Indicators are structured across process, output, outcome and impact levels to provide a results chain from enabling conditions and implementation to resilience outcomes. The final framework will screen for alignment with the seven thematic and four dimensional GGA targets and with the 59 Belém Adaptation Indicators, selecting only nationally relevant measures and avoiding duplicate reporting. Disaggregation will be applied where methodologically appropriate, including by sex, age, disability, geography and other vulnerability characteristics.

[54] Malawi's National Adaptation Plan Framework, 2020.

Priority is given to outcome- and impact-level measures while retaining a limited number of process and output indicators needed to explain implementation progress. Where baselines or target values are not yet available, the responsible institution will establish them through the first measurement cycle rather than assigning unsupported values in the NAP.

The Theory of Change (ToC) indicators were developed through consultations with the seven NAP priority sectors: agriculture, water, forestry, infrastructure, fisheries, social and education. The ToC links climate hazards, exposure and vulnerability to adaptation actions, outputs, outcomes and impact. At the framework level, this logic is compatible with the GGA adaptation cycle: risk and vulnerability assessment informs planning; planning guides implementation; and MEL generates evidence for iterative adjustment. The validated sector indicator framework and Indicator Definition Sheets should be annexed to, or formally referenced by, the NAP once finalized.

7.3 EFFECTIVENESS AND EFFICIENCY OF TRACKING ADAPTATION

Previous monitoring initiatives in Malawi revealed that indicators were often narrowly defined, donor-driven, and poorly linked to national planning and resource allocation. As a result, they failed to capture resilience outcomes in a meaningful way.[55] Under the NAP process, adaptation indicators have been re-designed to enhance both effectiveness and efficiency. They are:

- **Practical**, ensuring measurability within existing national and district-level M&E systems;
- **Efficient**, by reducing duplication and aligning with established data streams;
- **Impact-oriented**, focusing on resilience outcomes, such as improved food security, reduced vulnerability, and enhanced adaptive capacity, rather than simply tracking activities; and
- **Adaptive**, with periodic reviews to integrate emerging climate risks and lessons learned.

This balanced approach ensures that monitoring goes beyond compliance or reporting requirements, becoming a tool that actively supports evidence-based decision-making, strengthens accountability, and improves the overall effectiveness of adaptation interventions.

Indicator quantity will therefore be controlled through a tiered approach: a manageable national core for high-level NAP/NDC/GGA reporting, supported by sector-specific operational indicators where data and management needs justify greater detail. Periodic indicator review will retire low-value or duplicative measures and incorporate new evidence, including updates to Belém indicator metadata and methodologies. Each national core indicator is mapped to its corresponding GGA thematic or dimensional target, consistent with the Objective-level alignment set out in Table 3, so that progress reported through the MERL system can be read directly against Malawi's contribution to the Global Goal on Adaptation.

[55] Draft Review of Malawi's M&E System, 2025.

7.4 REPORTING AND TRANSPARENCY LINKAGES

Reporting will be anchored in Malawi's national MERL architecture while aligning with international obligations. At the national level, sector ministries and district councils will provide adaptation reports that are consolidated by the EAD into an annual NAP progress report for national purposes.[56] These reports will inform the Annual Economic Reports, Malawi 2063 reviews, and other national planning cycles.

Institutional roles are clearly defined:

- **EAD**: lead agency for consolidating and coordinating NAP reporting.
- **Ministry of Finance:** integration into national planning, budgeting, and climate finance tracking.
- National Statistics Office (NSO): provides statistical expertise, supports capacity development, and contributes to indicator design, including metrics, metadata, data collection, data management and measurement.
- **Sector Ministries & District Councils**: responsible for collecting, verifying, and reporting sectoral and local-level adaptation data.

At the international level, adaptation information generated through the NAP MERL system will be available for Malawi's BTRs, NDC updates, National Communications, Adaptation Communications and future GGA/global stock-take processes, as nationally appropriate. This separates the MEL function of monitoring progress, evaluating effectiveness and learning, from the reporting function that communicates selected information through domestic and international channels.

