REPUBLIC OF UGANDA

Ministry of Health

Climate Change and Health

HEALTH– NATIONAL ADAPTATION PLAN (H-NAP)
2025-2030

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Recommended Citation:

Ministry of Health (2024) **Climate Change Health - National Adaptation Plan (H-NAP) 2025-2030** Kampala, Government of Uganda

FOREWORD

Climate change is humanity's most prominent health threat and contributes to environmental risks. Uganda is already experiencing the effects of climate change, which is characterized by floods and landslides with shorter or longer rains, harsher droughts, and warming up in different parts of the country. Droughts affect the availability of safe and adequate water supply for domestic consumption, and floods contaminate water sources with disease-causing pollutants, which can result in water-related diseases such as typhoid and cholera.

In addition, heavy rainfall results in the proliferation of stagnant water, which increases the breeding of vectors, such as mosquitoes, which increases the prevalence of vector-borne diseases, such as malaria. The burden of emerging and re-emerging diseases, such as the recent Ebola outbreak, is attributed to the changes in temperature and patterns. Climate change has also impacted health infrastructure by destroying hospitals and health facilities, disrupting food production and distribution, leading to malnutrition as well as causing mental health effects.

The Government of Uganda has created an enabling policy and legal environment, including the National Climate Change Policy, the Climate Change Act, the Long-Term Climate Strategy (LTS), and Nationally Determined Contributions (NDC). All these aim to transform Uganda into a climate-resilient, low-carbon society by 2050 that is prosperous and inclusive.

In line with the above Government efforts, the Ministry of Health has collaboratively developed the Health National Adaptation Plan (H-NAP) based on the findings of the Vulnerability and Adaptation Assessment (VAA) to guide climate change adaptation by the health sector. This H-NAP should be used to mobilize the required technical and financial resources. This effort should be replicated at the subnational level to ensure we build a climate-resilient health system.

Climate change is well known as a cross-cutting phenomenon that affects all sectors. Based on this reality, I strongly call for close collaboration between the Ministry of Health and all sectors and actors nationally, regionally, and globally to effectively respond to this challenge.

Dr Aceng Jane Ruth Ocero

Minister of Health

ACKNOWLEDGEMENTS

On behalf of the Government of Uganda and the Ministry of Health, I would like to extend our sincere gratitude to The Rockefeller Foundation for funding the Vulnerability and Adaptation Assessment (VAA) and developing the Health National Adaptation Plan (H-NAP). Special thanks are extended to Mr. Greg Kuzmak and Mr. Gimaiyo Gerishom for walking with us and providing technical support throughout this process.

We acknowledge the tremendous work of Makerere University School of Public Health (MakSPH) led by Dr. John Bosco Isunju, the support by the World Health Organisation Country Office led by Dr. Suraj Shrestha and Mr. Collins Mwesigye, and the regional office led by Dr. Jeremiah Mushosho and Dr. Brama Kone, the support for the technical review of the H-NAP by REGENERATE AFRICA led by Mr. Charles Kabiswa and Ms. Nakuya Niona Kasekende, PATHFINDER INTERNATIONAL led by Mr. Joshua Busiinge and the coordination by the Environmental Health Department MoH led by Dr. Herbert Nabaasa and Dr. Didacus Namanya.

The Ministry of Health also gratefully acknowledges all Ministries [Office of the Prime Minister (OPM), Ministry of Finance Planning and Economic Development (MFPED), Ministry of Education and Sports (MoES), Ministry of Energy and Mineral Development (MEMD), Ministry of Lands Housing and Urban Development (MLHUD), Ministry of Gender Labour and Social Development (MGLSD), Ministry of Works and Transport (MWT)], Departments [National Planning Authority (NPA), Uganda National Meteorological Authority (UNMA), Uganda Management Authority (UMI)], Agencies [Jinja DLG, Mukono DLG, Manafwa DLG, Kayunga DLG, Mukono DLG] that supported the VAA and development of H-NAP. The Climate Change Department of the Ministry of Water and Environment, led by Mrs. Margaret A. Mwebesa and Mr. Muhamad Sesemambo, is highly appreciated for their guidance. Special appreciation goes to all the districts and Health Facilities that participated in the process.

Furthermore, the Ministry of Health acknowledges the insightful comments and contributions from all Development Partners including UNICEF Uganda, Amref Health Africa, Living Goods, Seed Global Health, Tree Adoption Uganda, Reproductive Health Uganda, Clinton Health Access Initiative (CHAI), Thinkwell Global, Climate Action Network Uganda, Seed Global Health, Teda Farmer, Palladium Group, Dunia Nzuri Climate Outreach, Food and Agriculture Organization (FAO), New Horizons WEC, PATH/Transforming Communities, National Planning Authority (NPA), Youth and Adolescents Development Network (YADNET) UG, Office of the Prime Minister (OPM), Womens Climate Center International, Terredes Hommes Netherlands, Uganda National Institute Of Public Health, Care International, and ActionAid International Uganda for their vital roles and contributions throughout the process. Also, the academia, including Uganda Management Institute (UMI), Infectious Disease Institute (IDI), Sanitation and Hygiene Fund (SHF), Water for People, Makerere University School of Economics, and Makerere University Center for Climate Change Research and Innovation (MUCCRI), greatly contributed to this H-NAP.

Dr. Diana Atwine

Permanent Secretary

ACRONYMS & ABBREVIATIONS

AfDB	Africa Development Bank
CCD	Climate Change Department
CCMA	Climate Change Mitigation and Adaptation
CFU	Climate Finance Unit
COP	Conference of Parties
CSOs	Civil Society Organization
CSR	Corporate Social Responsibility
FCDO	Foreign, Commonwealth & Development Office
DHIS	District Health Information Software
DQA	Data Quality Assessment
DQAA	Data Quality Audits and Adjustment
EAC	East Africa Community
EIA	Environmental Impact Assessment
EU	European Union
EWS	Early Warning Systems
FAO	Food and Agriculture Organization
FSD	Financial Sector Deepening
GBV	Gender-Based Violence
GCF	Green Climate Fund
GEF	Global Environmental Facility
GGGI	Global Green Growth Institute
GoU	Government of Uganda
HCFs	Health care facilities
HCWs	Healthcare workers
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
H-NAP	Health National Adaption Plan
HPAC	Health Policy Advisory Committee
HRIS	Human Resources Information System
HRM	Human Resource Management
HSSD	Health Sector Strategic Development
IMF	International Monetary Fund
LDCF	Least Developed Country Fund
LDF	Loss and Damage Fund
LG	Local Government
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MDAs	Ministries, Departments and Agencies
M&E	Monitoring and Evaluation
MoEs	Ministry of Education and Sports
MoFPED	Ministry of Finance, Planning and Economic Development
MoH	Ministry of Health
MVR	Monitoring, Verification, and Reporting
MWE	Ministry of Water and Environment
NAM	Non-Aligned Movement

NAPs	National Adaption Plans
NATWG	National Adaption Technical Working Group
NCCCS	National Climate Change Communication Strategy
NCCP	National Climate Change Policy
NCCTM	National Climate Change Training Manual
NCD	Non-communicable diseases
NDC	National Determined Contribution
NAP	National Adaptation Plan
NEF	National Environmental Fund
NFTPA	National Forestry and Tree Planting Act
NGOs	Non-Governmental organizations
OBT	Output-based Budgeting Tool
OPM	Office of the Prime Minister
OSH	Occupational safety and health
PFP	Private-for-profit
PHEOC	Public Health Emergency Operation Centers
PNFP	Private-not-for-profit
PSRP	Post-storm Recovery Plan
QAD	Quality Assurance Department
RCP	Risk Communication Plan
REOC	Regional Emerging Operation Centers
RRH	Regional Referral Hospital
SCCF	Special Climate Change Fund
SCMS	Supply Chain Management System
SDGs	Sustainable Development Goals
SPCR	Strategic Program for Climate Resilience
SRH	Sexual and Reproductive Health
STI	Sexually Transmitted Infections
STMC	Senior Top Management Committee
SWOT	Strengths, Weaknesses, Opportunities, and Threats
T.O.C	Theory Of Change
UBOS	Uganda Bureau of Statistics
UDB	Uganda Development Bank
UGGDS	Uganda Green Growth Development Strategy
UHC	Universal Health Coverage
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
UNMA	Uganda National Meteorological Authority
USAID	United States Agency for International Development
VAA	Vulnerability and Adaptation Assessment
WASH	Water, Sanitation, and Hygiene
WB	World Bank
WHO	World Health Organization
WWF	World Wide Fund

GLOSSARY

Adaptive Capacity	This is the potential or ability of a system, region, or community to adapt to the effects or impacts of climate change.
Climate change	This refers to long-term shifts in temperatures and weather patterns.
Climate change Adaptation	This refers to altering behavior, systems, and in some cases, ways of life to protect our families, our economies, and the environment in which we live from the impacts of climate change.
Cold waves	This is a period of marked and unusually cold weather characterized by a sharp and significant drop in air temperatures near the surface.
Climate refugees	These are people who must leave their homes and communities because of the effects of climate change and global warming. Climate refugees belong to a larger group of immigrants known as environmental refugees.
Climate change vulnerability	This is the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes.
Drought	This is a prolonged dry period in the natural climate cycle that can occur anywhere in the world.
Emerging and Re-emerging diseases	These are infections that have newly appeared in a population or have existed previously but are rapidly increasing in incidence or geographic range.
Epidemics	This is an outbreak of disease that spreads quickly and affects many individuals at the same time.
Foodborne Diseases	These are caused by the contamination of food and occur at any stage of the food production, delivery, and consumption chain.
Floods	This is an overflow of a large amount of water beyond its normal limits, especially over what is normally dry land.
GBV	These are violence directed against a person because of that person's gender or violence that affects persons of a particular gender disproportionately.
Hazard	This is a dangerous phenomenon, substance, human activity, or condition.
Health	This is a state of physical, mental, and social well-being, not just the absence of disease or infirmity.
Heatwave	This is a period of abnormally hot weather.

