Scoping Report for Malawi NDC Tracking

Development of a Framework for Tracking Nationally Determined Contributions for Malawi

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MINISTRY OF NATURAL RESOURCES & CLIMATE CHANGE

ICAT Initiative for Climate Action Transparency

Initiative for Climate Action Transparency - ICAT

Scoping Report for Development of a Framework for Tracking Nationally Determined Contributions for Malawi

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1. Introduction

1.1 Purpose of this report

This scoping report assesses the status of NDC tracking processes in Malawi and provides an overview of the activities and expected outcomes of the Initiative for Climate Action Transparency (ICAT) project to develop of a framework for tracking Nationally Determined Contributions for Malawi. This document is developed with the purpose of providing a baseline of the current context to assess where the gaps and needs are within Malawi's existing NDC tracking activities.

The report begins with a description of the country context, followed by a baseline assessment of Malawi's climate change commitments and policies, existing institutional and governance arrangements, key stakeholders and country actors, previous and ongoing support programmes and key climate transparency challenges and needs. Having established the current context of NDC tracking in Malawi, the scoping report then outlines the project objectives, specific activities, and timelines of the ICAT project in detail. In the final chapter, the report takes a forward-looking approach to outline how the results of the activities developed under the ICAT project will impact international reporting and transparency efforts in Malawi.

1.2 Scoping report methodology

This report was undertaken through a combination of a desk-based review of existing policies, plans, strategies, and Malawi's UNFCCC submissions, together with targeted information gathering from Malawi's ministries and stakeholders during the first inception workshop (12th – 14th August).

Through this scoping phase, the following key documents were reviewed as part of the desk-based review:

- Malawi's Updated Nationally Determined Contributions (NDC) July 2021
- Malawi's Biennial Update Report (BUR1) December 2021
- Malawi's Third National Communication (NC3) February 2021
- Malawi Vision 2063 (MW2063) December 2020

Previous stocktaking assessment projects have found that conducting additional information gathering through interviews, questionnaires or stakeholder discussion sessions is an effective way of ensuring that questions are well targeted, and the practical or institutional challenges and needs that might not be visible from reports and documents are well captured.

The following stocktaking questions were discussed during the inception workshop by key country stakeholders representing different sectors and ministries. This covered both the main focal points, senior officials, and other key stakeholders such as technical or data leads.

Figure 1: Extract of stocktaking questions discussed with stakeholders during the inception workshop. The full list of stocktaking questions used by the country team is detailed in Annex 1.

Section 1: Country context

a) Please provide any additional country context in relation to climate change and your sector

Section 2: Existing institutional arrangements and processes

a) Please outline the existing institutional arrangements within your department/ministry in relation to climate activities?

b) Who is responsible for overseeing mitigation and adaptation efforts in your department/ministry? Please provide contact details and the individual's role.

Section 3: Data management and systems

a) What are the existing data management systems utilised for compiling climate-related data within your sector/department/ministry?

2. Country Context

2.1 Overview

2.1.1 Geographical profile

Malawi is a landlocked country in southern Africa, nestled along the southernmost part of the East African Rift Valley System. The country is bordered by Tanzania to the north and northeast, Mozambique to the south, southwest, and east, and Zambia to the west. Stretching about 910 kilometers in length and ranging from 60 to 161 kilometers in width, Malawi covers a total area of 118,484 square kilometers. Of this, 80% (94,787.2 square kilometers) is land, while the remaining 20% (23,696.8 square kilometers) is water taken up by the vast Lake Malawi. Malawi is divided into three main regions: the Northern, Central, and Southern regions, each with distinct geographical and cultural characteristics. The Northern Region, known for its highlands and mountains, including the Nyika Plateau, has Mzuzu as its administrative and commercial center. The Central Region, dominated by the capital city Lilongwe, is a hub of political and economic activities and is experiencing rapid urbanization and infrastructure development. The Southern Region, the most densely populated, includes the commercial capital Blantyre and Zomba, the former capital known for its picturesque plateau.

2.1.2 Population

As of the most recent data (2023), Malawi's population is estimated at 20,931,751, up from 18,376,883 in 2018, representing an overall population increase of approximately 13.9% over the last five years[1]. The population growth rate has been around 2.9% per annum[2]. Spatially, 44% of the population lives in the south, 43% in the center, and 13% in the north. In regard to the population distribution in urban areas vs rural areas, 16% of the population live in the urban areas while the rest live in the rural parts of the country representing 84% of the total population. The gender distribution remains consistent with previous censuses, with women comprising 51% and men 49% of the population.[2] About 49% of the population is 18 years or older. The average life expectancy has improved to approximately 63 years as of 2023. This is still below the average life expectancy for Africa, which was estimated at 64.5 years in 2023.[2]

2.1.3 Climate

Malawi experiences two primary seasons. The cool, dry season spans from May to October, with mean temperatures around 13°C in June and July. The hot, wet season occurs from November to April, with temperatures ranging between 30°C and 35°C. Rainfall varies with altitude, from 600 mm annually on the Rift Valley floors to 1600 mm in mountainous regions. These local variations in rainfall are influenced by the country's complex topography, which affects the movement of moisture-bearing winds and creates rain-shadow effects in different areas. Malawi generally receives sufficient rainfall, but its distribution is uneven and unpredictable due to local environmental factors, climate variability, and overall climate change. This inconsistency leads to extreme weather events like floods and droughts that impact various regions of the country at different times. These extreme weather conditions negatively affect food security, water resources, energy supply, infrastructure, public health, and the livelihoods of families.

2.1.4 Governance

Malawi has maintained a period of continuous peace and stable governance since gaining independence in 1964. The shift from one-party rule occurred in 1993, leading to regular multi-party presidential and parliamentary elections every five years.

In May 2019, Malawi conducted its sixth tripartite elections. Following the nullification of the presidential results by the Constitutional Court in February 2020, fresh presidential elections took place on June 23, 2020. In this election, Lazarus Chakwera of the Malawi Congress Party and Saulos Chilima of the UTM Party were elected president and vice president respectively, securing 58.6% of the votes. They prevailed over Peter Mutharika of the Democratic Progressive Party and United Democratic Front coalition, who garnered 39.4% of the votes. President Lazarus Chakwera and Vice President Saulos Chilima now lead a coalition of various political parties known as the Tonse Alliance. The next general election is scheduled for September 16, 2025.

2.1.5 Institutional Arrangements

The Environmental Affairs Department (EAD) which is within the Ministry of Natural Resources and Climate Change is integral to the preparation and coordination of environmental policy and climate change initiatives. It enforces environmental management laws and coordinates related policies while providing guidance on environmental issues. Additionally, it acts as the Secretariat for all the Climate Change Governing bodies in the country including National Steering Committee on Climate Change (NSCCC) and National Technical Committee on Climate Change as provided in the National Climate Change Management Policy of 2016. In each of the

[1] *World Bank Open Data*
[2] *Malawi Population and Housing Census Report (2018) https://malawi.unfpa.org/sites/default/files/resource-pdf/2018%20Census%20Preliminary%20Report.pdf*

twenty-eight districts across the country, an Environmental District Officer (EO) is responsible for managing environmental concerns and compiling "District State of Environment Reports." These reports are then aggregated into the "National State of the Environment Report."

The EAD has the overall responsibility for, and chairs, the thematic EWGs and also has overall responsibility for preparing and maintaining the national GHG inventory and submitting Malawi's National Communications, BURs, BTRs and NDCs to the UNFCCC.

See the below section on existing institutional arrangements for more detail on the specific arrangement related to NDC tracking.

2.2 Economy and society

Malawi's economy has faced multiple shocks, including Cyclones Idai (2019) and Freddy (2023), the COVID-19 pandemic, and the Russia-Ukraine conflict. Malawi is a least developed country with real GDP growth estimated at 1.5% in 2023, a moderate recovery from 0.9% in 2022. Malawi's GDP was estimated at $14 billion in 2023, representing an average GDP per capita of $672.9, one of the lowest in the world and in Africa.[3] Economic growth is forecasted to improve to 3.3% in 2024 and 3.8% in 2025. Challenges such as limited agricultural inputs and extended dry spells during the growing season, however, will likely reduce agricultural output. Tightening of monetary policy aims to curb inflation (currently at 28%, 2023)[4], but lower agricultural output may exert upward pressure on food prices. Additionally, adjustments to energy and utility prices planned for 2024, influenced by currency adjustments, are expected to add to inflationary pressures.

During 2018 to 2021, the service sector accounted for over half of the country's GDP growth at 54.9% followed by agriculture at 22.1% of GDP growth followed by wholesale and retail trade (12.6%), real estate and construction (6.5%). The manufacturing sector averaged 11.7% but has declining since 2007 and industry stagnated at 2.8% due to the challenges of electricity generation and water supply.[5]

2.2.1 Services

Malawi's economy is primarily driven by the services sector, which accounts for 54.9% of GDP and employs 30% of the workforce. Key activities in this sector include tourism, health services, banking, telecommunications, and retail. The government plays a significant role in these industries, holding substantial stakes. Tourism is a priority in Malawi's long-term development strategy, Malawi Vision 2063.

2.2.2 Agriculture

Agriculture is central to Malawi's economy, employing over 64% of the population and contributing 22.1% to GDP in 2021, while accounting for about 70% of exports.[5] The sector is highly vulnerable to climate change due to its reliance on rain-fed farming, with droughts and cyclones in recent years severely impacting smallholder farmers, many of whom live in poverty. [6] Malawi's Vision 2063 development plan aims to address these challenges with a renewed emphasis on mega farms, agricultural commercialization, and agro-industrial diversification, supported by infrastructure investments like expanded irrigation areas to boost productivity and lower business costs. [7] Key agricultural products including tobacco, tea, sugarcane, and coffee, together make up more than 90% of the country's export revenue. Additionally, Malawi engages in subsistence farming, with maize being the staple food, and smallholder farmers producing a variety of other crops. Recent developments have seen attempts to diversify the economy with increased focus on mining, retail, and tourism sectors.

2.2.3 Fisheries and the Blue Economy

Lake Malawi, the third-largest lake in Africa and the fourth largest freshwater lake in the world by volume, supports over 700 fish species, primarily from the Cichlid family. However, despite its rich biodiversity, the fisheries sector contributes 4% to GDP due to underinvestment and overfishing. [5] The industry directly employs 60,000 fishers and 9,000 fish farmers, with an additional 500,000 people working in fields like fish processing, boatbuilding and engine repairs. [8] The sector faces challenges from overfishing and climate-related impacts on catchment basins.

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[3] *World Bank Open Data (2023) https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=MW*
[4] *Malawi Economic Outlook, https://www.afdb.org/en/countries/southern-africa/malawi/malawi-economic-outlook*
[5] *Malawi - Country Strategy Paper 2023-2028, African Development Bank Group https://www.afdb.org/en/documents/malawi-country-strategy-paper-2023-2028*
[6] *Relief Web, https://reliefweb.int/report/malawi/urgent-action-critical-malawi-faces-severe-drought*
[7] *Malawi's Vision (2021), https://malawi.un.org/en/108390-malawi-vision-2063-inclusively-wealthy-and-self-reliant-nation*
[8] *A Situational Analysis of Small-Scale Fisheries in Malawi: From Vulnerability to Viability (2022-23) Working Paper, https://www.v2vglobalpartnership.org/_files/ugd/fd58f8_0482af0e7d6641cab1fafa0b3f101a32.pdf?index=true*

2.2.4 Natural Resources

In 2020, Malawi's mining industry contributed only 0.7% to GDP, though it has the potential to reach 5% and support economic diversification. The country has a variety of precious minerals, including rare earth elements, but current extraction focuses on gold, phosphate, coal, limestone, and uranium. To harness these natural resources effectively, substantial investments in infrastructure, especially in energy, are essential, alongside the establishment of a robust regulatory body to oversee the mining sector.