A digital integration layer for climate-adaptation data is envisaged to facilitate timely sharing across ministries, districts and partners. It should connect to, rather than duplicate, existing systems such as DIMS and sectoral MIS, apply common metadata and quality-assurance standards, and support controlled access, visualization and aggregation for national planning and international transparency reporting.

7.5 GAPS, LESSONS LEARNED AND ACHIEVEMENTS

The review of Malawi's MERL systems highlights both progress made and persistent challenges. While national and sectoral mechanisms provide a strong foundation for tracking adaptation, significant gaps remain in coordination, capacity, and sustainability. At the same time, important lessons have emerged on how adaptation MERL can be better integrated into existing systems, and notable achievements demonstrate Malawi's commitment to strengthening its adaptation monitoring framework.

GAPS	ACHIEVEMENTS	LESSONS LEARNED
Climate adaptation monitoring remains fragmented, with no fully operational national framework to guide	National systems such as RBM and DIMS provide a strong foundation for monitoring adaptation.	Adaptation M&E must be integrated into existing national systems rather than established as parallel structures.

[56] Malawi's National Adaptation Plan Framework, 2020.

GAPS	ACHIEVEMENTS	LESSONS LEARNED
consistent practices across sectors and districts.[57]		
Weak enforcement of reporting standards across ministries and districts.	Climate-related indicators have been piloted in sectors such as health, agriculture, and disaster risk management.	Clear baselines and outcome-level indicators are necessary to track resilience effectively.
Heavy reliance on donor-driven indicators, resulting in fragmentation and poor sustainability.	Community-led mechanisms, including Village Civil Protection Committees, have demonstrated the feasibility of local-level monitoring.[58]	Stronger coordination between national, sectoral, and district institutions is essential to ensure that data collected informs both planning and budgeting decisions.
Limited technical and financial capacity for adaptation data management and analysis.	Development of a National Adaptation MERL Framework as part of this NAP process provides a structured and harmonized approach to adaptation monitoring.	Continuous learning and feedback loops must be institutionalized so that lessons from pilot initiatives can be scaled nationally. A national learning platform is established as part of the MERL Framework to capture, synthesize, and disseminate lessons from adaptation initiatives across Malawi. This platform will document community-level experiences, sectoral case studies, and innovative practices, and ensure they inform policy and investment decisions. It will also facilitate exchange with regional and international adaptation processes, enabling Malawi to integrate lessons from other countries and global best practices into its own NAP implementation.
Insufficient mechanisms to capture and disseminate lessons learned across sectors and levels of government.		
Current systems do not adequately capture, synthesize, and disseminate lessons learned across sectors and levels of government, limiting opportunities for scaling up successful practices.		
Severe lack of standardized climate-migration monitoring under related policies and frameworks.	Increased recognition between the links between climate and human mobility, including a few mentions in the NDC (2021).	Additional clarity on the scale and linkages between climate and mobility, including differentiating between protracted and repeated displacements and support systems needed for trapped populations and other climate vulnerable groups is needed to improve inclusivity and effectiveness of climate action.

CONCLUSION

Malawi faces significant and growing climate risks, including rising temperatures, erratic rainfall, droughts, floods and other extreme weather events that threaten the country's economy, environment and social systems. These hazards affect agriculture, water resources, education, infrastructure, health and the livelihoods of millions of people, particularly those most vulnerable.

Despite these challenges, Malawi has made notable progress in developing policies, strategies and institutional frameworks to mainstream climate adaptation into national and sectoral planning. The NAP process has been consultative and inclusive, engaging stakeholders across government, civil society, the private sector, and local communities.

[57] Draft Review of Malawi's M&E System, 2025.
[58] Department of Disaster Management Affairs (DoDMA, 2023). DRM Act.

However, significant implementation gaps remain. These include limited institutional capacity, insufficient domestic financing, heavy reliance on donor-funded projects, and weak integration of climate priorities into sectoral and district-level planning. Gaps in data and technical capacity, outdated legal frameworks, and inadequate monitoring and evaluation systems further constrain progress. Malawi's adaptation efforts must now move from planning to action, ensuring that policies translate into locally relevant interventions that build resilience and protect development gains.