Landslides	This is a mass movement of material, such as rock, earth, or debris, down a slope.
Lightning	This is the occurrence of a natural electrical discharge of very short duration and high voltage between a cloud and the ground or within a cloud, accompanied by a bright flash and typically also thunder.
Malnutrition	This refers to deficiencies or excesses in nutrient intake, imbalance of essential nutrients, or impaired nutrient utilization.
NCDs	A group of conditions that are not mainly caused by an acute infection result in long-term health consequences and often create a need for long-term treatment and care.
Pandemic	A wide spread occurrence of an infectious disease over a whole country or the world at a particular time
Policy	A law, regulation, procedure, administrative action, incentive, or voluntary practice of governments and other institutions
Vector-borne diseases	These are human illnesses caused by parasites, viruses, and bacteria that are transmitted by vectors.
Waterborne diseases	These are illnesses caused by microscopic organisms, like viruses and bacteria, that are ingested through contaminated water or by coming in contact with faeces.
Zoonoses	These are any diseases or infections that are naturally transmissible from vertebrate animals to humans.

EXECUTIVE SUMMARY

The Health National Adaptation Plan (H-NAP) 2025-2030 addresses the significant threat climate change poses to public health in Uganda. The Ministry of Health, in collaboration with various stakeholders, has developed this plan to enhance the resilience of the health sector against climate-related impacts. Uganda is already experiencing severe climate change effects, such as floods, droughts, and temperature changes, which contribute to health issues like waterborne diseases, vector-borne diseases, malnutrition, and mental health problems. This H-NAP was developed to guide climate change adaptation efforts in the health sector and was informed by the Climate Change Vulnerability and Adaptation Assessment (VAA) conducted in 716 selected health facilities across Uganda. The H-NAP outlines strategic interventions aligned with the World Health Organization's (WHO) framework for building climate-resilient health systems. These interventions include establishing climate-smart governance structures, enhancing health workforce training, integrating climate information into health programs, and promoting innovative partnerships for resource mobilization.

Uganda has established a robust policy and legal framework to address climate change, including the National Climate Change Policy (2015), the Climate Change Act (2021), and the updated Nationally Determined Contribution (2022). These frameworks aim to transform Uganda into a climate-resilient, low-carbon society by 2050. The H-NAP aligns with these policies, emphasizing the integration of climate change adaptation into health sector plans and policies. Moreover, a key recommendation to tackle climate change issues in Uganda is the integration of climate services for health. These services involve the provision of climate data, tools, and information tailored to the health sector's needs, enabling health professionals to better anticipate, prepare for, and respond to climate-related health risks. Climate services for health include forecasting climate variables, monitoring and predicting the spread of climate-sensitive diseases and issuing early warnings for heatwaves and air pollution episodes. By integrating these services into health planning and operations, Uganda can enhance its public health resilience against the impacts of climate change.

Furthermore, the H-NAP proposes a range of short-term and long-term interventions across ten components: climate-transformative leadership, climate-smart health workforce, integrated risk monitoring, and sustainable financing. Specific actions include developing guidelines for mainstreaming climate and health, training health workers, enhancing disease surveillance systems, and revising infrastructure standards for climate-proofing. Also, the plan presents a financing framework to mobilize resources for implementing the identified interventions. This includes developing a comprehensive resource mobilization plan, increasing national budgets for health and climate change policies, and advocating for health issues in climate funding streams.

Ultimately, the H-NAP aims to build a climate-resilient health system in Uganda by addressing the multifaceted impacts of climate change on health. By implementing the proposed strategies and interventions, Uganda can enhance its adaptive capacity, protect public health, and contribute to sustainable development goals. The success of the H-NAP relies on strong collaboration between government ministries, health agencies, civil society organizations, and the private sector, ensuring a coordinated and effective response to climate change.

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INTRODUCTION

1.1 Context

Uganda is already experiencing the effects of climate change, which is characterized by shorter or longer rains, harsher droughts, and warming up in different parts of the country. For instance, seven droughts occurred between 1991 and 2000 in the arid Karamoja region of northeastern Uganda, with subsequent droughts occurring in 2001, 2002, 2005, 2008, and 2011 (1, 2). These prolonged droughts have resulted in widespread crop failures, drying up of surface water sources, a hunger crisis, and death due to malnutrition and starvation in the Karamoja cattle corridor (3, 4). Furthermore, heavy rainfall and flooding have caused death, internal displacement, and eroding sources of livelihood in parts of Eastern, Western, and South Western Uganda (5).

Climate change has also had an impact on the health of the population in various ways. Directly, climate change has resulted in injury or death from extreme weather events and heat illnesses related to temperature increases, among others. Indirectly, climate change has resulted in malnutrition, increased spread of vector-borne diseases, and impacts on mental health) (6). Climate change is not only leading to mental health challenges and substance abuse as coping mechanisms, but it's also reshaping disease patterns. Conversely, dry spells increase respiratory infections as dry air and reduced moisture levels create favourable conditions for airborne viruses.

Moreover, the destruction of crops and livestock, coupled with reduced soil fertility, is causing widespread malnutrition, particularly affecting vulnerable children with weakened immune systems. The World Health Organization (WHO, 2021) predicts an estimated 250,000 additional deaths annually between 2030 and 2050, attributing them to malnutrition, malaria, diarrhea, and heat stress due to climate change. In flood-prone regions, there's a heightened risk of malaria due to increased mosquito breeding environments, while drought periods intensify malaria cases with a higher transmission rate. Additionally, climate change is introducing new diseases and pests to previously unaffected areas, such as highland regions experiencing a surge in mosquitoes. Economic hardships resulting from climate change contribute to increased HIV and sexually transmitted infection (STI) transmission rates, driven by limited income sources and restricted access to protective services like condoms and prophylactic treatments. (Regenerate Africa, 2023).

Climate change has also indirectly contributed to a rise in gender-based violence, early marriage, sexual violence, and sex trafficking (Asian-Pacific Resource & Research Centre for Women [ARROW], 2014, 2017b; Le Masson, 2016; Sorensen et al., 2018). According to Women Deliver (2021), vulnerability to climate change is determined by factors such as gender, sexuality, age, wealth, indigeneity, and race. Also, climate change-related events strain healthcare workers, interrupt supply chains, and disrupt physical infrastructure, resulting in complexities in patient treatment and threatening healthcare quality and safety, as well as hindering access to sexual and reproductive health services. Other indirect impacts encompass the consequences of climate-related shocks on household finances, potentially reducing resources available for healthcare (J.R. Castro, personal communication, July 26, 2020). The World Bank (2020) estimates a mortality rate of 28.1% attributed to exposure to unsafe water, sanitation, and hygiene services per 100,000 population in Uganda by 2019, resulting in approximately 12,435 associated deaths for both males and females. These impacts negatively affect health, productivity, and overall economic growth. The direct damage costs to health are projected to reach USD 2-4 billion per year by 2030.

These ongoing climate change events and related impacts still present unique opportunities for Uganda to define how to respond to its persistent development challenges (1). Uganda has recognized the need to pursue a climate-resilient development pathway (1). The government of Uganda (GOU) has developed several laws, policies, and strategies upon recognizing that climate change affects Uganda's development agenda, all sectors, institutions, and communities. Uganda has also committed and is a signatory to various international frameworks and conventions to address climate change and how to minimize, mitigate, and adapt to its impact. Existing national policy and legal framework is sound enough to tackle the climate change challenge, but there has been lack of a comprehensive health vulnerability and adaptation assessment to support evidence-based health adaptation planning and strategy development (7).

1.2 H-NAP background

Uganda has been part of global and regional efforts to address climate change, including UNFCCC, the Kyoto Protocol, and the Paris Agreement. The country has signed and ratified these agreements, committing to implement policies to mitigate and adapt to climate change impacts. As a member of the East African Community, the country has initiated policies and harmonized them to be consistent with the EAC Climate Change Policy. To address the challenges of climate change, the UNFCCC recommended that countries develop National Adaptation Plans (NAPs) to identify and implement strategies that enhance countries' resilience to climate change, foster adaptability within economies, societies, and ecosystems over the medium and longer-term (8).

Uganda developed the National Climate Change Policy (2015) and the National Climate Change Act of 2021 to serve as the cornerstones of the country's climate action program and measures. To operationalize the implementation of the NCCP and the Act and actualize the country's commitment under the Paris Agreement, Uganda developed and submitted an updated Nationally Determined Contribution (Updated NDC 2022) to the UNFCCC, which also serves as the National Climate Change Action Plan 2020–2030. The NDC and other strategic documents specify a package of Uganda's key strategic programs, measures, and actions to address climate change and build climate change resilience across different sectors.

Within the NCCP 2015, Uganda committed to and prioritized the development of the H-NAP. In December 2021, the Ugandan Ministry of Health (MoH) committed to the UNFCCC at COP26 in Glasgow, UK, to develop a Health National Adaptation Plan (H-NAP). The H-NAP presents a framework for climate change adaptation actions for the health sector. It is intended to enhance Uganda's resilience against the impacts of climate change by incorporating climate change adaptation into development strategies and planning across various sectors. It will ultimately mitigate vulnerabilities, strengthen the adaptive capacity, and build greater resilience for the health sector in Uganda.

1.3 H-NAP Development Process

The development process of the H-NAP was coordinated by the Ministry of Health (MOH), and it involved a systematic approach comprising several key steps;

a) **Desk review**: This involved an extensive review of literature, including key strategic documents, global frameworks and strategies, national frameworks and strategies, country commitments at various forums, research documents, legal documents, as well as benchmarks

of other country NAPs and H-NAPs that already exist. The rationale for this review was to articulate the context from which the H-NAP effort is anchored, identify evidence on the nexus between climate change and health, and guide the articulation of key actions for inclusion in the plan.

b) **The National Health Climate Change Vulnerability and Adaptation Assessment (VAA).** This assessment was commissioned by the Ministry of Health (MOH) and conducted by Makerere University School of Public Health (MakSPH). The rationale for the national VAA assessment was to assess the nature and extent of risk and vulnerability to climate change for the health sector and suggest recommendations for dealing with those risks and vulnerabilities. The VAA findings acted as a key input in informing the development of the H-NAP.

c) **Stakeholder Engagements and Consultations**: Stakeholder mapping was conducted and key stakeholders were identified and engaged at different levels of the H-NAP development process. These key stakeholders included the Ministry of Water and Environment (Climate Change Department), Ministry of Local Government, Ministry of Finance, Planning and Economic Development, National Planning Authority, Ministry of Health, Office of the Prime Minister, Ministry of Agriculture, Academia, Civil Society Organizations (CSOs), UN Agencies (UNDP, WHO, UNICEF, etc.) Researchers, and Non-Governmental Organizations, Implementing Partners, among others. The key stakeholder engagements largely included workshops, technical reviews, key informant interviews, and expert opinions. The engagements focused on reviewing and validating VAA findings, formulating the strategic direction of the H-NAP, technical reviews, and validating the plan.

d) **Approval and Launch** – The H-NAP was taken through the approval processes of the MOH – including through TWGs, management, senior Management, and HPAC. Following the approval, a launch of the plan was conducted, which also acted as a key step and forum for dissemination of the plan. Key stakeholders across different institutions graced the launch.

