



Malawi's Revised Nationally Determined Contribution (NDC) to the Paris Agreement 2015 – 2040

1.0 Revising the NDC

The Republic of Malawi submitted its Intended Nationally Determined Contribution (INDC) to the United Nations Framework Convention on Climate Change (UNFCCC) in 2015 setting out its climate adaptation and greenhouse gas (GHG) emission reduction goals to 2040. Parties to the Paris Agreement, aiming to limit global temperature increases, are now requested to submit revised NDCs ahead of the forthcoming international climate conference to be held in Glasgow in November 2021 (26th Conference of the Parties to the UNFCCC, COP26). This requires countries to provide more information on their mitigation and adaptation goals and to describe the actions that will be implemented over the coming years.

The NDC Partnership has provided technical support to Malawi to undertake this process under the second round of its Climate Action Enhancement Package (CAEP). Teams led by Carbon Counts, the European Commission (EC) and the United Nations Development Programme (UNDP) have undertaken analyses of Malawi's NDC mitigation and adaptation measures in order to quantify the emissions reduction potential and the associated funding needs. Support has subsequently been provided by Carbon Counts, UNDP, Local Governments for Sustainability (ICLEI) and Gesellschaft für Internationale Zusammenarbeit (GIZ) to develop an NDC Implementation Plan, Mainstreaming Guidelines and a Monitoring, Reporting and Verification (MRV) framework.

The work undertaken builds upon an extensive stakeholder driven process with inputs from across government, academia, private sector, and civil society and provides the basis for Malawi's official NDC submission to the UNFCCC as well as

subsequent actions to strengthen its climate change planning, implementation, monitoring and reporting of the activities.

2.0 GHG mitigation goals

Malawi's GHG emissions are currently among the lowest worldwide, both on an absolute and a per capita basis. However, under a business-as-usual (BAU) scenario, emissions are forecast to increase by more than three times by 2040, rising from around 9 million tCO₂e¹ in 2017 to over 34 million tCO₂e.² Energy use is expected to be the largest driver as population and economic growth increase demand for transport, power generation and products. Rising emissions from waste generation, livestock and crop management are also likely to be significant.

Analyses of Malawi's mitigation potential shows that projected emissions could be reduced by around 50 per cent (50%) by 2040 if all identified measures were funded, including through international support. This falls to 6 per cent (6%) for domestically funded measures only. Mitigation measures identified within the energy sector account for the largest share of total potential at 85%, followed by agriculture (9% of the total), waste (5% of the total), and industrial processes and product use (IPPU) (1% of the total).

- Within **energy use**, increased use of renewables and clean coal technology to meet increasing energy demand dominate the mitigation potential. The application of carbon capture and storage (CCS) to future grid-based thermal power plants from 2030 onwards represents the largest share of the identified GHG reduction potential, accounting for almost half of all sectoral mitigation by 2040. Emissions reductions arising from large-scale hydropower, and modal shift and low carbon fuels use in the

¹ tonnes of carbon dioxide equivalent

² excluding forestry and other land use (FOLU)