2.2.5 Industry

Malawi's industrial sector includes industries such as construction, agro-processing, textiles, clothing, footwear, electricity generation, water production, and mining. Despite this diversity, the sector's contribution to total employment remained stagnant at 8% between 2010 – 2019. [5]

2.3 Sustainable Development Priorities

2.3.1 Livelihoods

Malawi ranks 169th out of 191 countries on the Human Development Index[9], making it among one of the world's least affluent nations. As per the 2022 World Bank Poverty Assessment Report, half of its population is categorized as impoverished[10]. In 2023, 72% of Malawian's lived below the international poverty line of $2.15 per day, with 82% residing in rural areas, heavily dependent on natural resources for basic needs. [11] The unemployment rate improved slightly, from 6.8% in 2022 to 6.7% in 2023.[4] In Malawi, many women work informally in the natural resource sector, making them vulnerable to the negative effects of deforestation and resource depletion, which further threatens livelihoods and food security. About 90% of women over 15 rely on natural resources for daily needs like firewood and water collection, compared to only 24% of men. Women head 24% of households in Malawi, and these households are more likely to suffer from resource shortages, increasing their risk of poverty.[12]

2.3.2 Access to services

Transport

Malawi's transport infrastructure, including roads, rail, water, and air, is generally insufficient and in a poor condition to effectively serve the needs of its growing and dynamic population. The sector is the largest consumer of petroleum, contributing significantly to greenhouse gas emissions. To enhance the transportation of goods and services and attract investments, Malawi has been promoting the development of transport corridors through neighboring Tanzania and Mozambique to the Indian Ocean, such as the Mtwara Corridor. As a result, most of the country's imports are transported via the seaports of Dar es Salaam in Tanzania and Nacala and Beira in Mozambique, or as road cargo through Mwanza and Mchinji.[13]

Energy

The majority of Malawi's population lives in rural areas and relies on biomass energy for cooking and heating, with wood fuel and charcoal accounting for 86% of the country's total energy consumption. Oil products account for 10%, electricity for 3%, and coal for 1%. Households consume 81% of the energy, while the industry and transport sectors use 8% and 9%, respectively. Other sectors (commercial and agriculture) account for 2%.[14] Petroleum is mainly used for transportation, with 45% of oil products imported. **Error! Bookmark not defined.** Electricity, mostly generated from hydropower, represents only 3% of energy use, and only 15% of the population had access to it in 2020. **Error! Bookmark not defined.** Those connected to the grid frequently experience blackouts due to inadequate generation capacity and unreliable infrastructure. Additionally, hydropower plants are vulnerable to droughts and low water levels. Malawi also experiences challenges with its high reliance on biomass which has negative environmental impacts, including indoor pollution, deforestation, soil erosion, and poor water quality in rivers and lakes.

Water Supply and Sanitation

As of 2020, 70% of Malawian households have access to piped water, with 81% in urban areas and just 9% in

[9] *United Nations Development Programme, The 2021/2022 Human Development Report*
[10] *World Bank Poverty Assessment Report (2022) https://www.worldbank.org/en/publication/poverty-and-shared-prosperity*
[11] *World Bank Country Profile (2024), https://www.worldbank.org/en/country/malawi/overview*
[12] *World Bank. 2015. The Cost of the Gender Gap in Agricultural Productivity in Malawi, Tanzania, and Uganda. https://www.bing.com/search?pglt=2083&q=World+Bank.+2015.+The+Cost+of+the+Gender+Gap+in+Agricultural+Productivity+in+Malawi%2C+Tanzania%2C+and+Uganda&cvid=e0e160169ab547d7861cd1035f1df84e&gs_lcrp=EgZjaHJvbWUyBggAEEUYOTIICAEQ6QcY_FXSAQc3MTJqMGoxqAIAsAIB&FORM=ANNAB1&PC=U531*
[13] *Malawi's BUR (2021), https://unfccc.int/documents/403593*
[14] *Malawi Ministry of Energy, https://www.energy.gov.mw/statistics/*

rural areas. [15] There is a notable disparity in access and quality of water supply between urban and rural areas, where rural areas often rely on unprotected sources which can lead to waterborne diseases. Only 60% of rural water points are functional, causing frequent and unresolved water shortages. [16] These challenges disproportionately affect women, increasing their workload, impacting their health, and reducing productivity.

Education

In Malawi the completion rate in primary education increased from 51.2% in 2020 to 56% in 2022 while the transition rate to secondary education increased from 36.5% in 2021 to 46.5% in 2022 following several years of stagnation.[17] This improvement is due to the construction of over 200 new secondary schools funded by USAID. Building on the renewed commitment under the Transforming Education Summit (TES) and Tashkent Declaration (2022), the Government is encouraged to strengthen ongoing efforts to improve learning in primary schools, enhance access to early childhood and secondary education, and strengthening foundational learning.

Healthcare

The World Health Organization recommends one doctor per 1,000 people, a ratio that none of Malawi's 28 districts currently have access to.[18] The distribution of doctors varies by district, with most doctors in the country working in Blantyre, which has 0.029 doctors per 1,000 people, compared to Machinga and Chitipa districts, which have just 0.004 doctors per 1,000 people. Donor funding is the largest source of financing for the health sector in Malawi.

2.3.3 Urban and rural development

Malawi's urban areas are growing rapidly, with 16% of Malawi's population currently living in urban settings and projections by the National Statistics Office (NSO) indicating that 30% of the population will be urban based by 2030 and 50% by 2050.[19] This growth is driving high demand for housing, mostly through informal settlements, leading to overcrowding and poor living conditions. [20] Local authorities are challenged with inadequate capacity and weak governance structures at all levels which continue to hinder management and implementation of sustainable urbanization. A National Urban Policy was introduced in 2019 and aims to guide sustainable urban development by improving urban planning, governance, and infrastructure. It seeks to enhance coordination among government entities, ensure equitable access to resources, and address challenges such as rapid urbanization, housing shortages, and improve infrastructure resilience and urban poverty.

In rural areas, 82% of the population relies on agriculture as their primary livelihood. Agriculture is not only the backbone of rural life but also a crucial element in the nation's efforts to reduce poverty. Rapid population growth exacerbates the strain on agricultural resources and land, while overuse of land and poor agricultural practices contribute to soil erosion and loss of fertility. Additionally, frequent droughts and floods disrupt agricultural activities (especially rain-dependant agriculture practices) and reduce food security. To address rural challenges in Malawi, the Programme for Rural Irrigation Development (PRIDE)[21] was launched from 2016 to 2023, and has improved irrigation, boosted crop yields, and increased food security for over 30,000 farmers.

2.4 Environment

Malawi's varied topography includes highland plateaus, notable mountain ranges, and parts of the Great Rift Valley. It features significant bodies of water like Lake Malawi and Lake Chilwa, extensive woodlands, and fertile river basins such as Shire, Ruo, and Bua. This diverse landscape supports over 5,000 plant species and more than 8,500 invertebrate species. Malawi boasts 87 forest reserves, five national parks, four wildlife reserves, and three nature sanctuaries, all established to protect significant wildlife populations, major water catchment areas, and landscapes of high aesthetic value, as well as to preserve them for scientific research and recreational activities.

2.4.1 Environmental challenges

Malawi's land resource base is particularly under threat due to increasing human and livestock population pressures, and the expansion of agricultural activities into marginal areas. Overdependence on traditional biomass (wood, charcoal) and other fossil fuels to meet the country's growing energy needs are depleting

[15] *WHO/UNICEF Joint Monitoring Program for Water (2020), https://www.unwater.org/sites/default/files/app/uploads/2021/07/jmp-2021-wash-households-LAUNCH-VERSION.pdf*
[16] *Sanitation and water for all (2020) https://www.sanitationandwaterforall.org/sites/default/files/2022-07/2022%20Country%20Overview_Malawi.pdf*
[17] *UNICEF, Education Budget Brief 2023/24, https://www.unicef.org/malawi/media/10106/file/Education%20Budget%20Brief%202023-24.pdf*
[18] *World Bank Health in Malawi (2021), https://documents1.worldbank.org/curated/en/526731624433373135/pdf/Spending-for-Health-in-Malawi-Current-Trends-and-Strategies-to-Improve-Efficiency-and-Equity-in-Health-Financing.pdf*
[19] ONA Population estimates, https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates
[20] *UN Habitat, Malawi Country Profile, https://unhabitat.org/malawi*
[21] *PRIDE Programme, https://pride.mw/*

Malawi's forest resources that act as carbon sinks. The effects of climate change intensify these pressures by increasing the strain on land and forests through more frequent natural disasters and extreme weather conditions. Key factors contributing to environmental degradation include inadequate land tenure security, unsustainable land management practices (i.e. heavily dependent on rain-fed agriculture), persistent underfunding of environmental management efforts, and ineffective institutions, especially at the local level.[22]

Malawi's key economic sectors, such as agriculture, water, transport, and tourism, are deeply tied to its natural resources. Environmental degradation and climate change have become significant developmental challenges, negatively affecting food security, water quality, and energy security, and hindering the government's efforts to enhance the living standards of both urban and rural communities. Coupled with unsustainable use of natural resources, as seen in the fisheries sector and reliance on traditional biomass for energy, further threatens the country's climate and biodiversity. Economic modelling has estimated the direct overall costs due to climate change impacts are equivalent to losing at least 5% of the country's gross domestic product (GDP) each year**Error! Bookmark not defined.**.

Land degradation

Land degradation in Malawi affects up to 60% of land due to soil erosion and nutrient depletion, causing a loss of around 29 tonnes of soil per hectare annually. This results in a substantial economic burden, costing the country and estimated 6.8% of its GDP each year.

Biodiversity

Malawi's biodiversity is under threat from human activity and ineffective resource management, with many species in Lake Malawi, particularly Cichlid fish, endangered. Malawi has recently made notable progress in conservation, through partnerships with the African Parks Network, boosting wildlife populations and tourism. The country has also adopted tougher measures against wildlife crime, including stringent penalties and a ban on domestic ivory sales. These initiatives, coupled with policy reforms and enhanced law enforcement, have resulted in more successful prosecutions of wildlife traffickers.

Air Quality

A large proportion of Malawi's population use biomass fuels, leading to severe levels of household air pollution (HAP). This pollution significantly raises the risk of pneumonia, particularly in children, and contributes to high rates of lower respiratory infections. HAP is the leading environmental cause of death globally and a major health risk in Malawi. [23]

Water Resources

Malawi is facing a severe decline in water availability, with the lowest per capita water resources in the region. Climate change, along with inadequate infrastructure and management, such as poorly maintained dams and wells, further exacerbates this issue. The economic impact is significant, with poor sanitation costing the country around USD 57 million annually, or 1.1% of GDP.[24]

Waste Management

Malawi's waste management is insufficient, with only 10-15% of wastewater collected and about 70% of solid waste unmanaged.[22] The country has just two municipal landfills, lacks publicly operated incinerators, and has a limited number of waste transfer stations. Most districts and municipalities lack sewerage networks often using sludge ponds or old quarries for septic tank sludge disposal. Flooding exacerbates these issues by damaging waste infrastructure, causing waste site overflows, contaminating water sources, and disrupting waste collection services, which increases waste generation and places a significant financial strain on local governments and agencies.

2.4.2 Climate impacts

In the face of the escalating impacts of climate change, particularly the increase in extreme weather events, Malawi's vulnerability has become more pronounced. Malawi has experienced an increase in the frequency, intensity, and magnitude over the last two decades of extreme weather events. Malawi has experienced more than 19 major flooding events and seven droughts over the past five decades, culminating in the worst floods in 50 years in 2015 which; affected over 1 million people, displaced 230,000 people and resulted in 106 fatalities, with an additional 172 people reported missing. The agriculture sector, predominantly composed of resource-

[22] *World Bank (2019) Country Environmental Analysis, World Bank Document*

[23] *WHO, (2018) World Health Statistics Data Visualizations Dashboard.*

[24] *WSP. 2012. Malawi—Economic Impacts of Poor Sanitation in Africa*

poor smallholder farmers, bears the brunt of climate change impacts. Economic modelling has estimated direct costs due to climate change impacts are equivalent to losing at least 5% of the country's GDP annually. Notably, Cyclone Freddy a severe tropical cyclone which lasted more than five weeks in February - March 2023 produced six months of rainfall in six days, triggering floods and mudslides that killed more than 1,200 people in Malawi. As a result, it reduced agricultural output and disabled a third of the country's power generation and slowing industrial activity.

2.4.3 Greenhouse gas emissions

Malawi's latest national inventory data estimate total greenhouse (GHG) emissions excluding forestry and other land use (FOLU[25]) at 9.33 million tonnes of carbon dioxide equivalent (tCO2e) for 2017. Agriculture accounted for by far the largest share of the total (5.07 million tCO2e, 54% of total), followed by energy (2.34 million tCO2e, 25% of total) and waste (1.67 million tCO2e, 18% of total). Emissions from industrial processes represented just 0.24 million tCO2e, equivalent to around 3% of total emissions in 2017 (mainly associated with calcination CO2 emissions from minerals production). Emissions from livestock represented the largest emissions source category, followed by emissions from managed soils in crop production. Following these agriculture sources, major sources included CO2 emissions from fossil fuel use in transport, which accounted for 11% of the total, and methane emissions from unmanaged waste disposal site (dumps), which accounted for 13% of the total. **Error! Bookmark not defined.**

Under a BAU emissions scenario, total emissions excluding FOLU are forecast to increase by more than three

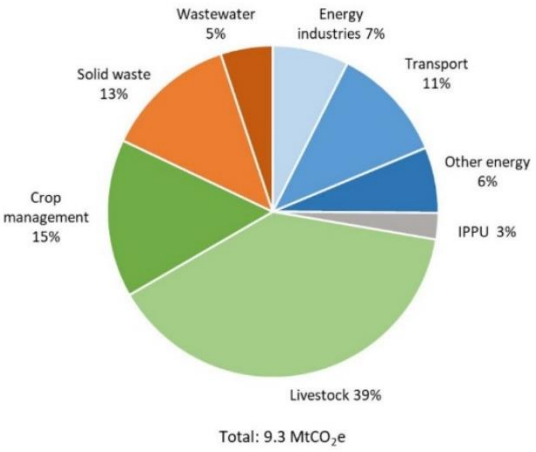


Figure 2: Malawi GHG emissions by source excl. FOLU in 2017. Due to decimal rounding within energy, values do not sum 100%.