2. SITUATION ANALYSIS

The situation analysis highlights the policy, legal and institutional framework for climate change in Uganda and subsequently illustrates the evolution of climate-related national policies and obligations. In addition, it provides an overview of the state of climate change vulnerability and adaptation in the health sector, summarising exposure to climate-related hazards and their impacts on the different components of the health system in Uganda. Finally, it provides a summary of the temporal and regional distribution of climate-sensitive health outcomes in Uganda and analyses the strengths, weaknesses, opportunities, and threats for the H-NAP.

2.1 The Policy and Legal Framework for Climate Change in Uganda

Uganda is committed to combating climate change. The country is involved in and has committed to various frameworks at global and regional levels, including the UNFCCC, the Kyoto Protocol, and the Paris Climate Agreement (2015). The Agenda 2030 for Sustainable Development, Agenda 2063 the Africa We Want (2015). The country has signed and ratified these agreements, committing to implement policies to adapt to climate change impacts. As a member of the East African Community, Uganda has initiated and aligned policies with the EAC Climate Change Legal Frameworks, including East African Community: Vision 2050 (2016) and EAC Climate Change Policy Framework (2011).

Uganda developed the National Climate Change Policy (NCCP) of 2015 and the National Climate Change Act of 2021, which serve as the cornerstone of the country's climate action Programme. To operationalize the implementation of the National Climate Change Policy and the Act 2021 and to strengthen the country's commitment to the Paris Agreement, Uganda developed and submitted an updated Nationally Determined Contribution (Updated NDC 2022) to the UNFCCC, which also serves as the National Climate Change Action Plan 2020–2030. The updated NDC, among other things, provides for building a resilient health system and, to this end, recommends the development of the National Adaptation Plan for the health sector.

In addition, Uganda developed Vision 2040 and the National Development Plan III, which are the key strategic plans guiding the country's development agenda. Within these strategic plans, the effect of climate change on the country's development process and prospects has been recognized, and the need to develop and implement climate action to promote adaptation and resilience has been articulated. To this end, strategies and guidelines have been developed and are being implemented at both national and sectoral levels, including:

i) **National-Climate-Change-Mainstreaming-Guidelines (2014)** with well-stipulated steps for integrating climate change into sectoral plans and budgets

ii) **The Uganda Green Growth Development Strategy** –seeks to operationalize a green economy, focusing on promoting, among others, a socially inclusive growth that improves food and nutritional security

iii) **The Strategic Program for Climate Resilience (SPCR) of 2017**

iv) **The National Adaptation Program of Actions (2007)**, with a health focus on climate change vectors, pests, and disease control and management, and promotion of early warning

v) **The National Climate Change Communication Strategy (2017-2021)** for improving climate change communication at all levels.

vi) **Guidelines to the Local Government Planning Process (2016)**. The focus is to provide a comprehensive framework for local governments in Uganda to develop and implement health sector plans that are responsive to the specific needs of their communities.

vii) **Climate Change and the Health Sector Development Plan (2020-2025):** The HSDP recognizes the need to mainstream climate change into health sector plans and policies, as with any other cross-cutting issue. To this end, the HSDP acknowledges the need to implement the strategies proposed under the NCCP (2015), including 1) continuous vulnerability assessment of the health sector to the impact of climate change; 2) developing plans for building a climate-change resilient health system; 3) assessing the impact of climate change on human health and wellbeing; 4) data capture and dissemination; 5) increased disease surveillance and rapid response to control epidemics; 6) strengthen the public health system by building health facilities and adequately stocking them; 7) addressing issues of safe water chain and sanitation to limit outbreak of waterborne diseases; and 8) implementing public awareness programs as well as improving health workers' awareness about the link between climate change and human health.

Other national policies, laws, and guidelines that emphasize climate change include:

viii) **The National Policy for Disaster Preparedness and Management of 2010** aims to reduce vulnerability to disasters by establishing institutions and mechanisms at national and local government levels. The policy pledges to take proactive actions to reduce climate change causes and negative impacts. It outlines objectives for various disaster types, including drought, floods, landslides, epidemics, pandemics, heavy storms, pest infestations, earthquakes, and fires. The document underscores the escalating impact of disaster-induced loss and damage on impoverished communities, attributing it to a myriad of factors such as shifting demographics, technological and socioeconomic changes, haphazard urbanization, developmental lag, environmental degradation, and climate variability. It underscores the imperative of investing in secure and sufficient water resources to cater to the expanding population while acknowledging the potential rise in transport-related incidents with population growth, contributing to human-induced disasters.

ix) Additionally, the policy acknowledges the heightened vulnerability of women and children to disasters. Extensive attention is given to health-related considerations across various contexts. The document delves into the repercussions of disasters on waterborne diseases, malaria, and epidemics, underscoring the necessity for health interventions during displacement scenarios. The Ministry of Health is assigned the responsibility of fortifying early warning systems within the health sector to implement preventive measures. Furthermore, climate change is acknowledged as a source of health-related hazards, encompassing factors like radiation, intense tropical winds, and an elevated risk of global warming.

x) **The National Environment Act 2019**. The Act sets up a Policy Committee on Environment, which provides strategic policy guidance on the environment. The committee is also responsible for climate change and ensures enforcing measures to tackle climate change causes and effects across all sectors.

xi) The Health sector aligns with various regional and international frameworks, including the Sustainable Development Goals (SDGs), the Astana Declaration, and the Africa Health Agenda,

emphasizing universal health coverage, global health security, and primary healthcare. These commitments, integrated into the MoH's operations, aim to enhance public health through collaborative efforts involving multilateral and public-private partnerships, guiding the development of a National Global Health Strategy to facilitate cohesive policy action. Additionally, the country has established several national policies and commitments to strengthen its health system, such as the National Health Policy (2010), which prioritizes health promotion, disease prevention, and the effective delivery of the Uganda National Minimum Health Care Package. Furthermore, the Ugandan Government's FP2030 Commitments focus on key family planning interventions to improve access to family planning services, aligning with the Second National Family Planning Costed Implementation Plan 2020/21-2024/25. These initiatives are supported by the Ministry of Health Strategic Plan 2020/21-2024/25, providing a comprehensive roadmap for health sector development in Uganda.

Figure 1: Uganda Climate Response Timeline (Source: UNAS (1))

2.2 Institutional Framework

The National Climate Change Act of 2021 proposed an institutional framework for climate change action in Uganda. The rationale for this framework was to facilitate better coordination and alignment of action towards climate change mitigation and adaptation in Uganda across the different sectors. The framework includes the following structures:

1. **The Department responsible for climate change (CCD).** This is established under the Ministry of Water and Environment (MWE). The Climate Change Act, 2021 gives a mandate to the CCD to broadly: a) ensure that Uganda meets her obligations and realizes her benefits under the Convention, its Protocol, and the Agreement; and (b) coordinate, monitor, and evaluate Government programmes and actions of Government on climate change (**Section 14, Part IV of the Act**). Thus, the CCD leads in coordinating adaptation and mitigation efforts, fosters technology innovation for reducing greenhouse emissions, manages climate change information, enhances stakeholder involvement, supports sectors and districts in action planning, supports green growth, mobilizes climate finance, increases public awareness, implements policy decisions, and oversees greenhouse gas inventories.

2. **The Policy Committee on Environment**, which advises the CCD and lead agencies on implementing the Climate Change Act, and formulates policies for the department's implementation.
3. **National Climate Change Advisory Committee**: Composed of experts across various sectors and offers independent advice on climate science, technology, and best practices for adaptation and mitigation, evaluates sectoral impacts, and proposes relevant policies and technological advancements.
4. **Lead Agencies**: Focus on reducing ecosystem and community vulnerabilities, undertake VAAs, promote resource diversification, develop alternative livelihoods, enhance adaptive capacities of communities and ecosystems, enhance the development and dissemination of technology for climate change adaptation, and allocate funds for resilient investments.
5. **District Department for Climate Change**: Engages in coordination and liaison activities, promotes awareness and literacy, provides technical support, maintains records and acts as a secretariat, aids in legislative development, monitors and reports compliance, and compiles annual implementation reports.
6. **District Committee for Climate Change**: Integrates climate considerations into district planning, coordinates climate change activities across various sectors, assists in formulating ordinances and by-laws, disseminates information, and conducts monitoring and evaluation.
7. **Lower Local Government Committees**: Implement the District Climate Change Action Plan at various administrative levels, prepare work plans for local adaptation and mitigation, run educational campaigns, mobilize community participation, monitor and evaluate local climate risks and activities, and report on challenges to adaptation and mitigation efforts.
8. **National Adaptation Technical Working Group (NATWG)**

   Uganda has put in place a multi-sectoral and disciplinary National Adaptation Technical Working Group (NATWG) to provide information on adaptation, review adaptation assessments, and guide national climate change resilience-building actions and measures. The Climate Change Department effectively coordinates the NATWG and aims to ensure synergy and collaboration among stakeholders, including adaptation experts.