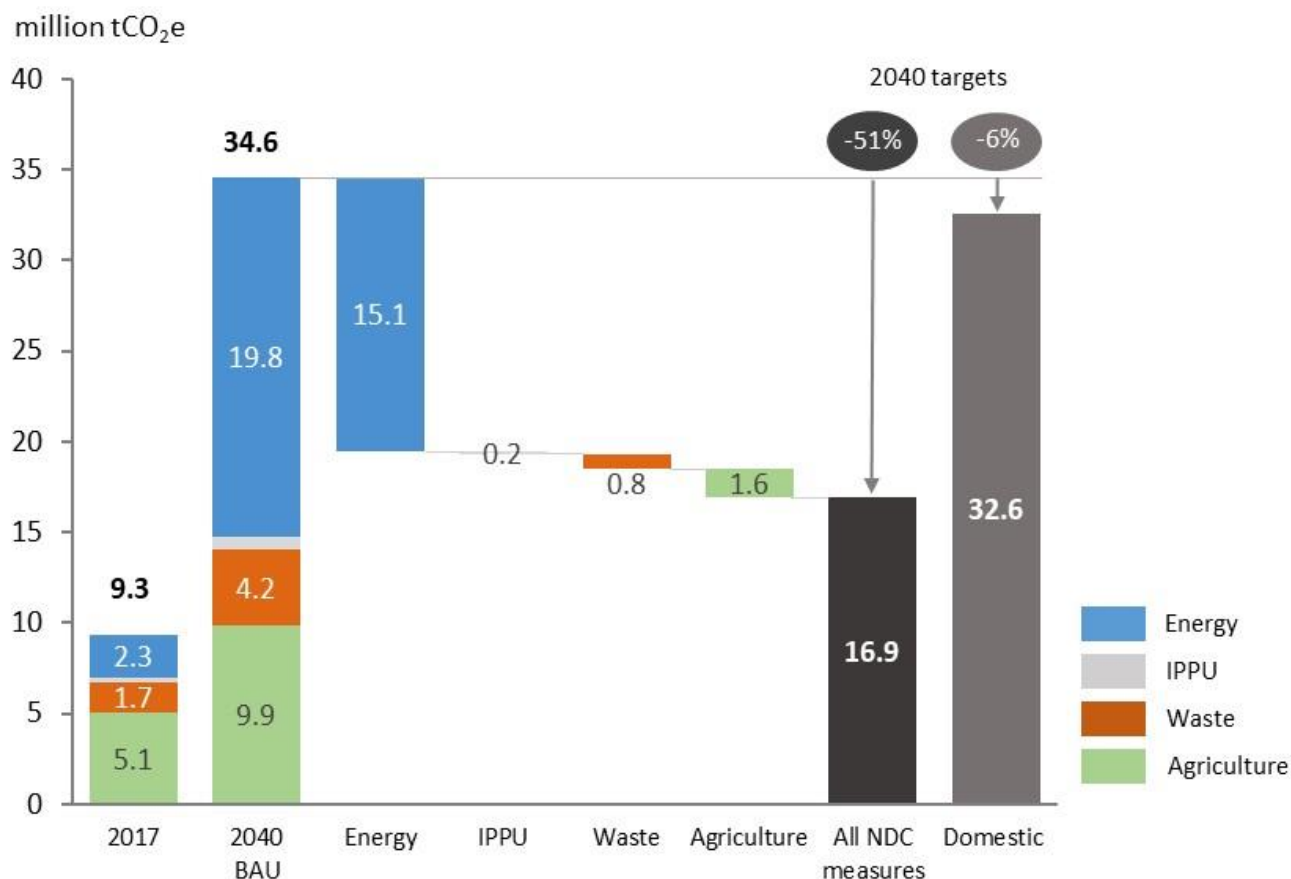
transport sector are also found to be potentially significant.

- Within **agriculture**, soil conservation measures account for almost half of the sector's mitigation potential, with the remaining potential including measures to reduce enteric fermentation emissions from livestock, including improved livestock husbandry and the potential introduction of new species to replace local herds.
- Within **waste**, the most significant potential is identified within energy utilisation measures such as landfill gas recovery and direct waste-to-energy plants. Mitigation potential from **IPPU** is by comparison relatively limited, with the majority of emissions reductions arising from increased use of blending and other low carbon practises within domestic clinker and cement production.

Economic analysis indicates that much of Malawi's mitigation potential could be achieved at relatively low cost. Much of the energy sector potential is considered to be relatively cost-effective through increasing efficiency and access to clean energy, as is the waste sector including through landfill gas utilisation and waste-to-energy projects which utilise waste materials whilst also delivering wider employment (green jobs) and revenue benefits.