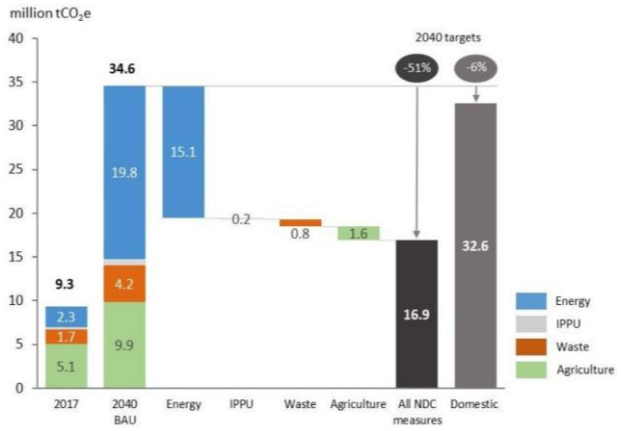


Figure 2: Malawi NDC emissions reduction scenarios (excl. FOLU) BAU, unconditional and conditional scenarios to 2040.

times by 2040, rising from 9.3 million tCO2e in 2017 to 34.6 million tCO2e in 2040. This outlook reflects assumptions around the growing contribution from fossil fuels to national emissions, arising from increasing demand for thermal power generation and transport services. A detailed assessment of identified GHG mitigation options for Malawi estimates a total emissions reduction potential of around 17.7 million tCO2e in 2040 against a BAU scenarios, equivalent to a reduction of 51%.

3. Malawi's Climate Change Commitments and Policies

3.1 UNFCCC reporting

The Government of Malawi is committed to taking urgent action to mitigate and adapt to the effect of climate change. As a Party to the UNFCCC, Malawi seeks to contribute to the ambitious goal of limiting temperature rise to 2°C with efforts to reach 1.5°C agreed under the Paris Agreement. In 2015, Malawi submitted its Intended

[25] Note that FOLU was excluded from Malawi's 2017 GHGI due to lack of data availability, however it is intended to be included in the next NDC update in 2025.

Nationally Determined Contributions (INDC) to UNFCCC. The INDC contained pledges on adaptation and mitigation actions to be implemented from 2015 to 2040, some with domestic support, others need external financial and technical support. These are aimed at reducing carbon emissions and building climate resilience to contribute towards sustainable development, food security and poverty eradication.

The Third National Communication (TNC) of Malawi is an improvement, follow-up, and continuation of activities under the Initial National Communication (INC) and the Second National Communication (SNC) that were completed in 2003 and 2011 respectively. It comprises a stocktaking exercise of the INC and SNC and sets priorities for implementation in a manner that ensures effective allocation of resources.

Malawi prepared its First Biennial Update Report (BUR) to the UNFCCC in 2021. The Inventory covers Greenhouse gas (GHG) emissions for the period 2001 to 2017, with 2010 being the base year.

The Environmental Affairs Department (EAD) is currently working towards submission of Malawi's first Biennial Transport Report (BTR1) and Fourth National Communication (NC4).

3.2 Malawi's Nationally Determined Contribution (NDC)

The Republic of Malawi submitted its updated NDC in 2021 responding to the request that all parties submit their updated and revised Nationally Determined Contributions (NDCs) to the UNFCCC Secretariat ahead of the 26th Conference of the Parties (COP26), held in Glasgow in 2021. The updated NDC builds upon Malawi's previous INDC and covers commitments across mitigation and adaptation for the period 2015 to 2040. Malawi's updated NDC includes new policies and national plans and reflects subsequent work in developing quantifiable mitigation and adaptation targets. The updated NDC represents a more detailed and robust assessment of mitigation and adaptation measures in Malawi, including emissions reductions and estimated funding requirements, informed by in-depth analysis, improved information and data, and an extensive national stakeholder-driven consultation process. The updated NDC contains 123 measures (outcomes) spanning across 10 sectors, with the sectoral scope of the NDC covering all emissions sources described in the IPCC 2006 Reporting Guidelines.

3.2.1 NDC Targets

A detailed assessment of identified GHG mitigation options for Malawi estimates a total emissions reduction potential of around 17.7 million tCO2e in 2040 against a BAU scenarios, equivalent to a reduction of 51%. The updated NDC includes conditional and unconditional mitigation targets (excluding sources from forestry and other land use (FOLU) see below) representing increased ambition from the first NDC, which lacked clear emission targets.

- **Unconditional contribution**: A reduction of 6% relative to BAU in the year 2040; equivalent to an estimated mitigation level of 2.1 million tonnes of carbon dioxide equivalent (tCO2e) in that year. This is an unconditional target, based on domestically supported and implemented mitigation measures and policies.
- **Conditional contribution:** An additional reduction of 45% relative to BAU in the year 2040; equivalent to an estimated mitigation level of 15.6 million tCO2e in that year. This represents an additional targeted contribution, based on the provision of international support and funding.

The combined unconditional and conditional contribution is therefore a 51 per cent reduction in GHG emissions compared to BAU in 2040, expressed as a single year target. The coverage of the contribution includes the three main greenhouse gases carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O). **Error! Bookmark not defined.**

3.2.2 *Actions and Priorities*

Malawi's updated NDC outlines various mitigation actions aimed at reducing greenhouse gas (GHG) emissions and promoting sustainable development. The total mitigation potential is estimated at around 17.7 million tCO2e in 2040 compared to base case BAU emissions in the same year of 34.6 million tCO2e. According to the analysis, mitigation measures identified within the energy sector accounts for by far the largest share of total potential at 85%, followed by agriculture (9% of total), waste (5%), and IPPU (1%).**Error! Bookmark not defined.**

Key mitigation strategies include:

1. **Promotion of Renewable Energy**: Malawi aims to increase the share of renewable energy sources in its energy mix. This includes expanding hydropower capacity, promoting large scale grid-based solar PV, and exploring Carbon capture and storage (CCS) for future grid-based thermal power plants (from 2030 onwards).
2. **Afforestation and Reforestation**: To combat deforestation and enhance carbon sequestration, Malawi is actively involved in afforestation and reforestation initiatives. These efforts aim to restore degraded landscapes, preserve biodiversity, and mitigate climate impacts. Measures include lowering rates of forest degradation from unsustainable fuelwood harvesting afforestation, agroforestry and riparian restoration. These measures algin with Malawi's REDD+ strategy.
3. **Climate-Smart Agriculture**: Promoting sustainable agricultural practices that enhance productivity while minimising GHG emissions is a priority. Actions include promoting soil conservation measures (i.e., crop residue and rotation practices and zero tillage), reducing enteric fermentation emissions from livestock and efficient water management techniques.

3.2.3 *Adaptation Actions*

Malawi faces significant climate risks, including droughts, floods, and variability in rainfall patterns, which threaten food security, water availability, and livelihoods, as mentioned in Malawi's vulnerability assessment in its Third National Communication[26]. The country's adaptation actions focus on building resilience and reducing vulnerability to climate impacts. Key adaptation strategies include:

1. **Smart agriculture, livestock and fisheries**: Implementing practices and technologies that enhance agriculture, livestock and fisheries resilience to climate change impacts. This includes targeted support to smallholder farmers, promoting drought-resistant crops, improving irrigation systems and supporting farmer training in climate-smart practices.
2. **Climate-proofed infrastructure, buildings and energy systems:** To decrease the climate vulnerability of infrastructures, buildings and energy systems Malawi aims to advocate installation of solar shading devices, application of ventilation and cooling strategies and integrate flood risk management in the design and construction of public and private infrastructure.
3. **Flood Management**: Climate-proofing infrastructure to increase resilience and actions includes delineation of flood prone areas with flood zoning maps, installation of telemetry flood forecasting and warning systems and construction of dikes and upstream storage dams, storm drains or bunds to re-direct or divert flows.
4. **Drought Management**: Enhancing water resource management and infrastructure to improve water availability and resilience to droughts and floods. Actions include constructing small-scale irrigation systems, rehabilitating water catchment areas, and promoting efficient water use.
5. **Ecosystem-Based Adaptation**: Protecting and restoring natural ecosystems such as wetlands, forests, and coastal areas to enhance their resilience and provide essential services like water regulation, biodiversity conservation (i.e., controlling the extinction of plant and animal species) and promotion of resilient eco-tourism.

3.3 Domestic action on climate change

Despite facing challenges in social and economic development, Malawi has taken steps to successfully mitigate and adapt to climate change through the development of Nationally Appropriate Mitigation Actions (NAMAs)[27] and the development of a National Climate Change Response Framework (NCCRF).

Examples of NAMAs Malawi has included:

Agriculture

- Changes in agricultural practices and systems that include integrated pest management, crop rotation, conservation agriculture, post-harvest handling and storage, water harvesting, watershed management, soil and water conservation and irrigation,
- Promote Microfinance schemes, including ensuring functioning financial markets and institutions.
- Enhance participatory research and technology development in crop, livestock, and fisheries production and management, land and water management.

In addition, Malawi has integrated climate change management into legislative sectoral frameworks and strategies, aligning them with broader development plans like the Malawi Growth and Development Strategy (MGDS III) and the Malawi Vision 2063. The National Climate Change Management Policy (NCCMP), adopted in 2016, guides the country's priorities in climate change, covering both adaptation and mitigation.

Malawi is in the process of developing the National Adaptation Plan (NAP) which will advance adaptation efforts in the medium and long-term periods. Under the leadership of the Ministry of Natural Resources, Energy, and Mining, the Government of Malawi has prepared the National Adaptation Plan Framework[28] to guide the development of its NAP in response to climate change. This framework is the result of national-level consultations with government officials, academia, civil society, youth, and faith-based stakeholders involved in climate change adaptation programs.

The framework provides guidance for developing and implementing the NAP, aligning it with the Malawi Growth and Development Strategy, the National Climate Change Management Policy, the Nationally Determined Contributions, the National Climate Change Investment Plan, and other national and sectoral plans. It builds on the NAP Roadmap, updating and validating the identified vision, objectives, mandates, and guiding principles. The framework establishes the approach for the NAP process, linking it to existing or planned policies, plans, strategies, and legislation, enabling Malawi to address its medium and long-term adaptation needs effectively.

3.4 Tracking NDC measures

The Enhanced Transparency Framework (ETF) established by the Paris Agreement requires a Monitoring, Reporting and Verification (MRV) system to transparently report progress made towards the targets defined in Malawi's NDC and to track the implementation of mitigation and adaptation actions, as well as the use and results of climate finance. Malawi has developed a framework which provides a basis to monitor and report on its NDC in a way that is

Figure 3: Example of indicators developed to track progress of NDC measures under the Online Partnership Plan Tool.

[28] *Malawi's National Adaptation Plan Framework (2020) https://napglobalnetwork.org/wp-content/uploads/2020/03/napgn-en-2020-malawis-national-adaptation-plan-framework.pdf*

consistent with reporting requirements whilst also being well-aligned with existing procedures and arrangements, defined through Malawi's NDC Implementation Plan[29]. Alongside this, the NDC Partnership Online Partnership Plan Tool[30] provides a basis for Malawi to monitor and report sector progress on planned NDC activities.

This ICAT project will support Malawi in strengthening and further operationalising the tracking of progress and achievements made in implementing the NDC commitments for selected priority sectors (energy, transport and agriculture). Although the Online Partnerships Plan Tool provides a strong foundation for NDC tracking, with a number of indicators developed as well as associated indictor fiche criteria highlighted and milestones established, gaps do occur within the indicator requests. Additional support gaps to further develop indicator reporting have also been identified.

4. Existing Institutional and Governance Arrangements

4.1 Governance structures

The Environmental Affairs Department (EAD) within the Ministry of Natural Resources and Climate Change is the UNFCCC Focal Point for Malawi, responsible for implementing Malawi's climate change policies, overseeing implementation of the NDC, and reporting to the UNFCCC (e.g. BTRs, NCs, NAPs etc). As the lead implementer, the EAD plays a major part in all components and outputs related to NDC progress, including managing and monitoring data collection and reporting, as well as strengthening the capacity of stakeholders.

A number of other governmental structures are involved in supporting the EAD when it comes to climate action as outlined below.