2.3 State of climate change vulnerability and adaptation in the health sector

A Vulnerability and Adaptability Assessment (VAA) was conducted in 716 selected Health Facilities in Uganda using the WHO-recommended methodological approach (WHO 2013). The selected health facilities were at the level of Health Centre IIs (40.9), Health Centre IIIs (45.8%), Health Centre IVs (8.7%), and General Hospitals (4.3%). Almost 90.4% of the facilities assessed were government-owned, 9.2% were PNFPs, and 0.4% were Private for profit. The VAA assessed facilities for the state of vulnerability to several climate change hazards, including floods, storms, drought, landslides, and lightning, as well as climate-related extremes like rising water levels, heat waves, and cold waves. For each priority climate change hazard and extreme, four dimensions were assessed, including health workforce; WASH and health care waste, energy, and infrastructure, technology, products, and processes. Additionally, focus group discussions (FGDs) with Village Health Teams and Health Unit management committees (HUMCs) were conducted to explore the extent of vulnerability and impact of the specified hazards at the community level.

2.3.1 Exposure to climate-related hazards in HCFs in Uganda

The VAA revealed that nearly half (47.6%) of the HCFs are exposed to drought, 39.7% are exposed to floods, 31.1% are exposed to storms, 12.0% are exposed to water level rise, 11.7% are exposed to landslides, 8.9% are exposed to lightning, 2.0% are exposed to heat wave and 0.1% are exposed to

cold waves. Regarding the healthcare facility level, the VAA found that regional referral hospitals had the least exposure to hazards in comparison to lower-level facilities. Lower-level facilities have higher exposure to storms, high water levels, floods, drought, and landslides. This difference could be attributed to the fact that lower-level facilities are often situated in more vulnerable areas; thus, they face increased exposure due to their geographic location. It is, therefore important to consider the vulnerability of HCFs at different levels when planning for climate change adaptation strategies.

Table 1: Climate-related hazards and health facility ownership across health facility levels in Uganda

Characteristic	General Hospital, N = 31	Health Centre II, N = 293	Health Centre III, N = 328	Health Centre IV, N = 62	RR Hospital, N = 2
Storms	6 (19%)	90 (31%)	104 (32%)	22 (35%)	1 (50%)
Floods	16 (52%)	111 (38%)	134 (41%)	21 (34%)	2 (100%)
Water level rise	3 (9.7%)	38 (13%)	39 (12%)	6 (9.7%)	0 (0%)
Drought	16 (52%)	140 (48%)	152 (46%)	32 (52%)	1 (50%)
Heat Wave	0 (0%)	7 (2.4%)	5 (1.5%)	2 (3.2%)	0 (0%)
Cold Wave	1 (3.2%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Lightning	4 (13%)	22 (7.5%)	30 (9.1%)	8 (13%)	0 (0%)
Landslides	0 (0%)	35 (12%)	40 (12%)	8 (13%)	1 (50%)
Health facility ownership					
Gov	20 (65%)	262 (89%)	306 (93%)	57 (92%)	2 (100%)
PNFP	11 (35%)	30 (10%)	20 (6.1%)	5 (8.1%)	0 (0%)
PFP	0 (0%)	1 (0.3%)	2 (0.6%)	0 (0%)	0 (0%)

2.3.2 Climate-change-related vulnerabilities in healthcare facilities in Uganda

Vulnerability to climate change-related hazards was assessed by evaluating various components of HCFs (i.e., health workforce; WASH and health care waste services; energy services; infrastructure, technologies, products, and processes). From the assessment, a significant proportion of the HCFs exhibited high vulnerability to climate change-related hazards. Vulnerability was evaluated based on the extent to which the HCFs were prepared to withstand and adapt to the likely impact of climate change hazards, as elaborated below.

2.3.2.1 Vulnerability of the health workforce to climate change-related hazards

The VAA revealed that HCWs do not participate in the development of drought adaptation plans. (58.1%). There is a notable lack of sun protection and hydration supplies during outdoor work in 60.4% of HCFs exposed to drought and heat waves (78.6%). Additionally, there is a lack of training among HCWs on the identification of health conditions exacerbated by drought (56.0%). Furthermore, about half of the HCFs lack provisions for drinking water for their workforce during drought (49.3%), with a similar concern for heat waves (50.0%). Over 58.9% of assessed HCFs lack plans for scheduling outdoor work to cooler times of the day to reduce heat-related risks. Across a broader range of climate hazards, the VAA revealed significant gaps in emergency planning, staff support, and training. Notably, the absence of recovery assistance programs tailored to staff needs post-hazard is alarmingly high across HCFs that are exposed to storms (83.0%), floods (79.3%), landslides (90.2%), and lightning (83.9%), indicating a critical gap in post-event staff welfare. Training on public health and climate change hazards is also lacking for over three-quarters of HCFs across all hazards. A recurring theme across all hazards is the lack of participation of staff in Hazard Risk Plans and Responses as well as community disaster planning committees, with high percentages indicating a gap in involving HCWs in contingency planning and emergency response strategies (75.3% for storms, 71.3% for floods, 80.7% for landslides,

79.4% for lightning and 69.8% for water-level rise). The VAA found a lack of programs for supporting staff with regard to mental health, injuries, medical treatment, and related support measures.

2.3.2.2 Vulnerability of the WASH and healthcare waste component

A significant proportion of HCFs lack water management and safety plans to address contamination risks. Up to 55.1% of HCFs are exposed to drought, and 58.7% of HCFs are exposed to floods. They lack water safety plans and contingency plans for monitoring and reducing contaminants as well as onsite water purification equipment. Additionally, 61% of HCFs do not have long-term drought management as well as emergency water supply plans (59.7% for floods, 66.7% for landslides) which highlights a critical gap in ensuring the continuity of safe water access during and after hazards. The VAA indicates a widespread lack of infrastructure to cope with hazard events, such as stormwater management systems (75.6% for storms) and natural floodwater infiltration systems (68.6% for floods). HCFs are inadequately prepared to manage healthcare waste, including hazardous waste, particularly with regards to safe storage (51.6% for storms, 60.1% for floods), safe transport (56.8% for storms, 60.1% for floods), safe disposal systems post-event (56.8% for storms, 53.5% for floods, 43.9% for landslides). This lack of preparedness raises concerns about environmental contamination in the aftermath of climate-induced hazards.

2.3.2.3 Vulnerability of the energy component

A significant proportion of HCFs do not perform regular assessments of their energy systems to ensure they can cope with climate change events. The highest neglect is observed in HCFs exposed to landslides (68.0%), water level rise (67.9%), heat waves (64.3%), lightning (59.4%), and floods (56.7%). There is a lack of alternative power sources that can cover critical service areas and equipment during and after an event across all hazards, peaking in HCFs exposed to landslides (82.8%), storms (79.7%), heatwaves (78.6%), floods (76.4%), and lightning (73.2%). This gap in energy contingency planning threatens the continuity of essential medical services, including life-saving care, during power outages. The VAA also found a significant lack of emergency plans to ensure the availability of adequate lighting, communication, refrigeration, and sterilization during events (67.5% of HCFs exposed to landslides, heatwaves (64.3%), water level rise (58.9%) and floods (52.5%). Additionally, there is an absence of secure places in HCFs to protect backup energy sources from damage during events; in 73.6% of HCFs exposed to landslides, storms (70.2%), water level rise (68.1%), floods (67.1%), lightning (60.0%) and heat waves (50.0%).

2.3.2.4 Vulnerability of infrastructure, technologies, products and processes

Up to 71.0% of HCFs lack a monitoring and early warning system that is integrated with other areas to manage risks related to drought impacts on the facility, 72.1% lack a mechanism to filter indoor and ambient air pollutants, 72.7% lack a defined and sustained budget as part of core budgeting for emergency preparedness and response to drought risks and 53.7% lack a mechanism to rapidly supply or restore water services. Additionally, there is a lack of consideration of climate risks in annual planning in 67.1% of the HCFs, 69.9% lack a contingency plan for personnel evacuation before, during, and following a storm, 53% lack a plan for relocating critical equipment supplies post-storm, and 63.8% lack one for relocating critical equipment after a flood. Over 80.0% of HCFs lack a post-storm recovery plan and 67.1% of HCFs lack a contingency plan for safe and efficient personnel evacuation before, during, and following a flood. The assessment also shows that 81.0% lack an established post-landslide recovery plan for all infrastructure facilities.

2.3.2.5 Vulnerability within communities and impacts on health and wellbeing

The most recent country-wide vulnerability and adaptation assessment elucidated that climate change impacts all spheres of life of the population. The long-term change in weather patterns was reported to have severe consequences on the health and well-being of the population. The individuals at a heightened risk of climate-change-related hazards such as hazards and floods included; 1) refugees since they did not have adequate sources of food, 2) pregnant mothers, young children, girls and elderly since they are deprived t of nutritious foods, and individuals on long-term treatments such as antiretroviral therapy, indigenous peoples as well as people living with disability. The interactions between climate change and; 1) poverty (SDG 1), food security (SDG 2), health and wellbeing (SDG 3), and access to quality education (SDG 4), were common, illustrating the need for a multi-sectoral approach to optimize synergies and to reduce trade-offs.

Communities reported that an increase in the intensity of rainfall and the longer drought spells negatively impacted food security and nutrition, thus increasing cases of malnutrition. Limited access to adequate food was associated with non-adherence to treatment, especially among people living with HIV. Heavy rains and hail storms were also reported to increase vector breeding thus leading to an increase in vector-borne diseases including malaria. Climate change-related hazards led to the displacement of the healthcare workforce and death of those seeking treatment. Climate hazards such as long spells of drought and floods led to the destruction of property and loss of livelihoods, thereby exacerbating the loss of household income (SDG 1). The increase in poverty was associated with school dropouts and violence, which are well-known to hamper the promotion of healthy behaviours (9-11). Climate hazards compromised; 1) the ability of households, including those of the health workforce, to access safe water sources for drinking and other household chores, and access to decent housing (SDG 11) for both healthcare facility users (community) and the healthcare providers. Some healthcare facilities were also unreachable due to floods, thus limiting access to healthcare services and the delivery of medical supplies (supply chain) and life-saving reproductive health supplies. In some healthcare facilities, it was difficult to cross from one department to another due to floods. Long dry spells led to the sharing of water sources with animals thus increasing the risk of zoonotic diseases, while children and women who trekked long distances to water sources were at risk of sexual and physical violence. Droughts and floods were also reported to destroy WASH infrastructure at both community and healthcare facility levels thus skyrocketing the risk of diarrheal diseases such as cholera. At healthcare facilities, climate hazards were reported to compromise infection prevention and control and the quality of healthcare received by the clients/ patients.