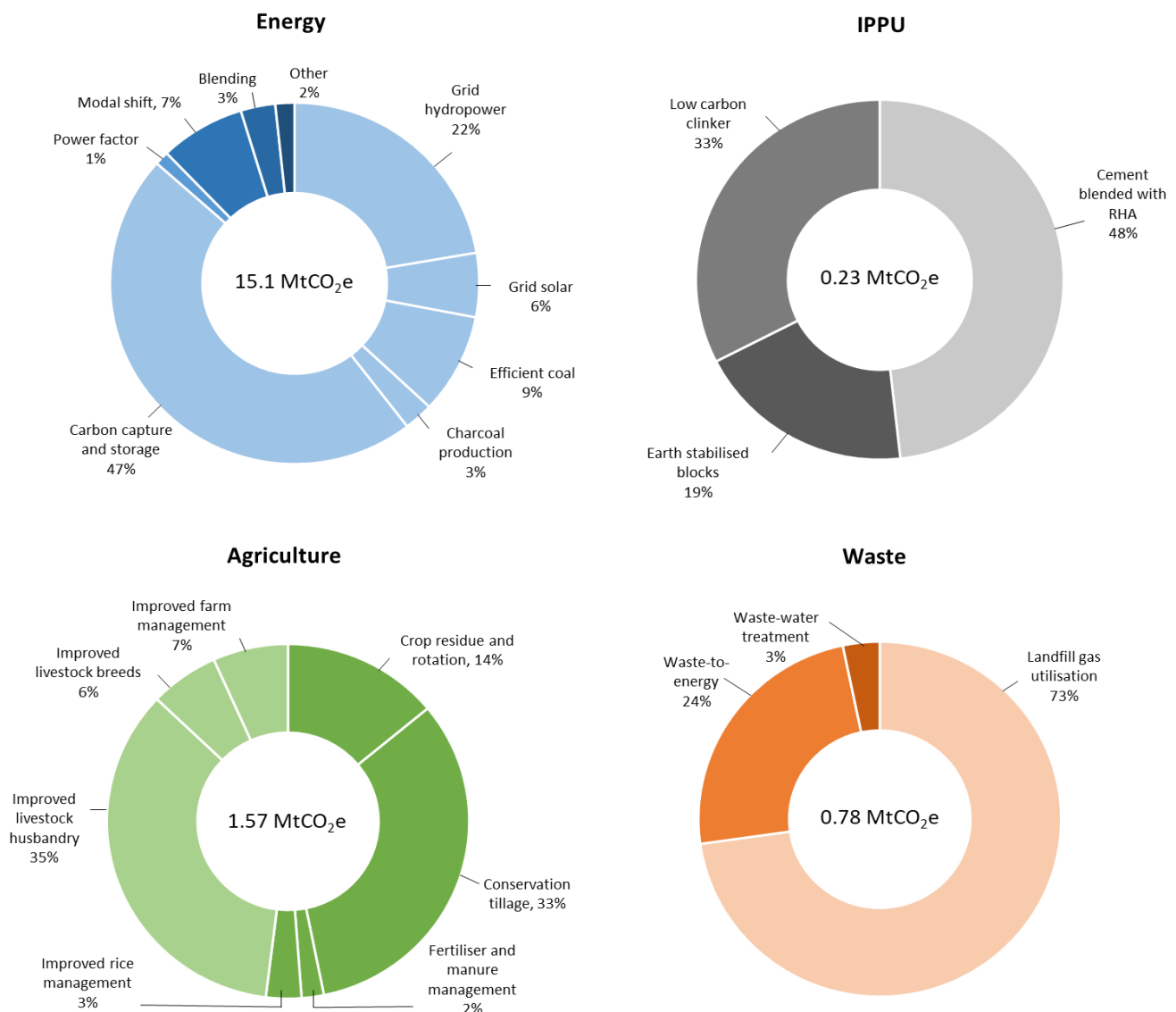
Within agriculture, options such as climate smart agriculture and improved farm management can also deliver important co-benefits such as increased yields. Investment in new low carbon practises, technologies and green infrastructure creates the potential for significant new employment opportunities: it is estimated that up to **216,000 new green jobs** could be created associated with successful implementation of the identified measures.

NDC emission reduction scenarios for Malawi



Source: Carbon Counts (2021); EC (2021); UNDP (2021)

Estimated GHG mitigation potential from NDC measures by 2040



Source: Carbon Counts (2021); EC (2021); UNDP (2021)

An initial assessment has also been made of the carbon removal potential from **forestry and land use**. Drawing on key national policies including the National Forest Policy, Malawi's REDD+ (Reducing Emissions from Deforestation and Forest Degradation) Strategy, and National Forest Landscape Restoration Strategy (NFLRS) targets, it is estimated that with additional international support, Malawi's afforestation, restoration and sustainable forestry management interventions could be scaled-up from around one half a million hectares (ha) to almost 2 million ha by 2040, resulting in net carbon removals of around 60 million tCO₂e. This is an initial assessment only, and subsequent NDCs will describe the potential contribution from forestry and land use measures in more detail.