Figure 3 Key ministry data providers for tracking mitigation indicators, as provided in Malawi's NDC

Line ministry	Activity/Indicator	Lead Agency	Key data providers /stakeholders
Ministry of Energy	Energy related indicators	Department of Energy Affairs, Malawi Energy Regulatory Authority (MERA)	Electricity Generation Company (EGENCO), Electricity Supply Corporation of Malawi (ESCOM), Department of Mines, Ministry of Local Government (MOLG), District Councils, District Energy Offices, District Forestry Offices, Area and Village Development Committees, private sector (mining companies, Independent Power Producers (IPPs))
Ministry of Transport and Public Works	Transport related indicators	Department of Road Traffic and Safety Services, Department of Rail	MOLG, Passenger Associations, Bus Operators Associations, City Councils, Road Transporters Association, Railway Operator, District and City Councils, private sector (transport providers)
Ministry of Industry	Industry related indicators	Department of Factory	Environmental Affairs Department (EAD), Department of Housing, Malawi Bureau of Standards, private sector

29 Malawi NDC Implementation Plan NDC (ndcpartnershipplans.com)
30 Malawi NDC Online Partnership Plan Tool NDC (ndcpartnershipplans.com)

		Inspectorate, Malawi Energy Regulatory Authority (MERA), National Construction Industry Council (NCIC)	(cement companies)
Ministry of Agriculture	Agriculture related indicators	Ministry of Agriculture (MOA)	Department of Crop Development, Department of Animal Health and Livestock Development, Department of Land Resources and Conservation, Ministry of Forestry and Natural Resources (MOFNR), District Agricultural Development Offices (DADOs), Lilongwe University of Agriculture and Natural Resources (LUANAR), Agricultural Development Divisions (ADDs)
Ministry of Natural Resources and Climate Change	Forestry related indicators	Department of Forestry	Forestry Research Institute of Malawi (FRIM), Lilongwe University of Agriculture and Natural Resources (LUANAR), District Agriculture Development Offices, District Forestry Offices

Figure 4 Key ministry data providers for tracking adaptation indicators, as provided in Malawi's NDC

Line ministry	Activity/Indicator	Lead Agency	Key data providers /stakeholders
Ministry of Transport and Public Works	Build Back Better related indicators for flood mitigation	Buildings Department	Councils, NGOs (e.g., Habitat for Humanity, UN Habitat)
Ministry of Tourism, Wildlife and Culture	Resilient tourism related indicators	Department of Tourism	Department of National Parks and Wildlife, EAD, Malawi Environment Protection Authority (MEPA)
Ministry of Agriculture	Agriculture related indicators	MOA	Department of Crop Development, Department of Animal Health and Livestock Development, Department of Land Resources and Conservation, MOFNR, DADOs, LUANAR, Agricultural development districts (ADDs), Department of Agricultural Extension Services (DAES)
Ministry of Health	Nutrition related indicators	Department of Nutrition and HIV and AIDS	Ministry of Health, Academic institutions (LUANAR, Chancellor College)
Ministry of Health	Health WASH related indicators	Department of Preventive Health Services	District Health Offices, NGOs
Ministry of Homeland Security	Disaster risk management related indicators including flood-proofing, drought management, early warning systems, and hazard monitoring and flood management	Ministry of Homeland Security	Department of Climate Change and Meteorological Services (DCCMS), Malawi Vulnerability Assessment Committee (MVAC), Water Resources Department, UN Organisations, USAID, National Construction Industry Council (NCIC), Buildings Department, Ministry of Housing and Construction (MHC), Department of Forestry
Ministry of Tourism, Wildlife and Culture	Resilient Ecotourism indicators	Department of Tourism	Department of Parks and Wildlife, Malawi Environment Protection Authority (MEPA)
Ministry of Education	Social Support related indicators	MOEPD&PSR	Poverty Reduction and Social Protection Division, Ministry of Education, Ministry of Gender, Children, Social Welfare (MOGCSW), Dodoma, National Local Government Finance Committee, Microfinance institutions
Ministry of Fisheries	Fisheries related indicators	MOFNR	Department of Fisheries, LUANAR
Ministry of Water Resources	Integrated Watershed Management indicators	Department of Water Resources	Department of Forestry, Department of Land Resources Conservation, Department of Irrigation
Environmental Affairs Department	Biodiversity and Governance indicators	EAD	Department of Forestry, Department of Fisheries, Department of National Parks & Wildlife, National Herbarium & Botanical Gardens, FRIM, MEPA, Economic Planning Department, National Planning Commission

4.2 Institutional arrangements

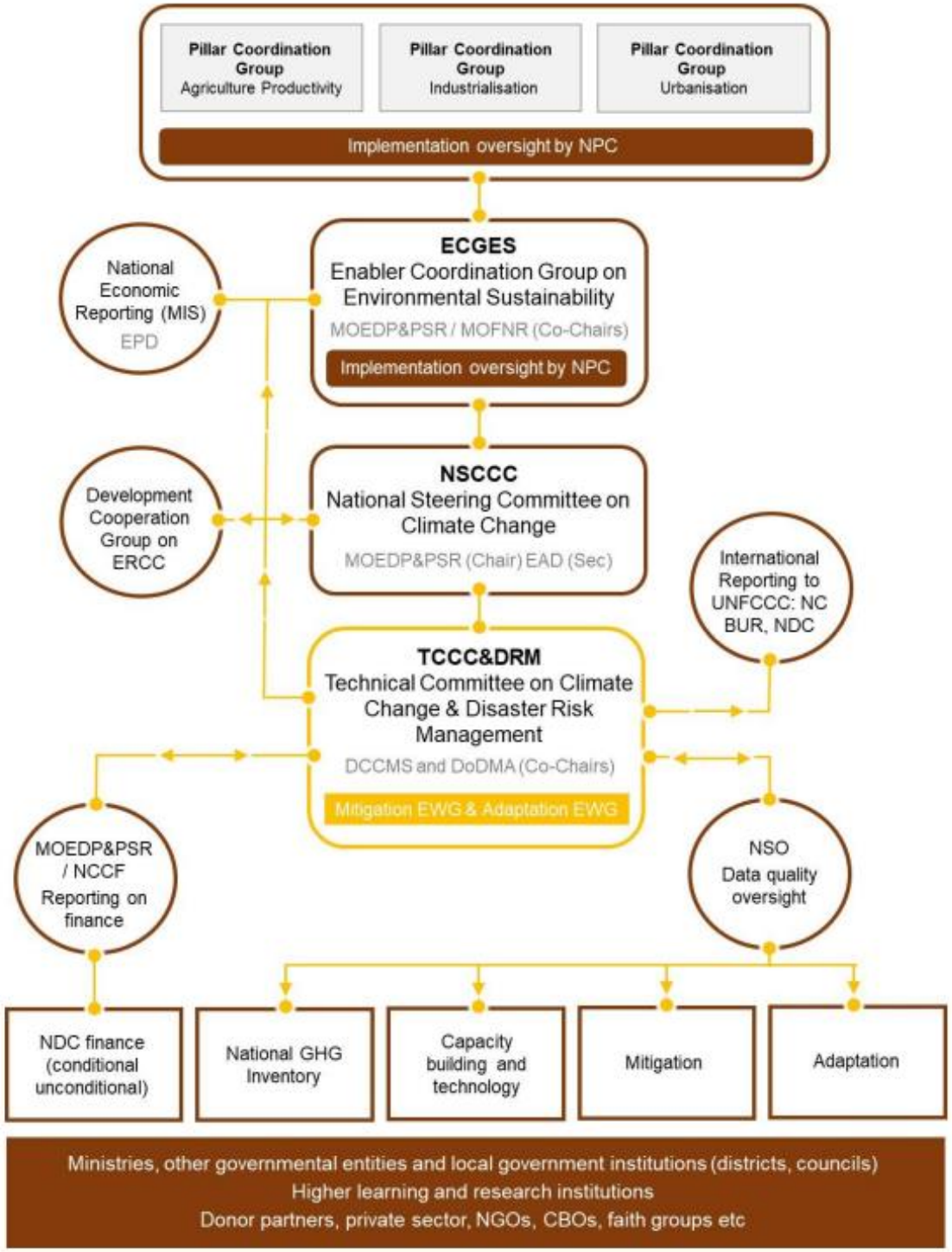
At the national level, Malawi has established a comprehensive planning structure to coordinate and track climate efforts. The National Planning Commission (NPC) manages long-term strategies, while the Ministry of Economic Planning, Development, and Public Sector Reforms (MOEPD&PSR) oversees short-term sector priorities through Sector Working Groups (SWGs), aligned with the Malawi Growth Development Strategy (MGDS) III and Vision 2063.

At the core are the Pillar Coordination Groups (PCGs), responsible for leading efforts is three key pillars of the National Vision: Agricultural Productivity, Industrialisation and Urbanisation. These PCGs are supported by the Enabler Coordination Group on Environmental Sustainability (ECGES), coordinated by MOEPD&PSR and the Ministry of Forestry and Natural Resources with the Environmental Affairs Department (EAD) as the secretariat.

The National Steering Committee on Climate Change (NSCCC) and the Technical Committee on Climate Change and Disaster Risk Management (TCCC&DRM), composed of key ministries, departments, civil society, donors, and the private sector, provide strategic guidance on climate policies and oversee the implementation of the NDC. The NSCCC, chaired by MOEPD&PSR, offers interministerial coordination, while the TCCC&DRM, co-chaired by the Department of Climate Change and Meteorological Services (DCCMS) and the Department of Disaster Management Affairs (DODMA, focuses on technical guidance in climate resilience and disaster risk reduction.

The EAD, serving as the UNFCCC focal point, leads climate policy formulation, coordinates NDC processes, and oversees national GHG inventories. The Expert Working Groups (EWGs) on Adaptation, Mitigation, and Climate Finance, reporting to the TCCC&DRM, provide specialised technical outputs which feed into UNFCCC reporting. The TCCC&DRM, through these EWGs, coordinates national efforts on mitigation, adaptation, finance, and tracks NDC progress across sectors.

Figure 5 Institutional arrangements for tracking Malawi's NDC implementation



4.3 Wider stakeholder consultation

Wider stakeholder consultation is necessary to track and report on various aspects of the NDC, to allow for holistic tracking of NDC implementation progress. Figure 5 indicates the wider group of stakeholders outside of the direct line ministries detailed in Figures 3 & 4.

