THE GAMBIA

MOVING TOWARDS ACHIEVING NET-ZERO EMISSION BY 2050

THE GAMBIA`S LONG-TERM CLIMATE-NEUTRAL DEVELOPMENT STRATEGY 2050 (LTS)

INTRODUCTION

The Gambia`s Long-Term Climate-Neutral Development Strategy 2050 (LTS) focuses on the country`s 5 key greenhouse gas emitting sectors - namely Energy; Agriculture; Waste Management; Transport and Land Use Land Use Change and Forestry (LULUCF). Building upon the ambitious Second Nationally Determined Contribution, the LTS looks at both mitigation and adaptation actions that would require funding, for the country to reach net-zero emissions by 2050, in line with its commithus under the Paris Agreement.

The LTS is costed at USD4.0 billion at today`s prices. Therefore it will require an average of USD138 million per annum in funding, between now and 2050 in order to achieve its target of net-zero emissions by mid-century. This figure may seem astronomical for a small country like The Gambia, however it is nothing compared to the price of inadequate action. The Gambia in recent years has experienced increased frequency and intensity of drought, flooding, coastal erosion, windstorms, high temperatures, and intense and erratic rainfalls. These extreme weather events, particularly drought, severely hinder the country's sustainable development and poverty eradication efforts, as The Gambia aims to become a food self-sufficient, middleincome county by 2050. The Gambia has no choice, but to take a modest lead in reducing its greenhouse gas emissions to net-zero by 2050, in order to safeguard the lives and livelihoods of its citizens and also contribute its quota in global efforts to contain climate change.

Why LTS

The Gambia is listed among the top 100 countries most vulnerable to climate change (IPCC, 2020), and is among the top ten countries most vulnerable to coastal erosion and sea-level rise in the world (Gomez, Adelagun, et el., 2020). The Gambia in recent years has experienced increased frequency and intensity of drought, flooding, coastal erosion, windstorms, high temperatures, and intense and erratic rainfalls. These extreme weather events, particularly drought, severely hinder the country's sustainable development and poverty eradication efforts.

Thus, The Gambia intends to be among the most progressive nations in tackling climate change issues and in early 2021 published The Gambia 2050 Climate Vision (LTV). The LTV has set very specific targets and by 2050 The Gambia aims to be a climate-resilient, middle-income country through green economic growth supporting sustainable, low emissions development, contributing its fair share to global efforts to address climate change. The mission for the LTV is to endeavor to reach net-zero carbon

emissions by 2050, with enhanced adaptive capacities and resilience.

The LTV has the following strategic areas of focus:

1. Climate resilient food and landscapes: Agriculture, food security, forestry and natural resources, including water, biodiversity and wildlife

2. Low emissions and resilient economy: Energy, transport, infrastructure, and the key economic sectors of tourism and financial services

3. Climate resilient people: Health, education, equitable social development, and human settlements

4. Managing our coasts in a changing environment: climate-aware Integrated Coastal Zone Management

The LTS would translate the strategic priorities of the Vision into more concrete actions, policies, programs, and initiatives. It focuses on The Gambia`s key GHG emitting sectors: Energy, Agriculture, LULUCF, Transport and Waste Management.

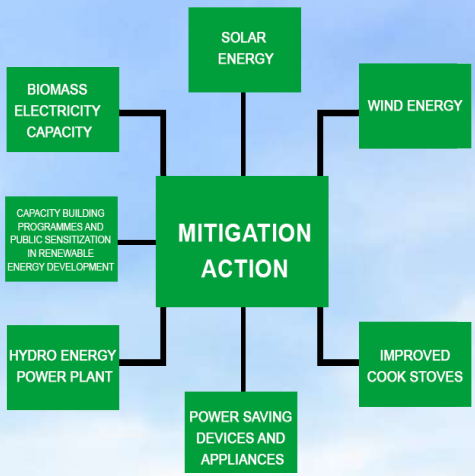
Mitigation actions to achieving a net-zero scenario

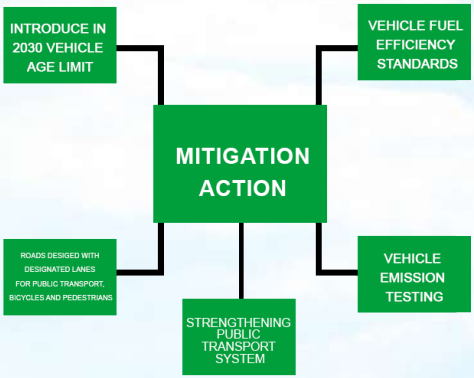
The mitigation actions identified in this document are based on the desired GHG mitigation options identified in the LTV, which is built on existing efforts to implement the United Nations Framework Convention on Climate Change and Paris Agreement. The LTV identified several mitigation actions, which are categorized under three sub-subsectors that need to decarbonize to achieve a net-zero scenario by 2050. These sub-sectors are energy, AFOLU and Waste.