3.0 Adaptation goals

Malawi is particularly vulnerable to floods, droughts and strong winds associated with tropical cyclones. Over the past fifty years, Malawi has experienced more than 19 major flooding events and seven droughts with the worst flood experienced in 2015. The 2015 flood affected over 1 million people, displaced 230,000 and killed 106. A further 172 people were reported missing (GoM, 2020). Floods and drought episodes also result in damage to property (assets) and disruption of livelihoods.

Falling water levels in lakes and rivers associated with increasing frequency of drought episodes are threatening the survival of humans, fish, and other natural resources. Economically, lost production due to droughts and floods cost Malawians on

average 1.7% of GDP annually, whereas the combined effects of floods of 2015 and the subsequent drought of 2016 cost the economy over 5% of annual GDP.

Climate trend analyses show that over the period from 2020 to 2040, El Nino conditions will likely increase climate extremes, resulting in increased severity and frequency of floods, droughts, and strong winds.

To survive in the face of these challenges, people have adopted income generating strategies that include tree felling to produce charcoal for sale, and encroachment onto riverbanks and into seasonally dry stream beds to produce winter crops. These activities lead to further degradation of the environment, deplete assets and escalate poverty. This calls for urgent implementation of robust climate change adaptation strategies to avert impending disasters associated with these hazards, break the cycle of environmental degradation, and sustain livelihoods.

Ten strategic options for adaptation have been identified relating to the **three pillars**:

- institutional framework;
- knowledge, technology and financing and;
- resilience of the most vulnerable.

These support the following **three key objectives**:

- promote an enabling environment to facilitate climate change adaptation mainstreaming;
- improve capacity for data and information management and sharing, and access to technology and financing for adaptation, and;
- plan and implement adaptation actions toward an increased resilience of the most vulnerable Malawians.

The updated NDC describes a sectoral framework of measures to enhance Malawi's climate adaptation and resilience, along with a set of indicators to monitor and evaluate their progress, aiming at increasing the resilience of its people, ecosystems and economy.

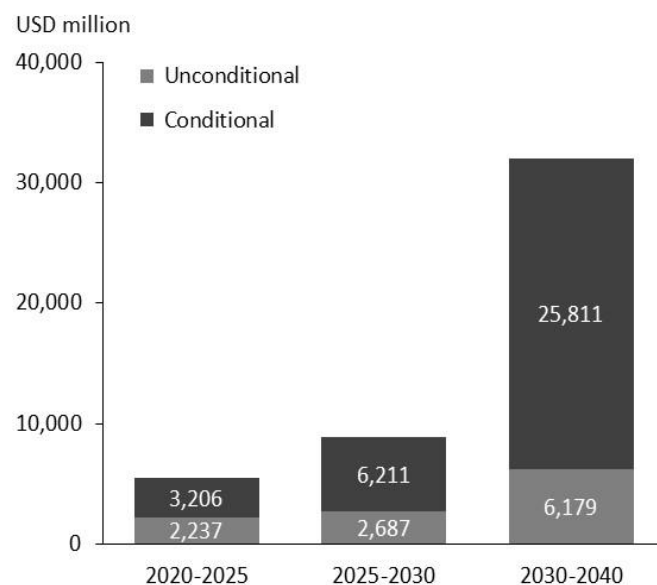
This is fully aligned with the UN Sustainable Development Goals (SDGs) and subsequently with Agenda 2030 and the sectoral planning process, along with the framework for the National Adaptation Plan.

4.0 Funding and support needs

Malawi will require significant levels of support to implement the measures outlined in the NDC. The total cost of Malawi's identified NDC mitigation measures is estimated at around **42 billion USD**, and **4.5 billion USD** for adaptation priorities, representing a combined funding requirement of over **46.5 billion USD** through 2040.

Of this total, around one third is estimated to be required over the next decade (2020-2030), and two thirds in the subsequent decade (2030-2040). This reflects the need for increasingly deep cuts in emissions through 2040, but also the timing of large capital-intensive energy and infrastructure projects (e.g. in power generation and transport) developed from around 2030 onwards.