Figure 6 Wider stakeholders to be consulted on NDC tracking

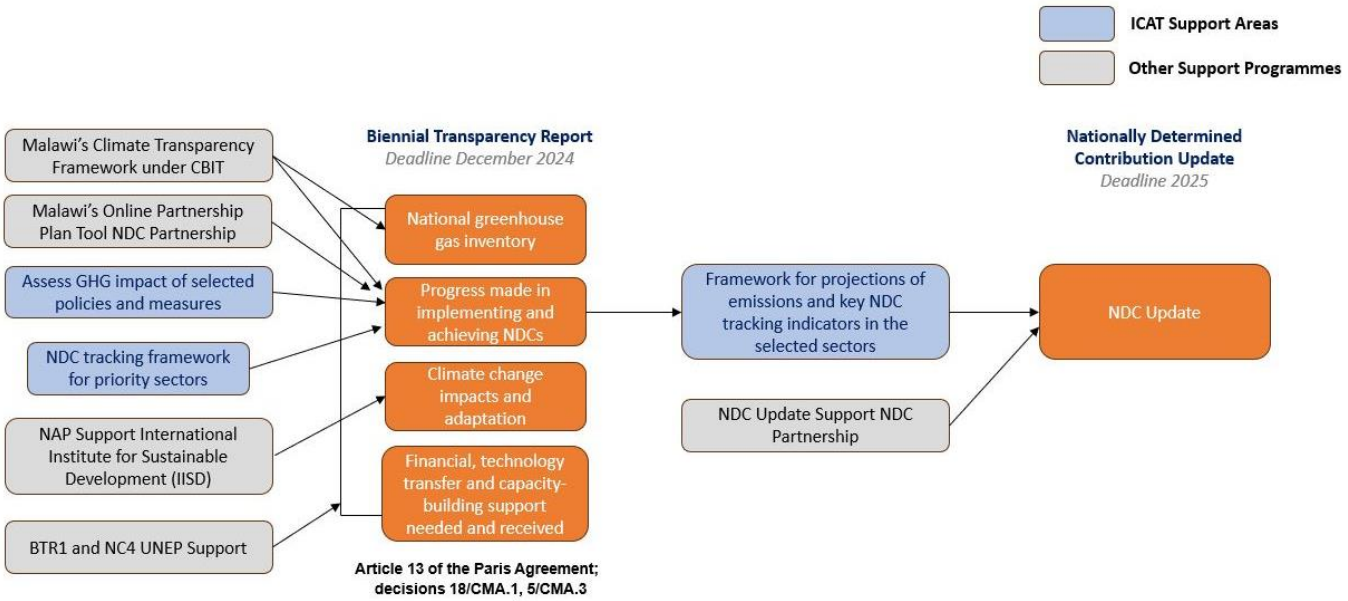
Stakeholder	Key responsibilities in relation to NDC tracking
National Statistical Office (NSO)	The NSO will play a role in the M&E of the NDC through the use of the Malawi Socio-Economic Database (MASEDA) and other resources. The NSO is responsible for: • Production and dissemination of statistical information required in the development, updating and tracking of the NDC (e.g., key activity data, energy consumption, GDP, population) • Supporting surveys including vulnerability to climate change analysis and authenticating data and information for internal and external use and consumption. • Promoting use of statistical data for evidence-based policy development and decision making within the NDC framework
Electricity Generation Company (EGENCO)	The Electricity Generation Company Malawi is a parastatal company whose primary purpose is to generate electric power for use in Malawi and for possible sale to neighbouring countries.
Electricity Supply Corporation of Malawi (ESCOM)	The Electricity Supply Corporation of Malawi (ESCOM) is a public utility incorporated under the companies ACT and is involved in the generation, transmission, distribution, and supply of electricity.
National Oil Company of Malawi (NOCMA)	The National Oil Company of Malawi (NOCMA) is wholly owned by the Government of Malawi and was formed in line with the National Energy Policy 2003. NOCMA are mandated to manage the country's Strategic Fuel Reserve Facilities, promote competition in the oil and gas industry and to promote oil and gas exploration activities in order to ensure stability and security of supply of liquid fuel and gas products.
Department of Mines	The Ministry of Mining is responsible for promoting and regulating the Solid Minerals and the Upstream Petroleum Sectors for socio-economic growth and development of Malawi.
Ministry of Local Government (MOLG)	The Ministry of Local Government, Culture and Unity (MLGCU) was established in order to promote local governance and participatory democracy by creating an enabling environment for socio-economic development and social stability of the local authorities. It is at the epicentre of coordination and facilitation of the delivery of all rural livelihoods and empowerment programmes.
District Councils	Malawi is divided into 28 districts within three regions. Each District is headed by a District Commissioner.
District Energy Offices	Malawi's Ministry of Energy recruited energy officers in all the country's districts. The officers are responsible for presiding over energy related activities at district level including the Malawi Rural Electrification Program (MAREP).
District Forestry Offices	The Department of Forestry is the lead agency in the administration of the National Forest Policy and the Forestry Act in Malawi.
Area (ADCs) and Village (VDCs) Development Committees	Committees identify development challenges in the community, suggest solutions and work with the district council and other stakeholders to implement them. They are the primary structures that enable local governments to work toward the achievement of child rights and the effective implementation of the SDGs.
Private sector (mining companies, IPPs)	Private sector mining companies and independent power producers (IPPs)
Department of Road Traffic and Safety Services	To regulate the road transport industry through law enforcement, development of policies, standards and practices; and provide civic education to the citizenry in order to ensure a safe and sustainable road transport system.
Department of Rail	The railway network in Malawi consists of 933km of mainline single cape gauge of which 201 km is currently non-operational due to railway infrastructure damages caused by flooding. The network's axle load capacity ranges from 15 to 20.5 tonnes.
Department of Civil Aviation	The Department of civil aviation operates under the Ministry of Transport and Public Works. The department has two main divisions: Operation and Regulatory. The Operation Division is responsible for providing aerodromes operation services, air traffic managements services, Aeronautical telecommunication engineering services and firefighting services. The Regulatory Division is also responsible for regulating civil aviation operation services in Malawi.
Department Marine	Within Ministry of Transport & Public Works. Malawi 's inland water transport system comprises the Shire River and the three Lakes, Malawi, Malombe, and Chi lwa. The entire length of Lake Malawi (587 km) is navigable and has 4 ports designated under the Inland Waters Shipping Act as well as some landing points along the shores. The ports are managed by Malawi Ports Company under a 35-year Concession Agreement signed in 2012 which is subject to 5-year reviews.
City Councils	City councils facilitate (on delegated authority from central government) the provision of local services and development of urban areas in Malawi. These include: Blantyre City Council; Lilongwe City Council; Mzuzu City Council; Zomba City Council.
Road Transporters Association	Road Transport Operators Association in Malawi was established to elevate its members' standards so that they would undertake businesses internationally and also enhance transporters' capacity to manage their fleet.
Railway Operator	Malawi Railways Limited, which was a government corporation that ran the national rail network of Malawi until 1999 when the Central East African Railways consortium led by Railroad Development Corporation won the right to operate the network and the network became privatised.
Private sector (transport providers)	Additional private sector transport providers
Bus Operators Associations	Minibus Owners Association of Malawi
Ministry of Trade and Industry	The Ministry of Trade and Industry creates an enabling and competitive environment for private and MSME sector growth and development.
Ministry of Forestry and Natural Resources	The Department of Forestry is lead agency in the administration of the National Forest Policy and the Forestry Act in Malawi

5. Previous and Ongoing Support Programmes

It is important to ensure that this ICAT support is complementary to, builds on, and supports Malawi's existing activities. Understanding other support programmes underway or planned for the country is key to avoiding duplication, or stakeholder fatigue and maximise synergies across previous and ongoing programmes. This will allow a clear focus of support to be identified that maximises outcomes for Malawi.

The below diagram provides an overview of Malawi's previous and ongoing support programmes or projects and highlights where ICAT support will be provided.

Figure 7: Coordination with other initiatives



5.1 Malawi Climate Transparency Project under the CBIT

Malawi Climate Transparency Project is being funded by the Global Environment Facility (GEF) under the Capacity Building Initiative for Transparency (CBIT). The project will be implemented for a period of 3 years with United Nations Environment Programme (UNEP) as an implementing partner. The objective of the project is to establish or strengthen national capacity to track progress on national commitments made under the Paris Agreement and also to prepare comprehensive and accurate reports capturing their implementation in the medium to long-term. Among others the project will ensure that:

- Malawi's institutions effectively collaborate to track and report Greenhouse Gas (GHG) emissions, climate actions and support needed and received.
- Stakeholders use the data management platform to support the MRV system
- The climate transparency unit, relevant sector institutions and stakeholders perform their roles in the MRV system on a continuous basis.

It has been proposed that the team implementing the Malawi Climate Transparency Project should also take the lead in implementing the ICAT support to ensure that there is strong synergy in the two projects. The stakeholders and institutions involved in the CBIT will be engaged further during the ICAT project with specific focus on strengthening the national capacity in NDC tracking, GHG projects and M&E on adaptation actions.

5.2 Malawi Online Partnership Plan Tool

With support from the NDC Partnership, Malawi has developed a framework which provides a basis to monitor and report on its NDC in a way that is consistent with reporting requirements whilst also being well-aligned with existing procedures and arrangements, defined through Malawi's NDC Implementation Plan[31]. The NDC Partnership Online Partnership Plan Tool[32] provides a basis for Malawi to monitor and report sector progress on planned NDC activities. The full list of indicators developed under this project is detailed in Annex 2.

5.3 NAP Support IISD

Malawi's National Adaptation Plan Framework was produced by the Government of Malawi, Ministry of Natural Resources, Energy and Mining, with financial and technical support from the NAP Global Network. The NAP Framework was prepared to guide efforts in developing Malawi's NAP and advancing NAP processes. The NAP Framework has built on the NAP Roadmap, validating, and updating the vision, objectives, and mandates identified. It reaffirms the structure and approach for the NAP process, linking it to existing or planned policies, plans, strategies, and legislation that will enable Malawi to address it medium- and long-term adaptation needs. The NAP stocktaking report also served as a key foundation for the NAP framework.

The NAP Framework clearly describes the approach to the NAP process in the context of Malawi, including:

- The importance of the NAP process in supporting achievement of Malawi's development goals, as outlined in the Malawi Growth and Development Strategy III (MGDS III, 2017–2021), Vision 2020 and/or its successor, the National Climate Change Management Policy of 2016, and the National Climate Change Investment Plan of 2014.
- Guiding principles and key approaches.
- Identification of priority sectors and themes for the NAP process.
- Description of the building blocks for NAP implementation.

The NAP process will be developed through readiness funding from the Green Climate Fund.

5.4 BTR1 and NC4 UNEP Support

Malawi is implementing this projected supported by the United Nations Environment Programme (UNEP). The objective of the project is to support Malawi prepare and submit its First Biennial Transparency Report (BTR1) and Fourth National Communication (NC4) that comply with the United Nations Framework Convention on Climate Change (UNFCCC) and Paris Agreement reporting requirements while responding to national development goals.

The components of the BTR/NC4 are as follows:

- National Inventory report of anthropogenic emissions by sources and removals by sinks of greenhouse gases.
- Information necessary to track progress made in implementation and achieving NDCs under article 4 of the Paris Agreement.
- Information related to climate change impacts and adaptation under article 7
- Information on financial, technology development and transfer and capacity-building support needed and received
- Other relevant information (e.g. gender) including supplemental NC chapters (research, education, training and public awareness)

The ICAT project will support the implementation of BTR1/NC4 project especially when delivering the component 2: Information necessary to track progress made in implementation and achieving NDCs under article 4 of the Paris Agreement.

ICAT tools and frameworks will be used in this regard to track progress made in implementing and achieving NDCs, estimate projections of GHG emissions and removals; and for monitoring and evaluation of adaptation actions. From the ICAT project in-depth support will be more focused on Agriculture and Energy Sectors.

6. ICAT Project Objectives

31 Malawi NDC Implementation Plan NDC (ndcpartnershipplans.com)
32 Malawi NDC Online Partnership Plan Tool NDC (ndcpartnershipplans.com)

6.1 ICAT Project Objectives

The overall objective of this ICAT support is to enable Malawi to manage and track the implementation of its NDC mitigation actions by putting in place a framework for regular collection and management of the necessary data, including those needed to project GHG emissions/removals, assess the impact of relevant policies and measures, and develop appropriate indicators for reporting on progress achieved.

The specific objectives of the project include:

- To develop a framework to track NDC implementation, with a focus on energy and agricultural sectors.
- To monitor the implementation of NDC mitigation actions, adaptation actions and adaptation with mitigation co-benefits.
- To track the contribution of planned, adopted, and implemented mitigation actions aimed at achieving national/sectoral and sub sectorial mitigation targets.
- Enhance the capacity for GHG projections.

6.2 ICAT Project Activities

The scope of work for this project is focused on the energy and agriculture sectors, and will seek to:

- Develop and implement a framework to track progress made in implementing and achieving NDCs submitted under Article 4 of the Paris Agreement.
- Develop and implement frameworks and tools necessary to estimate projections of GHG emissions and removals and assess the impact of policies and measures.
- Develop and implement framework for monitoring and evaluation of adaptation actions.
- Build national capacity in the using the tools and frameworks in tracking the NDC, estimating projections, and monitoring and evaluating actions.

Table 1: ICAT scope of work

Task	Task Description	Output
Workplan and budget		
Finalisation of workplan and budget	Completion of budget excel and workplan template	Submit budget excel and workplan
Activity 0: Inception phase (inc. hiring of national consultants)		
Activity 0: Inception phase	Undertake a stocktaking exercise to determine: ● The status of data collection, data sources, what institutional arrangements are relevant, and key priorities for the MRV system, projections, and NDC tracking (mitigation and adaptation) in the selected sectors ● The existing capacity across sectors and key gaps/needs related to the NDC development (mitigation and adaptation), identified indicators, projections and other technical work that has gone before. ● *The potential (gaps and need) for the LULUCF sector, currently excluded from the NDC, to be included in the NDC/second NDC.* ● Knowledge and capacity in Malawi, training needs, and who should be trained.	Output 0.1: Report on stock taking exercise (this report)