In some communities, community health workers (CHWs), also known as village health teams (VHTs), governmental officials such as environmental health staff (environmental health officers, health inspectors, and health assistants), community development officers, religious leaders, and non-governmental organisations, played a central role in fostering adaptation to climate change in some communities. In response to climate change-related impacts on water, sanitation, and hygiene, these sensitized communities on the importance of having and using WASH facilities, and food reservoirs. Aside, the community also relied on village saving schemes to cope with the effects of climate hazards including deprivation of food. Although some communities reported the existence of disaster response committees, these were inactive, and efforts of health workers in fostering adaptation to climate change hazards were only evident during disease outbreaks.

2.3.3 Impacts of climate change on different HCF components

From the VAA assessment, a substantial 76.5% of HCFs that have been hit by drought observed notable impacts on their health workforce, 73.6% encountered impacts on WASH, and 32.6% encountered impacts on infrastructure, technologies, products, and processes. Flood events showcased widespread effects, with 79.6% of HCFs encountering impacts on the health workforce, 71.1% on WASH and

healthcare waste, and 68.0% facing impacts in infrastructure. The rise of water levels also significantly impacted HCFs, affecting the health workforce (75.6%), WASH (73.3%), and infrastructure conditions (53.5%). Landslides, too, left their mark, with 71.4% encountering impacts on the health workforce, 75.0% on WASH and healthcare waste, and 70.2% on infrastructure components. Only one HCF reported having experienced a cold wave and thus has not been reported in the summary Table 1 below.

Table 2: Proportion of healthcare facilities where the impacts of climate change-related hazards on the different HCF components were observed

HCF component	Proportion of HCFs impacted by each the climate-related hazard						
	Drought	Floods	Storms	Water level rise	Heat waves	Lightning	Landslides
Health workforce	76.5	79.6	71.7	75.6	78.6	46.8	71.4
WASH and healthcare waste	73.6	71.1	63.7	73.3	35.7	25.8	75.0
Energy services	31.1	56.7	63.7	53.5	0.0	51.6	41.7
Infrastructure, technologies, products, and processes	44.3	68.0	70.4	75.6	64.3	54.8	70.2

The assessment further reveals several impacts including fatalities, reduced work capacity, mental health effects, interruptions in supply chains and disruptions in service delivery, emphasizing the need for mental health support and emergency plans. Additionally, the assessment shows infrastructure destruction, damage to vital equipment, water contamination, and disruption of waste management systems in the healthcare facilities. The power failures, loss of essential supplies, and damage to alternative energy sources highlight the critical importance of energy resilience for healthcare facilities during extreme weather events. Thus, proactive measures and adaptive strategies are imperative to enhance the climate resilience of HCFs and safeguard public health in the face of a changing climate.

2.4 Climate-induced mobility

In Uganda, human mobility manifests in two primary forms: internal and external (12, 13). External mobility involves people crossing into Uganda from neighboring countries, seeking permanent or temporary settlement (12). Internally, mobility is driven by climate-related stresses, with rising temperatures, unpredictable rainfall, declining soil productivity, and livestock losses prompting people to move (12-14). For example, the Karamojong from northeastern Uganda migrate seasonally to neighboring regions in search of water and pastures for their livestock (12). The Karamoja region faces prolonged droughts and erratic rainfall, severely impacting agriculture and livestock and leading to food and water scarcity (14), which drives them to migrate seasonally as a coping mechanism. In addition, climate-related events have in the last three decades increased internal displacement of people in Uganda, with over 47,467 people displaced in 2023 alone (15). The most severely affected areas are the Teso and Mt. Elgon sub-regions, including the districts of Soroti, Amuria, Katakwi, Bukedea, Kumi, and Sironko in the Eastern region of Uganda (13, 16-18).

Climate-induced migration in Uganda significantly impacts public health, affecting both the migrants and the host communities (12-14). Infectious diseases are a major concern, as overcrowded and unsanitary living conditions in relief camps and urban slums facilitate the spread of diseases such as cholera and tuberculosis (19-22). Migrants often lack access to adequate healthcare, exacerbating these health risks (19-22) Mental health issues are also prevalent among climate migrants, with the stress of displacement, loss of livelihoods, and challenges of adapting to new environments leading to anxiety, depression, and post-traumatic stress disorder (PTSD) (19-22). Nutritional deficiencies arise as displacement disrupts food supply chains, leading to malnutrition and food insecurity. Migrants, particularly children and pregnant women, are especially vulnerable to nutritional deficiencies, which can have long-term health consequences. Access to healthcare is another critical issue, as migrants often face barriers such as lack of information, financial constraints, and discrimination (19-22).

A notable example in Uganda is the recent increase in flood impacts in Kasese, which has led to large-scale displacement and resulted in overcrowding of camps (22). This situation has further led to limited access to healthcare services, gender inequalities, increased drug and alcohol abuse, and a rise in gender-based violence (22). Such conditions highlight the complex interplay between climate-induced migration and public health, and highlight the need for interventions to address both the immediate and long-term health needs of affected populations. The Ugandan government has developed various policies and strategies to address climate-related human mobility. However, there is no policy or legal framework specifically targeting climate-induced mobility and health, with existing frameworks predominantly focusing on refugees managed by the Office of the Prime Minister. Uganda is expected to face increased exposure to the adverse impacts of climate variability. Thus, there is an urgent need for actions to avert, minimize, and address human mobility in the context of climate change.

2.5 Climate sensitive health outcomes in Uganda

2.5.1 Injury and mortality from extreme weather events

Extreme weather events like floods on the banks of river Manafwa and landslides at the foot of Mt. Elgon have in the past decade caused 1,000 deaths and displacement of over 5,000 individuals (23, 24). More than 400 deaths resulting from landslides occurred in Bududa district in 2010, while over 150 injuries and 45 fatalities from landslides and floods were reported in Eastern and Western Uganda in 2019 (25). Landslides induced by heavy precipitation, in 2022, also led to 46 fatalities in Kasese and Mbale (17). The proportion of injuries arising from floods is; 31.7% for bruises or abrasions, 21.8% for broken bones or fractures, and 11.9% for sprains or strains. The proportion of injuries arising from landslides is; 44.4% for broken bones and fractures, 27.8% for bruises and abrasions, and 11.1% for internal organ injuries (26).

2.5.2 Water-borne diseases

Climate hazards such as flooding and surface runoff compromise water quality, accelerate the breeding of disease vectors such as flies, and enhance pathogen transmission. An increase in temperature also contributes to the proliferation of pathogens in food and water sources, further amplifying disease transmission (27-30). Thus, waterborne diseases, such as typhoid fever and cholera, remain on the increase, largely affecting children. The incidence of diarrheal diseases rose from 3.3 per 10,000 in 2020 to 3.7 per 10,000 in 2023, with the Kampala region reporting the highest incidence at 12.2 per 10,000, followed by Bugisu at 6.4 per 10,000 and Tooro at 5.7 per 10,000. The impacts of climate change on the incidence of diarrhoeal diseases are likely to aggravate the

occurrence of cholera and typhoid outbreaks. Cholera outbreaks have been reported almost annually over the past two decades (31, 32), while typhoid remains endemic, with over 56,000 cases reported per year (33).

2.5.3 Non-communicable diseases

Climate change indirectly influences the prevalence and severity of non-communicable diseases (NCDs) in Uganda. Rising temperatures and changes in precipitation patterns can affect agricultural productivity and food security, leading to shifts in dietary patterns and nutritional deficiencies. Extreme weather events and natural disasters also disrupt healthcare systems, limiting access to essential medications and healthcare services for individuals living with chronic illnesses (34). Failure to build health system resilience will increase the already high burden, where 36% of deaths were attributed to NCDs in 2019 (35). Additionally, the age-standardized mortality rate for major NCDs is as high as 709 per 100,000 in males and 506 per 100,000 in females in 2021 (35).

2.5.4 Respiratory illnesses

Climate change leads to changes in allergen concentrations, prolonged allergen seasons, declining air quality, increased presence of microbes and particulate matter, and air pollution, which increase the risk of respiratory illnesses (36-39). Heightened heat and sunlight in congested areas can result in increased ozone exposure among the urban population. The impact of extensive exposure to smoke and pollution from wildfires is exacerbated by concurrent heat and drought conditions. Furthermore, intense precipitation events and flooding contribute to increased exposure to indoor humidity and mold. Molds add burden to individuals with asthma and allergies (40). These increase bronchoconstriction and cough among individuals with asthma as they struggle to breathe in hot and humid air conditions (41).

2.5.5 Malnutrition and food-borne diseases

Utilization of fossil fuels, deforestation, encroachment on wetlands, and unsustainable agricultural practices diminish the accessibility of nourishing food and clean water thus contributing to dehydration, food insecurity, food-borne diseases, and malnutrition (42, 43). In Eastern and Northern Uganda, droughts have dried crops in the fields leading to diminished food production, thereby subjecting many to starvation and malnutrition (44). Uganda exhibits increased rates of undernutrition, with approximately 29% and 3.5% of children under the age of 5 experiencing stunted growth and body wasting respectively (45). Toro region records the highest prevalence of stunting among children under five, while, the Arua region registers the highest levels of wasting, all partly attributed to climate change (45). In a certain year, floods and hailstones led to crop losses and some farmers struggled to harvest even a single bag (100kgs) of maize (46).

2.5.6 Zoonoses

According to the Uganda One Health Strategic Plan 2018 – 2022, climate change is exacerbating zoonotic disease outbreaks (47). Extreme weather events, including intense rainfall and flooding, in Uganda have led to an upsurge in epidemics caused by zoonotic diseases. For instance, in March 2016, Uganda experienced its first-ever outbreak of Rift Valley fever (RVF) in Kabale, following a period of heavy rainfall and extensive flooding. Additionally, the country has seen more serious outbreaks such as Ebola, Marburg, yellow fever, Crimean-Congo hemorrhagic fever (CCHF), plague, COVID-19, and avian influenza (47-49). These incidents indicate the interaction between climate change and the

emergence of zoonotic diseases (47). Several zoonotic diseases are endemic in Uganda including Anthrax, Rabies, Brucellosis, and Trypanosomiasis (47, 50).