Estimated funding needs for NDC measures



Source: Carbon Counts (2021); EC (2021); UNDP (2021)

Around one quarter of the total is estimated to be funded domestically or “unconditionally” with the remaining three quarters being conditional on international support. In addition to direct funding, Malawi will also need significant technology transfer and capacity building, helping to ensure successful implementation of the prioritised measures as well as the development of skills and expertise at a national, regional and local level needed to ensure that the economic development opportunities within the NDC pathway are fully realised.

5.0 Roles and responsibilities of stakeholders in implementing the NDC

The global climate change policy framework, as provided by the UNFCCC and Paris Agreement, requires all Parties including Malawi to communicate both how they intend to implement their NDCs and also how their progress will be tracked. As such, all countries should develop an NDC Implementation Plan and a framework for monitoring, reporting and verification (MRV) of the NDC target and monitoring and evaluation (M&E) of the policies, projects and actions needed to deliver the contribution. As well as enabling Malawi to meet its international requirements, such a framework provides a robust basis for achieving the measures and evaluating their impacts as part of good practice policy-making.

Converting Malawi's NDC ambitions into concrete actions requires detailed country-level planning and sector coordination. There are many stakeholders operating across all sectors of the economy that need to be engaged in the implementation of the NDC. Effective implementation will require the efforts and close cooperation of a wide range of actors and entities in Malawi. Coordination and leadership across sectors and between stakeholder groups is critical for realising the identified policies, projects and programmes. This needs to occur at all levels of governance, embracing district and local levels of government as well as seeking community-based engagement and action. Key stakeholders include government, the private sector, non-governmental organisations and civil society, women, youth and vulnerable groups, academia, development partners, and local communities.

The NDC Implementation Plan outlines the specific actions, estimated funding needs and roles and responsibilities needed to deliver Malawi's prioritised mitigation and adaptation measures. The Plan is presented according to sector and identifies responsible line ministries, delivery entities, as well as contributions to achieving the UN Sustainable Development Goals (SDGs). The Plan incorporates the five-year plan to 2025, supported by ICLEI, but also provides a longer-term overview to 2040, and will be reviewed and revised for use within Malawi's future NDC reporting cycles.

The Paris Agreement contains several additional MRV requirements which, when taken together

with the existing UNFCCC arrangements, provide an enhanced basis for Malawi's international reporting requirements relating to its updated NDC.³ A framework has therefore been developed which provides a basis for Malawi to monitor and report on its NDC in a way which is consistent with these requirements whilst also being well-aligned with existing procedures and arrangements. The framework describes the institutional arrangements for tracking the progress of the NDC and reporting on its implementation at both an international and domestic level. A comprehensive but user-friendly framework of NDC indicators has been developed according to which Malawi can monitor and evaluate its progress.

Together with the Implementation Plan and the Resource Mobilisation Strategy, this framework provides Malawi with the strategic direction to move forward with delivering the NDC and, supported by partners and the international community, realising the measures needed to address climate change over the coming years allowing for review and revision of the NDC every five years as required under the Paris Agreement.

NDC
PARTNERSHIP

**IN CONTRIBUTION TO
THE NDC PARTNERSHIP**



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³ These are mainly covered by Article 13, which establishes a new Enhanced Transparency Framework (ETF) through which Parties must regularly account for their NDCs.

Annex: List of NDC measures

MITIGATION CONTRIBUTION			
Sector	Measure	Conditional	Unconditional
Energy	Grid connected hydropower	✓	
	Grid connected solar power	✓	
	Small scale solar PV and Solar Heating Systems (SHS)	✓	
	Grid connected wind power	✓	
	High efficiency coal power plant	✓	
	Efficient charcoal production		✓
	Carbon capture and storage (CCS)	✓	
	Power factor correction	✓	
	Modal shift: passenger transport	✓	✓
	Modal shift: freight transport	✓	✓
	Ethanol blending	✓	✓
	Biodiesel blending	✓	✓
	Efficient charcoal stoves		✓
	Efficient wood stoves		✓
	Efficient tobacco curing		✓
	Conservation tillage (energy emissions)		✓
Industrial process and product use (IPPU)	Cement blended with rice husk ash (RHA)	✓	
	Increased use of earth stabilised blocks (ESB)	✓	
	Low carbon clinker production	✓	
Waste	Landfill gas (LFG) utilisation	✓	
	Waste-to-energy (WtE) plants	✓	
	Waste-water treatment and re-use	✓	
Agriculture	Fertiliser and manure management	✓	✓
	Crop residue and rotation	✓	✓
	Improved rice management	✓	✓
	Improved livestock husbandry	✓	✓
	Improved farm management	✓	✓
	Conservation tillage (agricultural emissions)	✓	✓
	Improved livestock and breed management	✓	✓
Forestry and other land use (FOLU)	Afforestation	✓	✓
	Agroforestry	✓	✓
	Sustainable forestry management	✓	✓