	● Opportunities to align the NDC tracking activities with the updates to the GHG inventory including needs and gaps for effective compilation of the national inventory reports for the selected sectors (energy, agriculture).	
	Present the scoping report and objectives of the project at the inception workshop. Identify and map priority mitigation policies and measures by sector (energy, agriculture) with stakeholders, to build capacity and understanding, and feed into identification of suitable indicators and estimation of GHG effects. Identify policies for assessment (energy & agriculture), develop causal chains for each policy and identify high level mitigation/adaptation co-benefits.	Output 0.2: Inception and causal chain workshop [Workshop 1]
	Present brief report from the inception workshop highlighting material presented and inputs from participants	Output 0.3: Brief report from the inception workshop
	Present draft mapping of causal chain from the causal chain workshop highlighting material presented and inputs from participants	Output 0.4: Draft mapping of causal chain
Activity 1: Assess GHG impact of the selected policies and measures		
Activity 1.1: GHG impact assessment of mitigation policies and measures	Conduct the GHG policy impact assessments, for example, using the ICAT sectoral methodology: ● Identify with and without policy scenarios for evaluation of GHG effects for energy and agriculture priority sectors ● Quantify policy impacts for energy and agriculture priority sectors	Output 1.1: Policies and measures GHG impact assessment
Activity 1.2: Identify indicators for policies and measures	Identify policy impact indicators: ● Review draft causal chain mapping and policy impacts ● By involving relevant ministries and agencies, assess the availability of relevant data, data gaps, and existing institutional arrangements for collecting ● Develop technical guidance for policy tracking	Output 1.2: Technical guidance on tracking indicators by sector
Activity 1.3: Reporting and recommendations	● Draft report of methods, data used, and results of policy impact assessment ● Develop recommendations for including indicators into the NDC Tracking Framework	Output 1.3: Recommendations for NDC tracking framework
Activity 1.4: Policy assessment workshop	Policy assessment workshop to discuss draft recommendations for NDC tracking	Output 1.4: Policy assessment workshop [Workshop 2]
Activity 2: Framework for projections of emissions and key NDC tracking indicators in the selected sectors		
Activity 2.1: Selection and pre-workshop training session on modelling tool(s) for the selected	● Present the various projection modelling tools (e.g. GACMO) including their scope and functionality in the national context ● Conduct a workshop with priority sector experts to select the modelling tool that is most appropriate in the national context	Output 2.1: Preparations for modelling tool training [Workshop 3]

sectors	● Develop scenario assumptions in consultation with relevant stakeholders	
Activity 2.2: Conduct training workshop on selected modelling tools	● Conduct a training workshop on the selected tool	Output 2.2: Modelling tool training workshop on selected tools [Workshop 5.1]
Activity 2.3: Data collection and processing to prepare projection of GHG emissions for the selected sectors	Support to technical team and key stakeholders on preparing projections of GHG emissions ● Review current data and collect additional data to develop sectoral/economy-wide projection(s) using the selected modelling tool ● Identify gaps in data, data management, institutional arrangements and resources ● Identify appropriate QA/QC procedures ● Draft report on data collection and management improvement recommendations	Output 2.3: Reports of projections of GHG emissions for selected sectors
Activity 2.4: Development of projections	Based on Activity 1: ○ Identify policies and measures in the selected sectors to develop a 'with measures' projection of GHG emissions, and where relevant 'with additional measures' projections and a 'without measures' projections, as agreed during the Activity 0 ○ Develop projection(s) of GHG emissions and apply appropriate QA/QC procedures ● Document the methodology for developing projection(s) of GHG emissions	Output 2.4: Methodology for developing projections of GHG emissions and removals for selected sectors
Activity 2.5: Validation workshop	● Undertake stakeholder workshop to validate scenarios	Output 2.5: Projections validation workshop [Workshop 6.1]
Activity 3: NDC tracking framework for the selected priority sectors		
Activity 3.1. Gaps in NDC tracking (mitigation and adaptation)	● Engage sectors on existing NDC implementation plan indicators and available information ● Identify new/additional/revised indicators to track progress towards the implementation and achievement of Malawi's NDC targets under Article 4 aligned with the requirements of the CMP decision 18/CMA.1 ● Involving relevant ministries and agencies, assess the availability of relevant climate mitigation and adaptation data, data gaps, and existing institutional arrangements for collecting the required data	Output 3.1: Report on NDC tracking indicators and data gaps for selected sectors
Activity 3.2: NDC tracking (mitigation and adaptation) indicator development	● Present the draft set of indicators to the stakeholders for feedback and comments ● In consultation with the technical experts select NDC tracking tool (e.g. GACMO) or develop the calculation template to be used as the NDC tracking tool	Output 3.2 Completed NDC tracking tool for selected sectors
Activity 3.3: Pre-workshop training session on NDC tracking tools	Introduction to NDC tracking tools	Output 3.3: Preparations for NDC tracking tool training [Workshop 4]

Activity 3.4: Training on the NDC tracking tool for selected sectors (mitigation and adaptation)	Train experts and other stakeholders from relevant ministries and agencies on the application of the tool. The aim of the training is to introduce the tool, including its scope and functionality in the national context, and appoint data champions that will use the tool in various agencies and institutions.	Output 3.4: NDC tracking tool training workshop [Workshop 5.2]
Activity 3.5: Adaptation of the tool to the national context	Define and validate input parameters required for the model to be applied in the national context	Output 3.5: Data for the NDC tracking tool set up
Activity 3.6. Validation of NDC tracking framework	● Finalise the indicator set and integrate them into the NDC tracking framework, including high level adaptation action tracking ● Develop the data protocols for data collection, processing, and QA/QC procedures, roadmap for addressing data gaps ● Develop recommendations for integration of other adaptation actions into M&E framework covering the NAP, SDGs and Sendai Framework	Output 3.6: NDC tracking validation workshop [#5.2]
Activity 3.7. Arrangements for NDC tracking framework	Report on NDC tracking indicators and presenting the overarching institutional arrangements	Output 3.7: Report on NDC tracking indicators and presenting the overarching institutional arrangements
Activity 4: Project Closure		
Activity 4.1: Validation workshop	● Identify lessons learned and key achievements ● Prepare communication material ● Summary on lessons learned and key achievements of the project	Output 4.1: Project close out [#6.3]
Activity 5: Project Management		
Activity 5: Project management	● Weekly internal Ricardo project update meetings (~30 mins) ● Bi-weekly internal Ricardo project update meetings ● Monthly in depth project review and progress meetings ● Quarterly strategic planning/review meetings	Output 5.1.1: Meeting Notes

6.3 Project Timeline

Table 2: ICAT project timelines

Task	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24	Dec 24 * BTR Deadline	Jan 25	Feb 25	Mar 25	Apr 25
Workplan and budget																
Completion of budget excel and workplan template																
Submission of budget excel and workplan																
Activity 0: Inception phase																
Undertake a stocktaking exercise to determine the status of data collection, data sources, institutional arrangements, existing capacity, and key priorities for the NDC tracking framework.																
Delivery of Output 0.1: Report on stock taking exercise																
Present the scoping report and objectives of the project at the inception workshop																
Identify and map priority mitigation policies and measures by sector (energy and agriculture) with stakeholders, to build capacity and understanding, and feed into identification of suitable indicators and estimation of GHG effects.																
Delivery of Output 0.2: Inception and causal chain workshop (Workshop 1)																
Delivery of Output 0.3: Present brief report from the inception workshop highlighting material presented and inputs from participants																
Delivery of Output 0.4: Present draft mapping of causal chain from the causal chain workshop highlighting material presented and inputs from participants																
Activity 1: Assess GHG impact of the selected policies and measures																
Activity 1.1: Conduct the GHG impact assessment of mitigation policies and measures																
Delivery of Output 1.1: Policies and measures GHG impact assessment																
Activity 1.2: Identify policy impact indicators																
Delivery of Output 1.2: Technical guidance on tracking indicators by sector																
Activity 1.3: Reporting and recommendations																
Delivery of Output 1.3: Recommendations for NDC tracking framework																
Delivery of Output 1.4: Policy assessment workshop (Workshop 2)																

Task	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25
Activity 2: Framework for projections of emissions and key NDC tracking indicators in the selected sectors																
Activity 2.1: Selection and pre-workshop training session on modelling tools for the selected sectors																
Output 2.1: Preparations for modelling tool training (Workshop 3)																
Output 2.2: Modelling tool training workshop on selected tools (Workshop 5)																
Activity 2.3: Data collection and processing to prepare projection of GHG emissions for the selected sectors																
Output 2.3: Reports of projections of GHG emissions for selected sectors																
Activity 2.4: Development of projections																
Output 2.4: Methodology for developing projections of GHG emissions and removals for selected sectors																
Output 2.5: Projections validation workshop																
Activity 3: NDC tracking framework for the selected priority sectors																
Activity 3.1: Gaps in NDC tracking																
Output 3.1: Report on NDC tracking indicators and data gaps for selected sectors																
Activity 3.2: NDC tracking indicator development																
Output 3.2: Completed NDC tracking tool for selected sectors																
Activity 3.3: Pre-workshop training session on NDC tracking tools																
Output 3.3: NDC tracking tool training (Workshop 4)																
Output 3.4: Training on NDC tracking tool for selected sectors (Workshop 5)																
Activity 3.5: Adaptation of the tool to the national context																
Output 3.5: Data for the NDC tracking tool set up																
Output 3.6: Validation of NDC tracking framework (Workshop 5)																
Output 3.7: Report on NDC tracking indicators and presenting the overarching institutional arrangements																
Activity 4: Project closure																
Output 4.1: Project close (Workshop 6)																

7. ICAT Project Anticipated Results

The proposed ICAT project aims to strengthen and operationalise the tracking of progress and achievements in implementing the NDC emerges as a crucial step. By systematically monitoring and evaluating the implementation of the NDC, Malawi can enhance its capacity to respond effectively to climate change.

Through the implementation of the project, it is expected that Malawi has developed:

1. An NDC tracking framework and capacity to implement and maintain functionality, focusing on energy (including transport) and agricultural sectors.
2. Projections of sectoral GHG emissions and removals, including an assessment of the impact of key policies and measures for energy and agriculture sectors, and adequate capacity to maintain and update them.
3. Appropriate indicators for reporting of progress achieved building on Malawi's NDC Partnership Online Partnership Plan Tool
4. Institutional, legal, and procedural arrangements for data collection, processing, and evaluation to facilitate the ongoing tracking of progress under the NDC tracking framework.

Table 3: ICAT project objectives and specific activities

Objectives	***Specific Activities***	***Expected outcomes***
To track the contribution of planned, adopted, and implemented mitigation actions aimed at achieving national/sectoral and sub sectorial mitigation targets.	• *Conduct GHG policy impact assessments, identifying with and without policy scenarios including quantification* • *Produce causal chain mapping* • *Develop technical guidance for policy tracking* • *Develop recommendations for indicators to be included within NDC tracking framework* • *Capacity building on policy assessments*	• *Policies and measures GHG impact assessment* • *Technical guidance on tracking indicators by sector* • *Recommendations for NDC tracking framework* • *Policy assessment capacity building workshop*
Enhance the capacity for GHG projections.	• *Present various projection modelling tools and conducted bespoke training workshops on the selected tool* • *Support technical team in preparing projections of GHG emissions* • *Identify policies and measures to develop a 'with measures' projection and a 'without measures' projection* • *Undertake stakeholder validation workshop*	• *Modelling tool training workshop on selected tools* • *Methodology for developing projections of GHG emission and removed* • *Projections validation workshop*
To develop a framework to track NDC implementation, with a focus on energy, transport, and agricultural sectors.	• *Identify gaps in existing NDC implementation plan* • *Identify new/revised indicators to track progress* • *Assess the availability of data and data gaps* • *Validate new indicators* • *Develop calculation template to be used* • *Capacity building on NDC tracking tools* • *Define and validate input parameters for the NDC tracking model* • *Define institutional arrangements for NDC tracking framework*	• *Report on NDC tracking indicators and data gaps for selected sectors* • *NDC tracking tool for selected sectors* • *Workshop training session on NDC tracking tools* • *Report on NDC tracking indicators and overarching institutional arrangements*

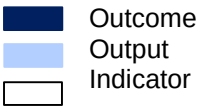
Annex 1: Inception Workshop Stocktaking Questions

Section 1: Country context

a) Please provide any additional country context in relation to climate change and your sector

Section 2: Existing institutional arrangements and processes

a) Please outline the existing institutional arrangements within your department/ministry in relation to climate activities?
b) Who is responsible for overseeing mitigation, and adaptation efforts in your department/ministry? Please provide contact details and the individual's role.
c) Has there been any recent training related to climate related activities within your department/ministry? Please specify



Annex 2: Malawi Online Partnership Plan Tool Developed Indicators

1.	Avoided GHGs from planned coal-fired power stations at Kammwamba and Pamodzi, and diesel and HFO generation
1.1.	Grid-connected large-scale hydropower
1.1.1.	MW of additional grid-connected hydropower capacity
2.	Avoided GHG emissions and fossil fuel use from conventional household lighting sources
2.1.	Off-grid small scale solar PV systems
2.1.1.	Number of new, operational, off-grid solar PV SHS/lanterns
3.	Avoided GHGs from diesel gensets and fossil fuel-based grid electricity
3.1.	Grid connected large-scale solar PV
3.1.1.	MW of additional grid-connected large-scale solar PV capacity
4.	Avoided GHGs from coal, diesel gensets and HFO-based grid electricity
4.1.	Grid connected wind power