(A) Energy sector mitigation options

In an effort to curb Green House Gas emissions, The Gambia is determined to promote and encourage the use of renewable energy resources that would assist the country to achieving a net-zero emission GHG emission scenario by 2050.

To achieve this, the electricity strategy of The Gambia plans to achieve a 30% share of renewable energy by 2030 in the sector. The National Energy Policy 2015-2020 further sets out a plan to double the share of renewable energy resources every 10 years. If this plan is strictly adhered to, the country will be able to achieve a net zero emission target by 2050 within the electricity generation sub-sector. The following mitigation options are identified to achieve a net-zero scenario in the electricity generation sub-sector by 2050:





AFOLU Sector GHG Mitigation

The LTV has set several GHG mitigation action plans for the AFOLU sector, which can assist the country in achieving a net-zero or net sink mitigation scenario by 2050. This will be achieved through the implementation of agro-ecology, promoting social protection for climate-induced impacts, forest protection, forest monitoring, afforestation, conservation agriculture, etc..

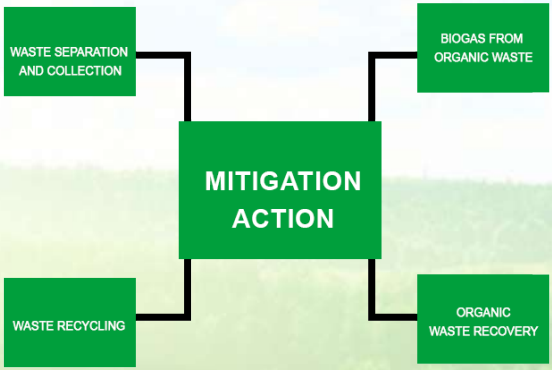
In addition, the vision strives to maintain 30% of the country's total land area under forest cover. With the implementation of these climate change mitigation actions, it is envisaged that there will be a reduction of 330 GgCO2e in 2030.

The vision endeavours to promote environmentally friendly agricultural

production and aims to achieve robust and sustainable land conversion processes. In a broader perspective, the following mitigation actions will be pursued to achieve a net sink GHG mitigation scenario within the AFOLU sector:

Waste Sector Mitigation

Waste management is becoming a growing concern in The Gambia. Most of the waste generated in the Greater Banjul Area is taken to Bakoteh dump site, which is located within one of the most populated areas in the country. There is continuous indiscrwiminate disposal of waste in the area, which is left to rot or burnt on regular basis creating environment pollution in the neighboring communities. The surrounding communities of the dump site are home to over 700,000 residents comprising 40% of the country's total population. To mitigate the GHG produce from the waste sector, the following mitigation actions will be pursued:



CLIMATE CHANGE RESILIENCE AND ADAPTATION

Agricultural activities are by their nature prone to numerous risks and uncertainties, be they abiotic (such as water, light, radiation, temperature, humidity or soil), biotic (including pests and diseases), or a result of prevailing cultural or economic conditions. Many of these risks have a climatic component and most of them will be affected by climate change, either in intensity, scope or frequency. Climate resilient agriculture practices can help reduce hunger and poverty in the face of climate change. It is an approach that includes sustainably using existing natural resources through crop and livestock production systems to achieve long-term higher productivity and farm incomes under climate variability

Strategies and technologies for climate change adaptation and resilience

The two main types of adaptation are either autonomous or planned. Autonomous adaptation is the reaction of, for example, a farmer to changing precipitation patterns, in that she/he changes crops or uses different harvest and planting/sowing dates. Planned adaptation measures are conscious policy options or response strategies, often multisectoral in nature, aimed at altering the adaptive capacity of the agricultural system or facilitating specific adaptations. For example, deliberate crops selection and distribution strategies across different agriclimatic zones, substitution of new crops for old ones and resource substitution induced by scarcity.