ADAPTATION CONTRIBUTION			
Sector	Measure	Conditional	Unconditional
Agriculture, livestock and fisheries	Institute and upscale drought mitigation interventions	✓	✓
	Establish locally based plant clinics	✓	✓
	Establish risk financing and for smallholder and commercial farmers		✓
	Mechanize agricultural production with targeted support to smallholder farmers	✓	✓
	Establish grain export processing zones, and develop resilient value chains	✓	✓
	Promotion of metallic silos and PICSAs bags for effective grain storage	✓	✓
	Promotion of proper post-harvest practices to further reduce storage losses		✓
	Crop and diet diversification using small-scale irrigation technologies		✓
	Integrated Pest Management for migratory pests	✓	✓
	Promotion of legumes and other multiple impact crops for soil fertility improvement and dietary improvement		✓
	Promotion of drought-resilient water, soil and catchment conservation through farmer-managed natural regeneration	✓	✓
	Improved livestock husbandry	✓	✓
	Promotion of various drought-resilient water, soil and catchment conservation interventions on and off-farm	✓	✓
	Building agronomic resilience in small-scale farmers through training	✓	✓
	Instituting and upscaling drought mitigation interventions (e.g. new irrigation schemes)		✓
	Introduction, expansion, and scale-up of Climate Smart Agriculture practices	✓	✓
	Crop/livestock and fish farming intensification and diversification, through integrated crop-livestock-aquaculture-forest production systems	✓	✓
	Improving community participation in seed selection, storage and management, and the establishment of community and multiplication seed banks	✓	✓
	Conducting annual assessment of the status of food and nutrition insecurity and biannual SMART Nutrition survey to measure nutrition security situation		✓
	Expand Greenbelt initiative		✓
	Promotion of good animal welfare, health & disease control	✓	✓
	Strengthening of farmer organizations and market engagement		✓
	Undertaking ADMARC reforms to reduce market uncertainty and price volatility	✓	✓
	Promotion of efficient fertilizer use and manure management		✓
	Restocking strategic grain reserves		✓

ADAPTATION CONTRIBUTION			
Sector	Measure	Conditional	Unconditional
	Up-scaling feed preservation & fodder banks	✓	✓
	Improving agricultural value-addition through agro-processing	✓	✓
	Improving infrastructure in agricultural value chains	✓	✓
	Provision of agricultural input subsidies & incentives	✓	✓
	Promotion of drought tolerant or early maturing planting material	✓	✓
	Constructing water reservoirs & efficient use of water	✓	✓
	Soil management techniques to improve soil fertility and soil conservation	✓	✓
	Conservation of Biodiversity	✓	✓
Conservation of Biodiversity	Promotion of cooperation with regional and international institutions in the wildlife conservation	✓	✓
	Provision of watering points at strategic locations of national park/ game reserves	✓	✓
	Upscaling of measures for controlling the extinction of plant and animal species and degeneration of ecosystems/habitats	✓	✓
	Management of elephant population and implementation of diseases' control programmes	✓	✓
	Drought Management	✓	✓
Drought Management	Water supply, storage, harvesting in drought-prone areas, including water point rehabilitation	✓	✓
	Construction of multipurpose dams for water storage	✓	✓
	Integration of indigenous knowledge into early warning systems for drought	✓	✓
	Early Warning Systems and Hazard Monitoring	✓	✓
Early Warning Systems and Hazard Monitoring	Nationwide community-based EWS and flood monitoring, prioritized in problematic rivers	✓	✓
	Designing, testing, and executing multi-hazard contingency plans	✓	✓
	Integrating DRM risk assessment and monitoring in all sectors, including public works and transport infrastructure	✓	✓
	Flood Management	✓	✓
Flood Management	Planning, construction, and improvement of flood management structures	✓	✓
	Delineation of flood prone areas with flood zoning maps and the development of appropriate adaptation strategies and measures	✓	✓
	Extension telemetry flood forecasting and warning systems to other flood prone areas	✓	
	Integration of indigenous knowledge into early warning systems for floods	✓	
	Flood-Proofing		✓
Flood Proofing	Applying safety and build better and smarter principles	✓	✓