4.1.1.	MW of additional grid-connected wind power capacity
5.	Reduced GHGs from fossil fuel use in power generation
5.1.	Grid network loss reduction
5.1.1.	Reduced percentage of network loss rate
6.	Avoided GHGs from diesel gensets and fossil-based grid electricity
6.1.	Biomass gasification for production of heat and electricity
6.1.1.	MW of additional small-scale biogas power capacity
7.	Reduced GHGs (CH4 and N2O) from more efficient charcoal production
7.1.	Efficient charcoal production
7.1.1.	KGs of efficient charcoal produced
8.	Reduced GHGs emissions from avoided use of coal to generate power to meet electricity-demand in 2035 - 2040
8.1.	Clean coal technology – high efficiency coal-fired power plant
8.1.1.	Level of efficiency of coal power generation
9.	Avoided CO2 otherwise emitted to atmosphere, net of additional combustion emissions for capture processes
9.1.	Clean coal technology – carbon capture and storage
9.1.1.	Number of coal power plants with CCS technology
9.2.	Support industries involved in carbon capture and storage (CCS)
9.2.1.	Number of industries adopting CCS
10.	Reduced GHG emissions from reduced consumption of petrol and diesel in the road transport sector
10.1.	Modal shift: private transport to public transport
10.1.1.	Share of public transport in total passenger transport
10.2.	Modal shift: road to rail freight
10.2.1.	Share of railways in total freight transport
10.3.	Increasing blend of fuel grade ethanol with petrol as a transportation fuel
10.3.1.	Blending ration of ethanol to petrol
10.4.	Blending biodiesel with diesel as a transportation fuel
10.4.1.	Litres of biodiesel production
10.4.2.	Blending ration of biodiesel to diesel
11.	Avoided GHGs from displacement of fossil-based electricity of fuels by solar energy
11.1.	Solar water heaters (SWH) in commercial buildings
11.1.1.	Percentage of commercial building stock with solar water heaters
11.1.2.	XYZ litres solar water heating capacity
12.	Avoided GHGs from reduced demand for fossil-based electricity and thermal fuels
12.1.	MEPS for electrical appliances in domestic sector
12.1.1.	Number of MEP's for domestic electrical appliances
13.	Reduced GHG emissions arising from substitution of fossil fuel use by renewable or lower carbon energy sources
13.1.	Fuel switch in rural households
13.1.1.	Percentage (or number) of rural households using cleaner fuels
14.	Reduced GHG emissions arising from substitution of fossil fuel use by renewable or lower carbon energy sources
14.1.	Improved charcoal cookstoves – rural households (A)
14.1.1.	Percentage (or number) of rural households using improved charcoal cookstoves (or number of improved charcoal cookstoves)
15.	Carbon sink preservation through reduction in use of unsustainable biomass fuel
15.1.	Improved firewood cookstoves – rural households (B)
15.1.1.	Percentage (or number) of rural households using improved firewood cookstoves (or number of improved firewood cookstoves)
16.	Avoided GHGs due to reduced fossil fuel use
16.1.	Efficient motors and boiler efficiency
16.1.1.	Percentage improvement in motor and boiler efficiency
16.1.2.	Percentage reduction in industrial electricity demand
17.	Avoided GHGs due to reduced fuel combustion to generated reactive power needed to maximum demand customers
17.1.	Power factor correction
17.1.1.	Increase in power factor
18.	Avoided GHGs from diesel, HFO, biomass boilers or fossil-based grid electricity
18.1.	Cogeneration – steam reuse
18.1.1.	Number of industries reusing low grade steam from power generation for process heat application
19.	Avoided CH4 and N2O emissions from fuelwood combustion used for tobacco curing
19.1.	Use of efficient barns for tobacco curing
19.1.1.	Percentage reduction in fuelwood demand for tobacco curing
20.	Avoided GHG emissions from diesel use in tractors used in ploughing/tilling before crop planting
20.1.	Conservation tillage within commercial crop farming
20.1.1.	Percentage of farms growing annual crops to use conservation tillage
20.1.2.	Percentage of farms growing annual crops to use no-till techniques
21.	Reduced calcination process CO2 emissions from domestic clinker production
21.1.	Increased use of rice husk ash (RHA) in blended cement
21.1.1.	Use of rice husk ash (RHA) in cement production
22.	Reduced demand for cement, thereby reducing CO2 emissions related to clinker and cement production
22.1.	Earth stabilised blocks (ESBS) as building materials
22.1.1.	Percentage increase in the use of earth stabilised blocks (ESBS) as materials within institutional and domestic building construction projects
23.	Reduced CO2 in production process compared to conventional process due to lower temperature requirements
23.1.	Alternative low carbon cement processes
23.1.1.	Percentage use of alternate, low-carbon clinker substitutes in cement production
24.	Reduced CH4 from landfill sites and avoided CO2 from displacement of fossil-based electricity use
24.1.	Landfill gas utilisation
24.1.1.	GWh of landfill gas generation annually
24.2.	Waste reduction practices
24.2.1.	Percentage of waste reduction
24.3.	Waste to energy (WTE)
24.3.1.	GWh of electricity generation annually
25.	Reduction in CH4, and N2O emissions from waste-water and sewage
25.1.	Waste-water treatment and reuse
25.1.1.	Number of fully operational WWTP (including faecal sludge treatment systems)
26.	Increased carbon stock in tree biomass and soil
26.1.	Afforestation: Protective forests
26.1.1.	Hectares (Ha) of protective forests planted and maintained (Eucalyptus and Pinus)
26.2.	Afforestation: Urban forests
26.2.1.	Hectares of urban forests planted and maintained (native species and bamboo)
27.	Increased carbon stock in tree biomass and plants, and in soils from accumulation of organic matter from litter dead wood
27.1.	Agroforestry: Wood, fruit, and fodder
27.1.1.	Hectares (Ha) of area covered by agroforestry (disaggregated by different tree type)
28.	Enhancement of carbon sinks in tree and bamboo biomass and soil (prevented carbon stock loss)
28.1.	Sustainable landscape and forest management
28.1.1.	Hectares (Ha) of land under sustainable forestry practices (native species and bamboo)
29.	Reduction in flood-related loss and damage to human life, health and property
29.1.	Nationwide community based EWS and flood monitoring, prioritised in problematic rivers
29.1.1.	Number of community-based early warning systems that address gender considerations set-up and operationalised

29.1.2.	Reduction in annual flood damage in problematic river areas targeted by the programme
30.	Reduction in loss and damage to human life, health, and property during hazard events and disasters
30.1.	Designing, testing, and executing multi-hazard contingency plans
30.1.1.	Number of DRM officials and first responders trained on the multi-hazard contingency plans disaggregated by gender
31.	Mainstreaming of DRM in sectoral planning and operations, resulting in better preparedness for disasters and reduction in loss and damage to sectors
31.1.	Integrating DRM risk assessment and monitoring in all sectors, including public works and transport infrastructure
31.1.1.	Number of sector strategies and plans revised to mainstream DRR/DRM issues
32.	Improved supply and access to water and greater water security during drought periods
32.1.	Water supply, storage, harvesting in drought-prone areas, including water point rehabilitation
32.1.1.	Number of new non-donor funded pilot projects and demonstration projects in drought prone areas
32.2.	Construction of multipurpose dams for water storage
32.2.1.	Number of new non-donor funded multipurpose dams constructed
33.	Improved community resilience to drought, with reduction in drought-related loss and damage to human life, health, and property
33.1.	Integration of indigenous knowledge into early warning systems for drought
33.1.1.	Number of national and sectoral DRR/DRM plans & strategies revised to integrate indigenous knowledge (and gender and youth considerations)
34.	Diversion and redirection of floodwaters and reduction in flood damage
34.1.	Planning, construction, and improvement of flood management structures such as upstream dams, storm drains, dikes and bunds
34.1.1.	Number of new donor funded flood management structures constructed
35.	Reduction in loss and damage to human life, health, and property during floods
35.1.	Delineation of flood prone areas with flood zoning maps and the development of appropriate adaptation strategies and measures
35.1.1.	Number of new non-donor funded flood management structures constructed
36.	Timely excavation of people at risk in flood-prone areas, and reduced loss of human life during floods
36.1.	Extension of the installation of telemetry flood forecasting and warning systems to other flood prone areas
36.1.1.	Number of new telemetry flood forecasting and warning systems installed in flood prone areas
37.	Improved community resilience to floods, with reduction in drought-related loss and damage to human life, health and prosperity
37.1.	Integration of indigenous knowledge into early warning systems for floods
37.1.1.	Number of national and sectoral DRR/DRM plans & strategies revised to integrate indigenous knowledge (and gender and you considerations)
38.	Strengthened enabling environment for more effective watershed management
38.1.	Development and strengthening of water policies, integrated land use management policies, plans and approaches in priority watersheds and reservoirs
38.1.1.	Number of forestry and wildlife sector policies, plans, strategies integrated with watershed management and adaptation measures
39.	Reduction in soil erosion, and improvement in water recharge in catchments
39.1.	Increase of afforestation and reforestation in catchment areas to cover areas not yet considered, and address deforestation and degradation
39.1.1.	Hectares (Ha) of new land under protective forests and afforestation for catchment management
40.	Increased groundwater recharge and increased availability of freshwater
40.1.	Increase of sustainable utilisation and monitoring of groundwater resources
40.1.1.	Number of new/additional priority water resources management projects
41.	Reduction in water loss and increase in water supply and availability
41.1.	Monitoring of leakage and control in piped networks
41.1.1.	Percentage reduction in water loss across Water Boards
42.	Increase in available water supply and reduction of water stress
42.1.	Water use efficiency
42.1.1.	Percentage increase in water use efficiency
42.2.	Improvement in the coverage of rural piped water supply
42.2.1.	Percentage increase in coverage or rural piped water supply
43.	Improvement in water quality and reduction in water-related illnesses and diseases
43.1.	Development of nationwide water quality monitoring framework systems
43.1.1.	Number of water boards with modernised water quality monitoring framework systems
44.	Increase in number and health of wildlife resources
44.1.	Promotion of cooperation with regional and international institutions in the conservation and management of wildlife resources
44.1.1.	Number of wildlife management activities initiated through international cooperation
45.	Reduced heat stress in wildlife and improved health of wildlife resources
45.1.	Provision of watering points at strategic locations of national park/game reserves
45.1.1.	Number of watering points in national parks/game reserves
46.	Reduction in alien invasive species, and reduction in animal and plant species on threatened, endangered, or extinct lists
46.1.	Upscaling of measures for controlling the extinction of plant and animal species and degeneration of ecosystems/habitats, including the development and implementation of invasive alien species management plans
46.1.1.	Area (Ha) covered by alien invasive species management activities
47.	Reduction in elephant diseases, and maintenance of stable elephant population
47.1.	Management of elephant population and implementation of diseases' control programmes
47.1.1.	Percentage of elephants dying from diseases
48.	Increased socio-economic resilience in communities supporting ecotourism, with greater resources to manage and maintain ecosystems and natural capital
48.1.	Development and implementation of tourism support infrastructure plan
48.1.1.	Number of new infrastructure built in ecotourism communities (as per Ecosystem Strategy and Tourism Support Infrastructure Plan)
48.2.	Development of a tourism crisis management strategy and plan, including emergency situations
48.2.1.	Number of new programmes initiated in ecotourism communities as per crisis management strategy and plan
49.	Increased climate resilience in tourism infrastructure and systems
49.1.	Improvement of tourist facility/buildings designs and standards to integrate climate resilience considerations including the concept of build back better (BBB) and smarter
49.1.1.	Number of new infrastructure built in ecotourism communities (as per Ecotourism Strategy and Tourism Support Infrastructure Plan)
49.2.	Membership of the climate change crisis committee and enhancement of tourism facility designs, planning and compliance to environmental and climate resilient regulations standards
49.2.1.	Number of international tourism crisis groupings Malawi can be eligible for
50.	Increase in resource mobilisation for climate change resilience and adaptation in the tourism sector
50.1.	Mainstreaming climate change adaptation in tourism investment plans
50.1.1.	Number of tourism projects initiated via PPP and Joint Ventures with the Government
51.	Increased use of solar technologies and reduction of energy use in buildings
51.1.	Installation of solar shading devices
51.1.1.	Percentage of Government tender projects specifying green building design features
52.	Reduction in energy use in buildings and reduction of thermal stress for building users
52.1.	Location of appliances that generate waste heat outside the insulated envelope
52.1.1.	Percentage of government tender projects specifying green building design features
52.2.	Minimising hard landscaping materials which absorb heat during the day and re-radiate it at night
52.2.1.	Percentage of Government tender projects specifying green building design features
52.3.	Application of ventilation and cooling strategies
52.3.1.	Percentage of Government tender projects specifying green building design features
53.	Reduced water stress through enhanced engineering and infrastructure capacity to manage water
53.1.	Application of drought management in the design, construction and management of public and private infrastructure, such as by increasing the size and number of water engineering structures (e.g. culverts)
53.1.1.	Percentage of government tender projects specifying climate responsive engineering designs
54.	Increased infrastructure resilience and safety during floods
54.1.	Applying safety and build better and smarter principles including granular protection, beam, and base under pinning factors to design assumptions
54.1.1.	Percentage of government tender projects specifying climate responsive engineering design
55.	Reduced flooding through enhanced engineering and infrastructure capacity to manage floodwaters, with reduced loss and damage to human life, health, and property during floods
55.1.	Revision of existing building standards to incorporate climate change considerations, such as passive cooling measures, mini-piled underpinning, including pile and