RECOMMENDATIONS

To effectively address the escalating risks posed by climate change, Malawi should move beyond policy formulation to coordinated action. The following recommendations are designed to guide the country in translating the NAP into practical, impactful measures. They reflect lessons learned from past and ongoing adaptation efforts and highlight critical gaps in institutional capacity, financing and implementation. Further, they emphasize the importance of inclusive, evidence-based and locally driven solutions. By adopting these recommendations, Malawi can strengthen its resilience and safeguard vulnerable communities in the face of climate uncertainty.

Table 37: Government of Malawi Priority Recommendations for NAP Implementation

Category	Recommendation	Action
INSTITUTIONAL	1. Strengthen institutional capacity and coordination	- Invest in capacity building for national and district institutions to plan, implement and monitor adaptation actions. - Clarify mandates and improve coordination across MDAs and levels of government to reduce duplication and enhance accountability. - Expand representation of private sector, academia and vulnerable groups in adaptation committees and decision-making platforms.
TECHNICAL	2. Invest in data, Early Warning and Knowledge Systems	- Upgrade climate data infrastructure, meteorological and hydrological monitoring and biodiversity surveillance to inform gender-responsive, evidence-based decision-making. - Expand early warning systems for floods, droughts and extreme water events and other hazards, ensuring timely dissemination of information to communities. - Promote climate education and awareness at all levels, including integration into school curricula and community training programs.
	3. Mainstream adaptation across sectors	- Systematically integrate adaptation priorities into agriculture, water, health, gender, infrastructure, education, ecosystems, and social protection policies and plans. - Regularly review and update sectoral policies and legal frameworks to reflect emerging climate risks, scientific evidence and lessons learned. - Foster cross-sectoral collaboration to address interlinked risks such as water-energy-food nexus and climate-health linkages and cross-cutting issues including gender and youth.
	4. Leverage regional and international partnerships	- Align Malawi's adaptation strategies with regional frameworks (for example SADC, COMESA, and African Union), to benefit from pooled resources, shared learning and cross-border initiatives. - Engage development partners, NGOs and research institutions to support capacity building, innovation and scaling of gender-responsive adaptation solutions.
	5. Enhance Monitoring, Evaluation, Reporting and Learning 6.	- Implement the NAP MERL framework, guided by the targets, baselines, indicators and metrics and metadata as well as efficient data management and other capacity development efforts as aligned to national development priorities and international reporting obligations. - Strengthen data collection, analysis and reporting systems at national and district levels to track progress and inform adaptive management. - Institutionalize continuous learning and feedback mechanisms to scale up successful practices and integrate lessons from pilot initiatives.
	7. Empower local governments and communities	- Decentralize adaptation planning and implementation by strengthening District Development Plans, District Climate Change Investment Plans and District Environmental Action Plans. - Support community-based resilience initiatives, such as Village Civil Protection Committees and Farmer Field Schools to ensure adaptation measures are locally owned and context-specific. - Integrate indigenous knowledge, gender-responsive approaches and social inclusion into adaptation strategies to reach the most vulnerable.

Category	Recommendation	Action
SOCIAL	8. Promote inclusive and equitable adaptation	- Prioritize gender-responsive adaptation actions that address the needs and vulnerabilities of women, youth, children, persons with disabilities and other marginalized groups. - Ensure meaningful participation and leadership of vulnerable populations in planning, implementation and monitoring of adaptation interventions. - Address gender-based violence, harmful practices and social inequalities exacerbated by climate shocks through targeted social protections and empowerment programs.
FINANCIAL	9. Mobilize and Diversify climate Finance	- Increase domestic budget allocations for adaptation and mainstream climate finance into national and sectoral planning. - Strengthen Malawi's capacity to access international climate funds (for example GCF, AF) by improving fiduciary systems and project readiness. - Develop innovative financing mechanisms, such as blended finance, public-private partnerships and incentives for private sector investment in climate-resilient infrastructure and technologies.

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