ADAPTATION CONTRIBUTION			
Sector	Measure	Conditional	Unconditional
	Revision of existing building standards to incorporate climate change considerations (e.g. passive cooling, mini-piled underpinning, raising road)	✓	✓
	Conducting slope stability studies to reduce incidents of landslides	✓	✓
	Construction of offshore breakwaters, groins to protect shorelines	✓	✓
	Health	✓	✓
Health	Increase practices of boiling drinking water, filtration and chlorination of drinking water and improvement in personal hygiene	✓	✓
	Enhance public awareness about water, sanitation and hygiene practices	✓	✓
	Enhance health surveillance of malaria, diarrhea and malnutrition	✓	✓
	Promotion of insecticide-treated mosquito nets	✓	✓
	Increase adoption of oral rehydration salts, homemade sugar and salt solution, and cereal based solutions	✓	✓
	Conducting of nutrition assessment, counselling, and support services linked to livelihoods targeting adolescents, adults, and children	✓	✓
	Promotion of dietary diversity and integration of nutrition-sensitive practices across sectors, primarily agriculture, health, education, and WASH	✓	✓
	Promote nutrition-specific practices through SUN framework and Care group model, primary health care, therapeutic care, support, and treatment	✓	✓
	Heat and Drought-Proofing	✓	✓
Heat and Drought Proofing	Installation of solar shading devices	✓	✓
	Location of appliances that generate waste heat outside the insulated envelope	✓	✓
	Minimizing hard landscaping materials which absorb heat during the day and re-radiate it at night	✓	✓
	Application of ventilation and cooling strategies	✓	✓
	Application of drought management in the design, construction and management of public and private infrastructure	✓	✓
	Integrated Watershed Management	✓	✓
Integrated Watershed Management	Development and strengthening of water policies, integrated land use management policies, plans and approaches in priority watersheds and reservoirs	✓	✓
	Increase of afforestation and reforestation in new catchment areas	✓	✓
	Increase of sustainable utilization and monitoring of groundwater resources	✓	✓
	Monitoring of leakage and control in piped networks	✓	✓
	Water use efficiency		✓

ADAPTATION CONTRIBUTION			
Sector	Measure	Conditional	Unconditional
	Improvement in the coverage of rural piped water supply		✓
	Development of nationwide water quality monitoring framework systems	✓	✓
	Nutrition	✓	✓
Nutrition	Conducting of nutrition assessment, counselling, and support services linked to livelihoods targeting adolescents, adults, and children	✓	✓
	Promotion of dietary diversity and integration of nutrition-sensitive practices across sectors	✓	✓
	Promote nutrition-specific practices through SUN framework and Care group model, primary health care, therapeutic care, support, and treatment	✓	✓
	Resilient Ecotourism	✓	✓
Resilient Ecotourism	Development and implementation of tourism support infrastructure plan	✓	✓
	Development of a tourism crisis management strategy and plan, including emergency situations	✓	✓
	Improvement of tourist facility/buildings designs and standards to integrate climate resilience considerations including Build Back Better (BBB)	✓	✓
	Membership of the Climate Change Crisis Committee and enhancement of tourism facility designs, planning and compliance to environmental and climate resilient regulations standards	✓	✓
	Mainstreaming climate change adaptation in tourism investment plans	✓	✓
	Social Support	✓	✓
Social Support (Protection)	Increasing and strengthening the delivery of Micro finance, Public Works Programmes, school meals Programmes, Social cash transfer and Village and Savings and Loans (VSL) schemes	✓	✓
	Preparation of long-term workforce development plans and strategic livelihoods plans to help people move up and out into sound employment opportunities, and plan for managed urban migration	✓	✓
	Establishment of Social Support Fund for predictable, timely response (Climatic shock related Social Protection services)	✓	✓
	Promotion of gender mainstreaming in policies, programmes and projects	✓	✓
	Support capacity building programmes for vulnerable groups and civic education and public awareness		✓
	Linkage of inclusive social support systems to risk financing options inclusive of climate related shock sensitive interventions		✓