2.5.7 Vector-borne diseases (Malaria, Schistosomiasis, lymphatic filariasis)

Extreme weather, heat waves, floods, and rising temperatures, mosquitoes, which are known vectors of a range of infectious diseases like dengue, malaria, chikungunya, yellow fever, RVFs, West Nile fever, Japanese encephalitis and Zika (51). Figure 2 shows dengue cases per region.

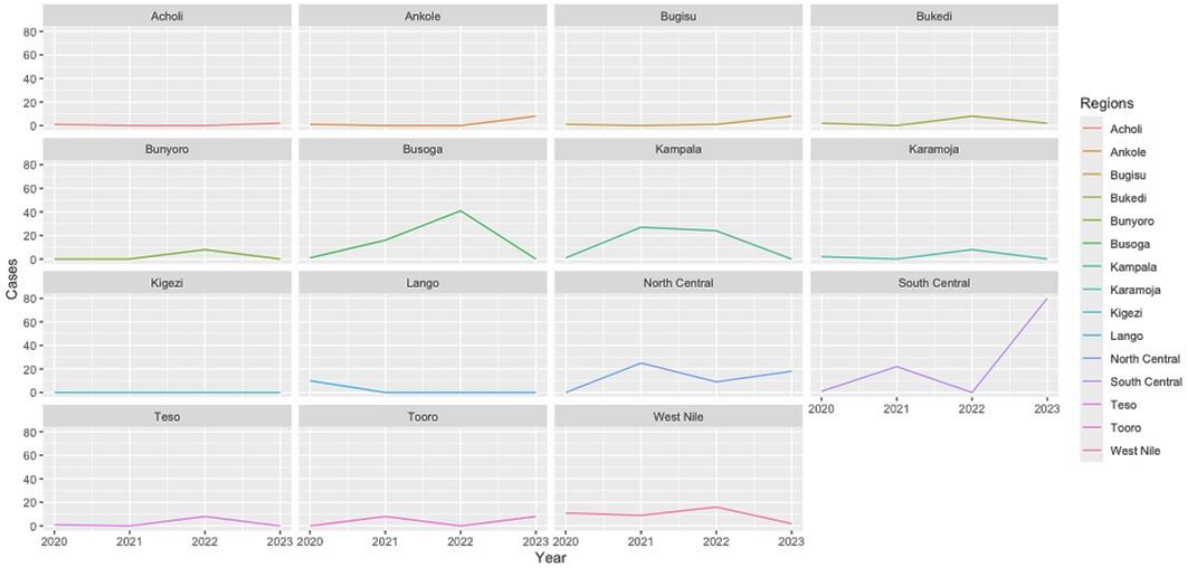

Figure 2: Total Dengue Cases per Region in Uganda from 2020 to 2023 (MOH Uganda, DHIS2)

2.5.7.1 Malaria

Climate change threatens progress made towards malaria elimination (52). Uganda holds the unfortunate distinction of having the world's highest malaria incidence rate, with 478 cases per 1,000 population annually (53). The disease is endemic in 95% of the country, with even higher incidence (63%) in the mid-northern region. An estimated 60 million fever cases are treated annually across healthcare facilities (54). A study examining the consequences of variations in climatic factors such as temperature and rainfall on the malaria incidence among the Ugandan population revealed that (55). An increase in maximum temperature (hotter days) over three consecutive months led to an 8.1% decrease in monthly malaria cases in the long term. Conversely, a three-month rise in minimum temperature (warmer nights) was associated with a 16.7% increase in monthly malaria incidence over time. Rainfall also played a role: a sustained increase in rainfall over three months resulted in a 14% reduction in long-term monthly malaria cases (55). Figure 3 shows total malaria incidence per region.

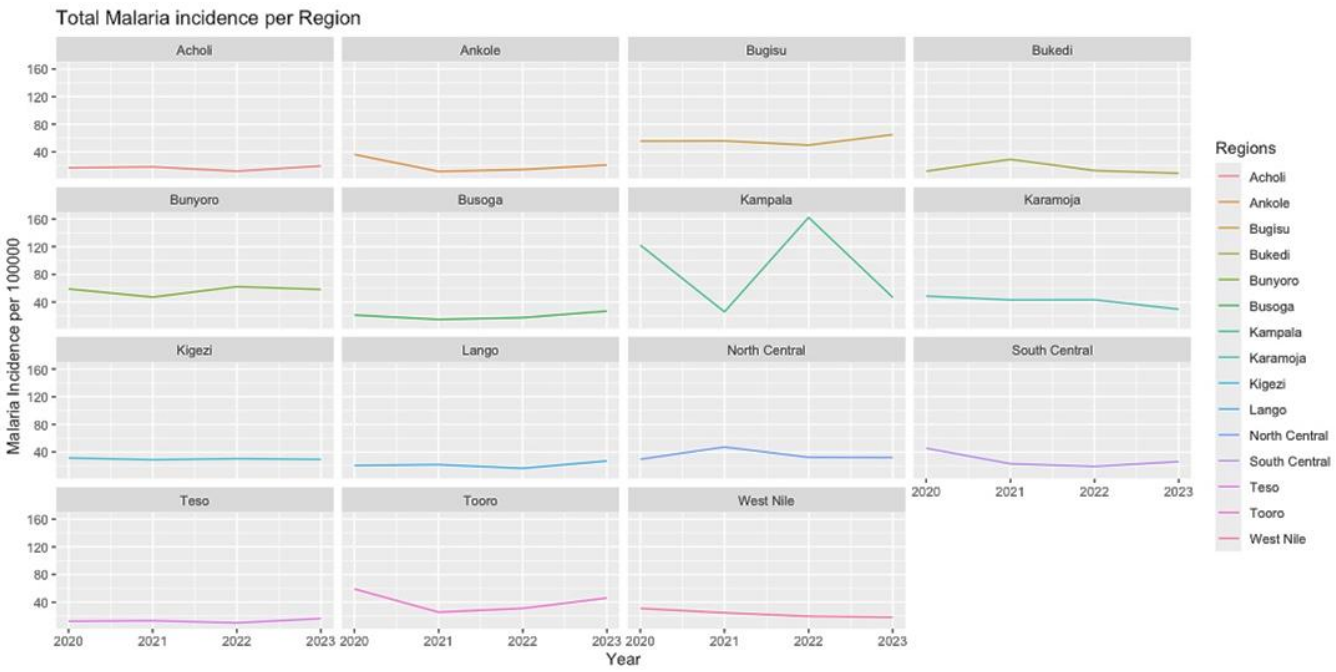

Figure 3: Total Malaria incidence per Region in Uganda from 2020 to 2023 (MoH Uganda, DHIS2)

2.5.7.2 Schistosomiasis

The effects of climate change, particularly change in temperature, rainfall, flooding, and drought, have significant impacts on the transmission dynamics of schistosomiasis, primarily through their effects on the intermediate snail hosts and the Schistosoma parasites themselves Uganda (56, 57). These climatic factors influence the lifecycle, distribution, and population density of the snail hosts, thereby affecting the transmission rates of schistosomiasis (56, 58). Flooding events can significantly impact schistosomiasis transmission by expanding snail habitats and dispersing snails and parasites into new areas. Also, increased rainfall can lead to expanded snail habitats and higher snail populations, thereby increasing the risk of schistosomiasis transmission (56, 58). Schistosomiasis threatens millions in Uganda, with its prevalence ranging from 11–91% (54). An estimated 5.7 million people living near lakes, rivers, and irrigated areas across 63 districts are at risk of infection (54).

2.5.7.3 Lymphatic filariasis (elephantiasis, hydrocele)

In Uganda, an estimated 14.5 million people are at risk of infection in 54 districts (east, north, Bundibugyo), and are susceptible to a mosquito-borne disease called lymphatic filariasis (elephantiasis and hydrocele). The risk is highest in the eastern, northern, and Bundibugyo districts, where infection rates can reach over 40% in northeastern Uganda, compared to just 0.5% in western Uganda (54).

2.5.8 Mental and psychosocial health

Environmental experts in Uganda suggest a link between the country's changing climate and a rise in mental health issues among its citizens (59). Climate change exacerbates various social and environmental factors that undermine mental health and psychosocial well-being. This escalation can manifest as emotional distress, the emergence of new mental health disorders, and the deterioration of existing conditions (60). The spectrum of mental health impacts attributable to climate change spans from mild stress and discomfort to severe clinical disorders, including anxiety, sleep issues, depression, post-traumatic stress disorder (PTSD), and suicidal ideation (60). Moreover, climate change affects individuals and communities by altering daily lives, perceptions, and experiences,

compelling them to adapt, comprehend, and effectively address its consequences. Exposure to news about climate change further contributes to feelings of uncertainty, stress, and depression, leading to a pervasive sense of helplessness (60).

2.6 SWOT Analysis for the H-NAP

A detailed analysis of the Strength Weaknesses Opportunities and Threates (SWOT) was a foundational component for this H-NAP. It was conducted based on the WHO component framework, examing Leadership and Governance, Health workforce, Vulnerability, Capacity, and Adaptation Assessment, Emergency Preparedness and Management, Integrated Risk Monitoring and Early Warning, Health and Climate Research, Climate-Resilient and Sustainable Technologies and Infrastructure, Climate and Health Financing, Management of Environmental Determinants of Health, and Climate-Informed Health Programmes. The detailed SWOT analysis is available in Annex 1. However, here, we present an overall summary of the key emerging issues from the SWOT analysis as a basis for H-NAP Strategy.

2.7 Climate Services for Health

Climate services for health represent a crucial component in addressing climate change issues in Uganda (61) . These services involve the provision of climate data, tools, and information tailored to the health sector's needs, enabling health professionals to better anticipate, prepare for, and respond to climate-related health risks. Climate services for health encompass a range of activities, including the forecasting of climate variables that impact health (such as temperature, precipitation, and extreme weather events), monitoring and predicting the spread of climate-sensitive diseases (like malaria and cholera), and issuing early warnings for heatwaves and air pollution episodes. By integrating these services into health planning and operations, Uganda can enhance its public health resilience against the impacts of climate change.