Long-term adaptations are major structural changes to overcome adversity such as changes in land-use to maximize yield under new conditions; application of new technologies; new land management techniques; and water-use efficiency related techniques.

Climate change adaptation for agricultural cropping systems requires a higher resilience against both excess of water (due to high intensity rainfall) and lack of water (due to extended drought periods). A key element to respond to both problems is soil organic matter, which improves and stabilizes the soil structure so that the soils 49 The Gambia's Long-Term Climate-Neutral Development Strategy 2050 can absorb higher amounts of water without causing surface run off, which could result in soil erosion

Conservation agriculture and organic agriculture that combine zero or low tillage and permanent soil cover are promising adaptation options for their ability to increase soil organic carbon, reduce mineral fertilizers use and reduce on-farm energy costs.

Trees and shrubs in farming systems (including agroforestry) can play a significant role in mitigating the impacts of extreme events and the

resulting threats to food security. In addition to benefits such as the provision of wood and non-wood forest products, restoration of soil fertility, and the conservation of biological diversity, trees and forests improve the microclimate by buffering winds, regulating the water table, providing shade to crops and animals, and stabilizing coastal areas (e.g. through mangrove rehabilitation and afforestation). They thus contribute to sustainable agricultural production and food security

Energy sector (generation) Adaptation

• Hydro energy power plant • Renewable energy sources such as solar and wind household-based, institution-based and or communi ty-based especially for remote communities; • Use of efficient cooking stoves which are more fuel efficient and can use other forms of fuel such as briquettes; • Introducing energy-efficient lighting and appliances, • Energy-efficient buildings (energy efficiency and savings); • Use of alternate energy operated motor vehicles, including cars and motorcycles • Pursuing environmentally sustainable transport strategy; • Solar water heating systems in the tourism sectors

Transport sector

• Vehicle fuel efficiency standards • Use of electric vehicles • Introduction of vehicles using low emission fuel • Vehicle emission testing • Strengthen vehicle emission testing • Strengthen public transport system • Designated lane for public transport, bicycles, and pedestrians • Encourage Car sharing mechanism • The application of vehicle age limit for importation (maximum 10 years) in 2030

Agriculture sector

• Agro ecological farming • Systems of rice intensification • Upland rice production • Implementing climate-smart agriculture (promote crop varieties with a higher heat/drought tolerance, short cycle varieties) • Promoting cultivation of halophyte crops (control primary salinization) • Using saline resistant varieties and grafting techniques in traditional crops • Reducing food losses (Improved harvesting techniques; adequate storage to limit exposure to moisture, heat and pest infestation using metal silos; applying mobile processing units, solar dryers, graters and pressers and cold storage capacity. • Exercise water management, soil amendments, organic matter management, different tillage, rotation, and cultivar selection

Livestock subsector

a. Enteric fermentation • Improving production efficiency, quality of

forages, processing feeds to improve digestibility, and add ing grain-based concentrates to livestock diets • Feed additives and supplements • Reducing emissions from livestock manure through balanced feeding • Lowering the nitrogen content of the animal feeds • anaerobic digestion for methane production for use as a source of cleaner energy • Herd management and breeding including basic disease prevention and providing shelter for the ani mals, as well as high-end genetics; • Introduction of household-based, community-based and animal farm-based biogas facilities;

b. Manure management • More efficient use of manure as an energy or crop nutrient source. • Simple storage and handling practices such as reducing storage time, covering the manure, avoiding straw/hay bedding can reduce emissions from stored manure

3. Land use, land-use change, and forestry (LULUCF) • Forest inventory • Controlled timber harvesting • Changes of species and genetic management • Reforestation, regeneration and afforestation techniques • Controlled fires

Waste sector adaptation measures are:

• Biogas from organic waste • Organic waste recovery • Integrated waste management • Municipal waste separation and collection system • Build facilities that will process solid waste generated into usable materials (recycling) • Construct biogas facilities for utilization of waste into electricity and fertilizers • Improve landfilling practices of residues • Composting of separated waste materials.