	beam, cantilever pile caps and piled rafts, raising roads, road re-alignment, pavements and adding drainage capacity; and realigning natural water courses
55.1.1.	Percentage of government tender projects specifying climate responsive engineering designs
56.	Increased community resilience against landslides and landslips, with reduced loss and damage to human life, health, and property
56.1.	Conducting slope stability studies to reduce incidents of landslides
56.1.1.	Number of slope stability studies undertaken
57.	Reduction in shoreline erosion and strengthened lakeshore resilience
57.1.	Construction of offshore breakwaters, groins to protect shorelines
57.1.1.	Percentage decrease in rates of shoreline erosion
58.	Reduction in disease prevalence, and improved population resilience to shocks and stressors
58.1.	Increase practices of boiling drinking water, filtration and chlorination of drinking water and improvement in personal hygiene
58.1.1.	Percentage decrease in disease incidences
58.2.	Enhance public awareness about water, sanitation, and hygiene practices
58.2.1.	Percentage decrease in disease incidences
58.3.	Enhance health surveillance of malaria, diarrhoea and malnutrition
58.3.1.	Percentage decrease in disease incidences
58.4.	Promotion of insecticide-treated mosquito nets
58.4.1.	Percentage decrease in disease incidences
59.	Strengthened public health response and improved health outcomes during disease outbreaks
59.1.	Increased adoption of oral rehydration salts, homemade sugar and salt solution, and cereal based solutions, such as rice water, intravenous fluids, antibiotic treatment, and isolation wards to reduce heat stress-related diarrhoeal disease outbreaks
59.1.1.	Percentage decrease in mortality during diarrhoeal disease outbreaks
60.	Strengthened nutrition levels and public health resilience
60.1.	Conducting of nutritional assessment, counselling, and support services linked to livelihoods targeting adolescents, adults, and children
60.1.1.	Percentage decrease in malnutrition levels
60.2.	Promotion of dietary diversity and integration of nutrition-sensitive practices across sectors, primarily agriculture, health, education and wash
60.2.1.	Percentage decrease in malnutrition levels
60.3.	Promote nutrition-specific practices through sun framework and care group model, primary health care, therapeutic care, support and treatment
60.3.1.	Percentage decrease in malnutrition levels
60.4.	Increasing and strengthening the delivery of micro finance, public work programmes, school meals programmes, social cash transfer and village and savings and loans (VSL) schemes
60.4.1.	Percentage of public expenditure on social programmes for resilience
61.	Strengthened socio-economic resilience through improved livelihoods and incomes
61.1.	Preparation of long-term workforce development plans and strategic livelihoods plan to help people move up and out into sound employment opportunities, and plan for managed urban migration
61.1.1.	Number of sectoral plans mainstreaming workforce development plans and strategic livelihood plans
62.	Strengthened population socio-economic resilience to shocks and stressors
62.1.	Establishment of social support fund for predictable, timely response (climatic shock related social protection services)
62.1.1.	Number of households supported through the Social Support Fund
62.2.	Linkage of inclusive social support systems to risk financing options with the development and utilisation of coordinated system for design and delivery of social support system inclusive of climate related shock sensitive interventions
62.2.1.	Number of new risk financing instruments developed to support social support systems
63.	Improved climate resilience and socio-economic outcomes for women and girls
63.1.	Promotion of gender mainstreaming in policies, programmes, and project work
63.1.1.	Number of sectors and policies mainstreaming gender issues from a climate resilience perspective
64.	Improved climate resilience and socio-economic outcomes for vulnerable populations
64.1.	Support capacity building programmes for vulnerable groups and civic education and public awareness
64.1.1.	Percentage of capacity building programmes for vulnerable groups and civic education and public awareness financed by domestic resources
65.	Reduction in yield loss due to drought conditions
65.1.	Institute and upscale drought mitigation interventions
65.1.1.	Number of non-donor funded pilot projects and demonstration projects in drought prone areas
66.	Improved plant genetic diversity and availability of local species
66.1.	Establish locally based plant clinics
66.1.1.	Number of plant clinics established
67.	Improved agricultural efficiency and yields
67.1.	Mechanise agricultural production with targeted support to smallholder farmers
67.1.1.	Percentage of farmers who have access to farm machinery disaggregated by gender and age
68.	Improved socio-economic resilience in the agricultural sector, through increase in revenue and strengthened livelihoods of women, men and the youth
68.1.	Establish grain export processing zones, and develop resilient value chains
68.1.1.	Number of farmers provided with tools and training on enhanced value chains development and climate resilience disaggregated by gender and age
69.	Reduction in post-harvest losses to disease and pests and spoilage (inclusive of fish and fisheries products)
69.1.	Promotion of metallic silos & PISCA bags for effective grain storage
69.1.1.	Percentage of farmers with access to metallic silos & PISCA bags
69.2.	Promotion of proper post-harvest practices to further reduce storage losses including fish and fisheries products
69.2.1.	Number of farmers provided with tools and training on proper post-harvest practices to further reduce storage losses disaggregated by gender and age
69.2.2.	Number of women fish processing groups trained and certification of their fish products by Malawi Bureau of Standards undertaken
69.2.3.	Number of climate smart fisheries infrastructure for improved cold chain and fish processing established
69.2.4.	Number of post-harvest equipment (refrigerated vans, cooler boxes, chill rooms, ice plants) supplied to beneficiaries
69.2.5.	Number of extension staff and other state actors trained in business management, value addition and certification issues for food safety
69.2.6.	Certification and branding of fish products instituted
69.2.7.	Capacity building in business model and linking 20 women groups to MFI
70.	Increase in agricultural resilience through diversification and drought-tolerant varieties/species
70.1.	Agriculture and diet diversification through the cultivation of roots and tubers (cassava, sweet potatoes) as well as fish and other drought tolerant crop cultivators and winter cropping systems using small-scale irrigation technologies, such as treadle pumps, drip irrigation and stream diversion)
70.1.1.	Percentage of new farmers successfully adopting drought tolerant crop cultivators, winter cropping systems and aquaculture after bring provided with training and tools disaggregated by gender and age
71.	Reduced loss of agricultural yields due to damage by pests and diseases
71.1.	Integrated disease management and pest management for migratory pests
71.1.1.	Percentage of new farmers successfully adopting Integrated Pest and Disease Management practices after being provided with training and tools disaggregated by gender and age
72.	Improved soil fertility and reduction in use of chemical fertilisers
72.1.	Promotion of legumes and other multiple impact crops for soil fertility improvement and dietary improvement
72.2.	Percentage of new farmers successfully adopting multiple-cropping and legume-cropping disaggregated by gender and age
73.	Reduction in soil erosion, and improvement in water recharge in catchments; enhanced access to agriculture/aquaculture inputs for fish production through research, innovation and dissemination
73.1.	Promotion of drought-resilient fish species as well as water, soil and catchment conservation through farmer-managed neutral regeneration
73.1.1.	Hectares (Ha) of new land under protective forests and afforestation for catchment management
74.	Reduction in CH4 from enteric fermentation, and increased carbon stock in biomass
74.1.	Promotion of climate-smart, improved livestock husbandry
74.1.1.	Percentage of new farmers successfully adopting improved livestock husbandry disaggregated by gender and age
74.2.	Improved livestock husbandry through fodder management
74.2.1.	Number of hectares with new fodder cultivation of Brachiaria and Napier
75.	Increase in soil health and fertility; strengthened ecosystem-based fisheries conservation and environmental/watershed management
75.1.	Promotion of various drought-resilient water, soil and catchment conservation interventions on and off-farm
75.1.1.	Hectares (Ha) of new land under various drought-resilient water, soil and catchment conservation interventions
76.	Improved climate resilience and socio-economic outcomes for small-scale farmers including the youth, women and girls enhanced capacities for government institutions,

	communities and the private sector in fisheries management and aquaculture development through education and skills development programmes
76.1.	Building agronomic resilience in small-scale farmers through training of agricultural households in food budgeting, utilisation and preservation
76.1.1.	Percentage of new small-scale farmers successfully adopting agricultural practices on food budgeting, utilisation & preservation disaggregated by gender and age
77.	Improved access to water and increase in crop yields from greater irrigation
77.1.	Instituting and upscaling drought mitigation interventions such as the development of mega aquafarms, new irrigation schemes (using drip irrigation kits) and rehabilitating/modernising old schemes
77.1.1.	Number of new irrigation schemes built/number of existing irrigation schemes rehabilitated/modernised
78.	Increase resilience to climate change
78.1.	Introduction, expansion and scale-up of climate smart agriculture practices
78.1.1.	Percentage of new farmers successfully adopting to Climate Smart Agriculture practices after being provided with training and tools disaggregated by gender and age
79.	Improved food security and nutrition, and increased resilience through income diversification
79.1.	Crop/livestock and fish farming intensification & diversification, through integrated crop-livestock-aquaculture-forest production systems
79.1.1.	Percentage of new farmers successfully adopting integrated crop-livestock-aquaculture-forest production systems after being provided with training and tools disaggregated by gender and age
80.	Improved plant genetic diversity and availability of improved quality seed
80.1.	Improving community participation in seed selection, storage and management, and the establishment of community and multiplication seed banks
80.1.1.	Number of new community and multiplication seed banks established
80.1.2.	Number of fish hatchery operators certified
81.	Improved data and evidence-based to inform agricultural resilience planning and policy
81.1.	Conducting annual assessment of the status of food and nutrition insecurity and biannual smart nutrition survey to measure nutrition security situation
81.1.1.	Number of M and E Officers with technical skills to effectively coordinate and report on nutrition security disaggregated by gender
82.	Improved resilience to drought and strengthened landscape resilience
82.1.	Expand greenbelt initiative
82.1.1.	Number of hectares of afforestation and reforestation under greenbelt initiative
83.	Improved livestock resilience to shocks and stressors
83.1.	Promotion of good animal welfare, health and disease control
83.1.1.	Percentage of animals (disaggregated by animal type) dying from diseases
84.	Improved socio-economic resilience in the agricultural sector, through increase in revenue and strengthened livelihoods
84.1.	Strengthening of farmer organisations and market engagement
84.1.1.	Percentage of farmer organisations provided with capacity building and tools for collective market access
84.2.	Undertaking ADMARC reforms to reduce market uncertainty and price volatility
84.2.1.	Number of institutional reforms implemented by ADMARC
84.3.	Improving agricultural value-addition through agroprocessing
84.3.1.	Percentage of farmer who have access to agro-processing facilities disaggregated by gender and age
84.4.	Improving infrastructure in agricultural value chains
84.4.1.	Percentage of farmers who have access to agro-processing facilities disaggregated by gender and age
85.	Increased carbon stock retention in soil, and reduced N2O emissions from mineral N-fertiliser use
85.1.	Promotion of efficient fertiliser use and manure management
85.1.1.	Percentage of new farmers successfully adopting efficient fertiliser use and manure management practices after being provided with training and tools disaggregated by gender and age
85.2.	Promotion of efficient fertiliser use and manure management
85.2.1.	Number of hectares applying compost and organic fertiliser
86.	Increased population resilience through improved food security and nutrition
86.1.	Restocking strategic grain reserves
86.1.1.	Number of strategic grain reserves above 80% capacity after annual restocking
87.	Improved livestock nutrition and resilience
87.1.	Up-scaling feed preservation & fodder banks
87.1.1.	Number of new feed preservation & fodder banks established
87.1.2.	Number of existing feed preservation & fodder banks modernised
88.	Increase in resilience in the agricultural sector to climate related shocks and stressors
88.1.	Provision of agricultural input subsidies & incentives
88.1.1.	Value (Malawi Kwacha or US$) of subsidies for farmers undertaking climate-resilience measures and CSA
88.2.	Promotion of drought tolerant or early maturing planting material
88.2.1.	Percentage of new farmers successfully adopting drought tolerant or early maturing planting material after being provided with training and tools disaggregated by gender and age
88.3.	Establish risk financing and investment including weather index insurance and other solutions at the national and sub national levels inclusive of microfinance and insurance products for smallholder and commercial farmers
88.3.1.	Number of climate and weather risk and insurance products piloted
89.	Improved access to water and greater water supply and security during drought periods
89.1.	Constructing water reservoirs & efficient use of water
89.1.1.	Number of non-donor funded pilot projects and demonstration projects in drought prone areas
90.	Increase in soil health and fertility; increase in yields due to improved soils
90.1.	Soil management techniques to improve soil fertility and soil conservation
90.1.1.	Percentage of new farmers successfully adopting soil management techniques after being provided with training and tools disaggregated by gender and age
91.	Increased carbon stock within biomass and soils; and increased N-fixation in soils
91.1.	Conservation agriculture: Crop residue and rotation
91.1.1.	Percentage increase in soil carbon stock
91.1.2.	Percentage increase in soil nitrogen content
92.	Reduced carbon loss from soil with reduced erosion and improved crop yields
92.1.	Conservation agriculture: Conservation tillage
92.1.1.	Percentage increase in soil carbon stock
92.1.2.	Percentage increase in soil carbon stock
93.	Reduced N2O emissions from mineral N-fertiliser use and addition of nitrifying inhibitors
93.1.	Improved rice management practices
93.1.1.	Number of hectares of rice farms applying improved fertiliser management and nitrification inhibitors
94.	Reduction in CH4 from enteric fermentation, while maintaining and improving meat and milk yields
94.1.	Improved livestock and breed management (Cows)
94.1.1.	Percentage increase in meat yields (per 1000 animals)
94.1.2.	Percentage increase in milk yields (per 1000 animals)
95.	Reduction in N2O through manure management; reduced CH4 through use of biodigesters
95.1.	Improved farm management
95.1.1.	Percentage of farms adopting improved manure management practices
95.1.2.	Number of new biogas digestors