According to the World Meteorological Organization (WMO), climate services for health are defined as "the entire iterative process of collaboration between relevant multi and trans-disciplinary partners to identify, generate, and build capacity to access, develop, deliver, and use relevant and reliable climate knowledge to enhance health decisions." (61). These services are fundamental in understanding and monitoring how climate change affects population health and health systems. They provide decision-makers with the foresight needed to inform policies and practices that protect public health over months, seasons, and years. Climate services for health are indispensable for several key activities, including risk assessment, emergency preparedness, early warning systems, and programmatic interventions. They play a vital role in disaster risk reduction by enhancing health early warning systems, disease prevention and control efforts, heatwave and air quality management, climate change adaptation, and health education. By empowering individuals and building climate-resilient health systems, climate services contribute significantly to the creation of healthy communities.

Examples of successful implementation of climate services for health can be seen globally. In Kenya, humanitarian organizations use improved forecasting and drought monitoring to better prepare for drought-related health impacts. A 2022 survey by the Kenya Red Cross indicated that all rehabilitated water facilities remained functional throughout the drought period, providing clean and affordable water despite increased dependence. In Europe, a mobile app has been developed to provide real-time information on heatwave risks in urban environments, improving the health of thousands of users. In Fiji, enhanced integrated risk monitoring and climate-informed early warning systems have

significantly reduced morbidity and mortality from climate-sensitive diseases. By adopting and integrating climate services for health, Uganda can proactively address its climate-sensitive health challenges, ensuring the well-being of its population amidst a changing climate. This integration requires collaboration between meteorological agencies, health authorities, and other stakeholders, along with capacity building, data sharing, and the development of tailored climate-health tools. The meterological data generation by UNMA should be integrated with health data from the DHIS2 for early warning and early action. With these efforts, Uganda can build a more resilient health system capable of protecting its population from the adverse health effects of climate change (61).

3. THE STRATEGIC DIRECTION

An adaptive and resilient health system towards climate change is a cornerstone for ensuring the uninterrupted provision of essential healthcare services to the Ugandan population. Disruptions in health service delivery will undermine the country's efforts towards ensuring a productive population to achieve socioeconomic transformation. We know that climate change resulting into climate-induced hazards has major effects on the health system and ultimately population health in Uganda. Essential health service delivery needs to be cushioned against climate-induced health system effects.

3.1 Vision

A responsive, adaptive, and resilient healthy system that protects and promotes the health and wellbeing of the people of Uganda.

3.2 Mission

Establish a responsive health system that promotes inclusive Climate Change Adaptation measures

3.3 Guiding Principles

3.3.1 Institutionalized and Coordinated Response

The H-NAP prioritizes institutionalized and coordinated responses because fragmented efforts cannot effectively combat the complexities of climate change. The H-NAP will be effectively implemented through strong collaboration across government ministries, health agencies, civil society organizations, and the private sector to leverage synergies.

3.3.2 Adapting to Climate Shocks

The H-NAP will harness technology to directly adapt to climate challenges. Instead of solely focusing on mitigation efforts, investments will target solar-powered facilities ensuring uninterrupted service during power outages, climate-resilient infrastructure withstanding extreme weather events, and early warning systems predicting and preparing for health risks associated with changing weather patterns. This adaptation-focused approach equips the health sector not just to reduce its footprint, but to thrive in a changing climate and continue serving communities effectively.

3.3.3 Building Bridges for Adaptation

Beyond simply acquiring technology, the H-NAP focuses on devoting adequate attention to climate-resilient technology needs, development, and transfer. This means not just importing solutions but nurturing local innovation and expertise. Capacity building for local engineers, researchers, and entrepreneurs will be crucial to ensure access to and sustainability of relevant technologies.

3.3.4 Risk-Based Health Prioritization

Employ a risk-based approach to prioritize health adaptation actions, focusing on the most urgent and severe health risks associated with climate change, utilizing participatory methods to incorporate local expertise and priorities.

3.3.5 Increasing Competitiveness through Health Innovation

Encourage innovation in health adaptation strategies to improve the quality and delivery of healthcare services, making Uganda a leader in climate-resilient health solutions that can be shared regionally and globally.

3.3.6 Empowered Participation

The H-NAP understands that effective adaptation requires communicating effectively and promoting participatory approaches. This means translating complex climate information into accessible language for communities, engaging healthcare professionals in decision-making processes, and empowering citizens to be active participants in building climate resilience.

3.3.7 Community-Based Solutions

The H-NAP recognizes that top-down approaches often fail to capture the nuanced realities of local communities. Therefore, it prioritizes promoting community-based approaches to climate change adaptation. This involves working alongside communities to identify their specific vulnerabilities, co-creating solutions, and building ownership for long-term sustainability.

3.3.8 Market-driven Solutions

HNAP acknowledges the pivotal role of fostering an environment conducive to market-driven solutions and, consequently, engaging the private sector to realize its objectives. Facilitating access to climate-resilient and eco-friendly essential products and services hinges on the effectiveness of market mechanisms. Addressing challenges hindering optimal market functionality will entail identifying key actions, prioritizing efforts to fortify regulatory and policy frameworks, bolstering private sector capabilities, and expanding access to financing, thus amplifying the reach of impactful solutions.

3.3.9 Capacity Building and Institutions

The H-NAP emphasizes devoting adequate attention to capacity development and institutional set-ups. This encompasses training healthcare professionals on climate-sensitive practices, strengthening public health surveillance systems, and equipping institutions with the knowledge and resources needed to adapt effectively.

3.3.10 Innovative Partnerships

Building more strategic and effective partnerships, exploring the interests and priorities of each partner and stakeholder, and identifying shared strategic approaches and shared risks, as well as ensuring transparency, mutual accountability, and value money.

3.3.11 Local and International Collaboration

No country is an island. The H-NAP recognizes the importance of promoting both local and international cooperation and relations. This means fostering knowledge exchange with regional and global partners, participating in international policy dialogues, and learning from best practices implemented across the world.

3.3.12 Ensuring Implementation

The H-NAP is not just a document; it's a plan for action. Therefore, it prioritizes providing a credible delivery structure. This involves establishing clear roles and responsibilities, setting measurable targets, and implementing robust monitoring and evaluation systems to ensure that the plan translates into tangible outcomes.

3.3.13 Cross-Cutting Issues

Climate change doesn't exist in isolation. The H-NAP understands the need to address cross-cutting issues like gender equality, population dynamics, social justice, and environmental protection. By integrating these considerations into all aspects of the plan, we can ensure that climate adaptation efforts are inclusive, equitable, and sustainable in the long term.

3.4 Alignment of H-NAP to NDP Programming

This H-NAP aligns with several programmes in Uganda's National Development Plans (NDPs), including but not limited to Climate Change, Natural Resources, Environment programme; Sustainable Urbanisation and Housing programme; Human Capital Development; and Community Mobilization and Mindset Change programme.

3.5 Goal

To strengthen the adaptive capacity of the health system to climate change and related hazards

3.6 Specific Objectives of the H-NAP

To achieve the Goal of the H-NAP, the following specific objectives shall be pursued;

1. Establish a national coordination framework for climate and health adaptation;
2. Mainstream and integrate climate and health in MDAs and non-state actors in their respective programs;
3. Prioritize actions to address the impacts of climate change on health;
4. Advocate for resource mobilization and allocation for the implementation of context-specific climate and health adaptation measures;
5. Promote the generation and use of evidence in climate and health decision-making

4. BUILDING A CLIMATE RESILIENT HEALTH SYSYTEM IN UGANDA

4.1 The adaptation Strategies

The adaptation strategies and actions are identified based on the WHO operational framework for Building Climate Resilient Health Systems (62).The framework's goal is to increase the climate resilience of health systems to protect and improve the health of communities in an unstable and changing climate, while optimizing the use of resources. The framework aims to contribute to the design of transformative health systems that can provide safe and quality care in a changing climate. Specifically, the framework aims to:

i. guide health sector professionals, including through their collaborations with officials in health determining sectors to understand and effectively prepare for the additional health risks posed by climate change, through climate resilient;
ii. present the main health system functions that need to be strengthened to build climate resilience, and use these as the basis for developing comprehensive and practical strategies (e.g. national climate change and health strategy) and plans (e.g. health component of National Adaptation Plan (H-NAP);
iii. support the development of specific interventions that can be implemented by health systems that address both the increased risks posed by climate change and progressive reduction of carbon emissions, and the synergies among these actions; and
support health decision-makers to identify roles and responsibilities to develop and implement action plans for resilience, engaging actors within and outside the health sector.

The Framework proposed 10 components that would enable health organizations, authorities, and programmes to be better able to anticipate, prevent, prepare for, and manage climate-related health risks and therefore decrease the burden of associated climate-sensitive health outcomes. The components are used to outline a range of short-term, medium to long-term adaptation strategies tailored specifically for Uganda. Each of the components are initially described as follows:

Figure 4: Climate and Health Adaptation Components

Component 1: Climate-transformative leadership and governance

This component emphasizes the critical role of leadership and governance in fostering climate resilience, and environmental sustainability within health systems. Its implementation involves: Establishing specific governance structures for climate and health issues; Integrating climate considerations into health policies and programs; Ensuring health is a component in broader climate policies and plans; and encouraging cross-sectoral collaboration to protect health against climate impacts.

Component 2: Climate-smart health workforce

A health system's capacity to respond to climate change is heavily dependent on the availability and competency of its workforce. This includes not only health and care workers but also administrative staff, managers, decision-makers, and community-based organizations. Their skills need to encompass understanding and utilizing climate information for health interventions, engaging in cross-sectoral action, conducting research and assessments, and managing climate change risks effectively.

Component 3: Vulnerability, capacity and adaptation assessment

This component includes a range of assessments that can be used to generate policy-relevant evidence on the scale and nature of climate-related risks to health and health systems, and the impact of health systems operations This component emphasizes the climate change and health VAA as an essential tool for health policy and programmatic planning. VAA can help identify which populations and geographical areas are most vulnerable to the different health impacts from climate hazards; establish baseline conditions and assess potential health impacts from future climate change; support assessing changes in disease risks; define the protective measures required; and the capacity of health systems to manage risks.