BUDGET FOR THE IMPLEMENTATION OF LTS WITH TIMELINES

For the implementation of the LTS, "short-term" actions are to be implemented between 2022 and 2027, "medium-term" actions are to be implemented between 2028-2032, and "long-term" actions are to be implemented between 2033 and 2050. These costs are estimates, based on today`s prices and may need to be revised accordingly, during actual implementation of the LTS.

Measure	Cost – USD `000			
	Total	Short term	Medium term	Long term
MA1 - Solar power 13 solar PV farms with storage capacity installed with capacity of 250 MW by 2050	1,400,000	200,000	400,000	800,000
MA2 – 100MW of Wind power by 2030	250,000	150,000	50,000	50,000
MA3 – Subsidies to encourage use of improved cook stoves	79,000	35,000	25,000	19,000
MA4 – Subsidies to encourage use of power saving devices and appliances	45,000	5,000	10,000	30,000
MA5: Hydro Energy Power Plant (Sambangalou hydro-electricity Dam) to supply 250MW by 2030	520,000	400,000	70,000	50,000
MA6 - Capacity Building programmes and public sensitization in renewable energy development	80, 000	35,000	15,000	30,000
MA7 – Biomass facilty to produce 10MW of power	100,000	40,000	35,000	25,000
TOTAL	**2,474,000**	**865,000**	**605,000**	**1,004,000**

TRANSPORT

Measure	Cost – USD `000			
	Total	Short term	Medium term	Long term
MA8 - Vehicle Fuel Efficiency Standards improved by introducing eco-driving training centres and promotion of vehicles using low emission fuel and hybrid electric vehicles	2,000	1,000	500	500
MA9 – Roll out annual Vehicle Emission Testing by building and equipping 7 centres in every administrative region	2,000	1,500	250	250
MA10 - Strengthen public transport system by increasing fleet size of Governemt-owned buses, whilst maximizing comfort, speed and reliability	32,000	10,000	10,000	12,000
MA11 – Construct new roads and improve existing roads to have designated lanes for public transport, bicycles and pedestrians as well as flyovers to ease choke points	38,000	200,000	100,000	80,000
MA12 – Introduce age limit for imported vehicles to a maximum of 3 years	200	150	50	0
TOTAL	**416,200**	**212,650**	**110,800**	**92,750**

AFOLU

Measure	Cost – USD `000			
	Total	Short term	Medium term	Long term
MA13 – Promote agro-ecological farming by the provision of subsidized inputs to smallholder farmers and capacity-building in: Biofertilisers; Organic manures; Modern irrigation techniques; Integtrated pest managenent	160,000	80,000	40,000	40,000
MA14 – Promote System of Rice Intensification, through mechanization and use of high yielding crops.	240,000	160,000	40,000	40,000
MA15 - Promote upland rice cultivation	120,000	40,000	40,000	40,000
MA16 – Control of timber harvesting to reduce emissions from logging, through capacity building of loggers in felling techniques and provision of skidding equipment.	12,000	5,000	4,000	3,000
MA17 – Improve manure management in livestock by using biodigesters and improved feed	9,000	1,000	3,000	5,000
MA18 – Genetic improvement of livestock species to reduce emissions from enteric fermentation	35,000	0	19,000	16,000
MA19 – Improved feed with reduced nitrogen content introduced at subsidized	15,000	5,000	5,000	5,000
MA20 – Mangrove rehabilitation and afforestation, including capacity building to improve survival rates of replanted mangroves	70,000	35,000	20,000	15,000
MA21 – Afforestation and reforestation of 67,800ha by 2030 and 203,400ha by 2050 mainly with hardwoods. The forests are to be fenced to prevent encroaching and illegal dumping of waste and prevent bush fires	400,000	150,000	150,000	100,000
TOTAL	**1,061,000**	**476,000**	**321,000**	**264,000**

WASTE

Measure	Cost – USD `000			
	Total	Short term	Medium term	Long term
MA22 – Create 7 Biogas facilities producing 10MW of electricity by 2030	13,000	7,000	4,000	2,000
MA23 - Organic waste recovery by composting at household level, including a national awareness campaign to encourage composting of organic household waste.	55,000	30,000	15,000	10,000
MA24 – Encourage household waste recycling through a national awareness campaign	2,000	1,000	500	500
MA25 – Introduce waste separation at landfills	5,000	3,000	1,000	1,000
TOTAL	**75,000**	**41,000**	**20,500**	**13,500**

Part of the process!

Find out more about how you can get involved at

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