Component 4: Integrated risks monitoring, and early warning

This component focuses on enhancing integrated disease surveillance and climate-informed early warning systems (EWS) in health, alongside monitoring and communication strategies for timely action against climate change-related health risks. These risks include increased incidences of vector-, water-, and food-borne diseases, sexually transmitted diseases, and non-communicable diseases (NCDs) such as cardiovascular and respiratory illnesses. The approach includes understanding how climate affects health outcomes, anticipating health risks, and ensuring timely preparedness and response. Integrated risk monitoring involves diverse tools to gather real-time gender disaggregated data on health, climate, and environmental conditions.

Component 5: Health and Climate Research

This component addresses the importance of providing evidence base towards policy-relevant norms and innovative solutions for climate change and health. It includes identifying strategic priorities for fostering research agenda development and implementation; strengthening research capacity; and integrating research into policy.

Component 6: Climate resilient infrastructures, technologies, and supply chain

This component addresses the need for, and importance of, strengthening the adaptation of current infrastructures, technologies, and supply chains; and promoting environmental sustainability of health operations.

Component 7: Management of environmental determinants of health

This component aims to step up efforts to respond to environmental risks to health by strengthening monitoring and management of environmental determinants of health; developing and implementing regulatory instruments and mechanisms; and promoting coordinated intersectoral management and collaboration among climate and health actors.

Component 8: Climate-informed health programme

This component aims to use the information gathered in the components related to health information systems (i.e. assessments, research and monitoring) to inform the way specific climate sensitive health programming taking into consideration equity and social inclusion.

Component 9: Climate-related emergency preparedness and management

This component aims to build preparedness, response capacity and health security in health systems and communities by: implementing climate related risks management for emergencies and disasters, through climate-smart policies and protocols; establishing climate-informed health emergency and disaster risk management; and supporting community empowerment, especially among the most vulnerable populations that include women, girls, youth, people living with disabilities, low-income, refugees, elderly, indigenous peoples, among others.

Component 10: Sustainable climate and health financing

The objective of this component is to support the country in identifying and accessing sustainable financing to support climate change and health interventions and proposes ensuring access to health-specific funding and financing mechanisms, including climate change funding streams and funding allocated for health-determining sectors.

4.2 H-NAP Strategic Interventions and Actions

This section will provide a brief description of strategic interventions and actions under the H-NAP over the next five (5) years aligned to the recommended WHO component framework. This framework proposes ten (10) components that need to be focused on to build an adaptive and resilient health system against the adverse effects of climate change on health. The interventions and actions identified are also aligned with the H-NAP SWOT analysis conducted with all stakeholders. The objectives, components, strategic interventions and proposed actions are outlined in Table 3 below:

Table 3: Strategic Interventions and actions

Objective	Component	Strategic intervention	Proposed actions
1. Establish a national coordination framework for climate and health adaptation	Climate-transformative leadership and governance	1.1 Improve coordination for Climate Change and Health Action	Establish and functionalize a Climate and Health coordination mechanism within the MOH Environmental Health Department.
			Develop guidelines for mainstreaming climate and health in the health sector.
			Establish inter-ministerial committee on health and climate change (including CSOs and the private sector);
			Establish the Climate Change and Health Technical Working Group (TWGs)
2. Mainstream and integrate climate and health in MDAs and non-state actors in their respective programs;		2.1 Mainstream climate and health in planning at all levels	Develop guidelines for mainstreaming climate and health in other MDAs, local government, and the private sector.
			Advocate for climate and health across stakeholders at all levels.
			Dissemination of the H-NAP across stakeholders at all levels – National, regional, and sub-national level
		2.2 Advocacy & Lobbying for inclusion of climate change and health issues in plans and budgets	Train leaders at various national and sub-national levels, including public and private
			Train media practitioners in climate and health messaging
			Support community-level women and youth inclusive advocacy campaigns on climate change and health.
			Integrate health and climate messaging into the Ministry of Health Communications Strategy and revise the Uganda National Climate Change Communications Strategy (UNCCS)
3. Prioritize actions to address the health impacts of climate change	Climate-smart health workforce	3.1 Build capacity for the health workforce in climate change and health issues	Train health workers in climate and health.
			Integrate climate and health in curricula for the health workforce.
			Provide IEC materials on climate and health to the health workforce.
			Conducted supervision and mentorship visits at the regional and district levels.

		3.2 Appointment and facilitation of health workforce for climate and health action	Support districts to assign climate and health focal persons
	Vulnerability, capacity, and adaptation assessment	3.3 Promote evidence-informed decision making	Develop gender-responsive guidelines and standardized approaches for VAA and risk assessments at national and sub-national levels.
			Support districts to conduct periodic climate and health VAA
			Map-out institutions involved in climate and health
			Develop a one-stop data repository for climate and health.
	Integrated risk monitoring and early warning	3.4 Integrated disease surveillance and early warnings	Develop a platform under DHIS2 that integrates climate and health data for early warning.
			Update the surveillance system to monitor climate-sensitive diseases.
			Synchronize and enhance the interoperability of OPM- Disaster database, MOH (DHIS2), and MWE- CCD climate forecast.
		3.5 Monitoring and progress tracking	Develop a dashboard at the national and sub-national level
		3.6 Enhance climate change risk communication	MOH periodically communicates climate and health updates and early warnings to subnational stakeholders in collaboration with UNMA
			Integrate indigenous knowledge in risk analysis and communication.
	Climate resilient infrastructures, technologies, and supply chain	3.7 Promote climate-resilient infrastructures, technologies, and supply chain	Revise current health infrastructure standards for climate-proofing
			Monitor compliance with the revised Health infrastructure standards for climate-proofing
			Train key stakeholders (healthcare managers and contractors) on climate-proofing for health infrastructure.
			Advocate for installing clean energy and climate-smart technologies such as solar equipment and solar systems at health facilities.
			Conduct support supervision for the digitalization of records at the healthcare facility level.
	Management of environmental determinants of health	3.8 Monitoring of environmental determinants of health	Conduct joint multi-sectoral risk management to proactively manage health risks related to water, sanitation, food, sexual and reproductive health, nutrition, and air quality, emphasizing the most vulnerable

			populations, including women, girls, youth, disabled, low-income, refugees, elderly, and Indigenous.
			Conduct public awareness to increase household resilience to the impacts of climate change on WASH, food security, nutrition, and air quality.
		3.9 Strengthen the regulatory Framework	Advocate for revising the Environmental Impact Assessment and Audit Regulations to strengthen the involvement of health experts in the EIA and audit process.
			Support MDAs and LG in ensuring compliance with laws and regulations on environmental pollution.
			Support districts to review community programs/projects (such as the Parish Development Model) for climate and health mainstreaming
			Document entities with funds to implement climate change and health-related programs/activities
		3.10 Coordinated cross-sectoral management, partnership and collaboration	Revise the roles and responsibilities of partners under the multi-sectoral management of environmental determinants of health
			Foster multisectoral collaboration with other government ministries, NGOs, and academic institutions to promote integration of health, gender, youth, sexual and reproductive health, and climate change
			Promote PPPs to foster innovation and improve service delivery, such as partnerships with pharmaceutical companies for climate-sensitive vaccines and medicines. Human
	Climate-related emergency preparedness and management	3.11 Strengthen health sector capacity and prepare plans and procedures for weather and climate-related disaster preparedness, response, and recovery	Update national disaster reduction strategies to incorporate climate-related emergency preparedness and management data.
			Improve multi-sectoral collaboration in responding to emergencies at regional and district levels.
		3.12 Community empowerment and resilience enhancement	Conduct public awareness to increase household resilience to the impacts of climate change, mainly targeting vulnerable populations

			that include women, girls, youth, disabled, low-income, refugees, elderly, and Indigenous, among others.
			Integrate climate-related health emergency preparedness and response in the School Health Programme/ college and university curriculum.
			Empower local communities by involving the most vulnerable in the planning and implementation of climate and health initiatives.
4. Advocate for resource mobilization and allocation for the implementation of context-specific climate and health adaptation measures;	Sustainable climate and health financing	4.1 Strengthen capacity and coordination to access resources	Training stakeholders in resource mobilization and grant writing at national and sub-national levels
			Increase funding for project management operations for climate change projects and programs in the Ministry of Finance, Planning, and Economic Development, considering national administrative arrangements.
			Increase national budgets for health and climate change policies and actions.
			Facilitate regular dialogues with private sector stakeholders to integrate climate and health into their environmental and social governance/sustainability strategies and to identify and address barriers to their involvement in climate and health investments.
			Strengthen International and National Multi-Sectoral partnerships for resource mobilization with international organizations, such as WHO, UNDP, UNFPA, FAO, Adaptation Fund, GCF, and Global Environment Facility (GEF), to access technical and financial support.
		4.2 Advocacy for prioritizing health issues in climate funding	Conduct advocacy trainings to increase negotiation skills for health and climate change financing to advocate for adequate allocation of resources for health system resilience to climate variability and change in line with actions proposed under the H-NAP
			Hold engagement meetings with private sectors and development partners to mobilize resources to address health and climate change through green, health impact bonds, and climate funds to finance climate-resilient health infrastructure, programs, preventive health measures, and climate adaptation projects.

			Develop a comprehensive resource mobilization plan that identifies funding mechanisms for health, sectors influencing health and climate change, specific proposal options, timelines, and responsibilities;
5. Promote the generation and use of evidence in climate and health decision-making	Health and climate research	5.1 Knowledge generation and management	Conduct training to enhance research capacities.
			Conduct periodic research to generate evidence that draws the interconnection between health (including sexual and reproductive health, RMNCAH and, mental health, gender, nutrition, and climate change) to inform innovation, policy, and practice.
			Develop a data platform, e.g., a repository for all stakeholders.
			Report on the health and climate progress against the overarching national climate plans and commitments and other frameworks, e.g., the NDCs, overall NAP, and NDP programming.
		5.3 Knowledge translation and use	Build capacity for knowledge translation, data analytics, and evidence use.
			Develop a gender and youth-inclusive platform for sharing health and climate change–related research and information to inform policies, plans, and strategies.
	Climate-informed health programme	5.4 Promote health programming	Integrating information on current and projected (future) climatic conditions into strategic planning of health programs for climate-sensitive diseases
			Mainstream climate change into the national health policy and its implementation strategies and guidelines;
			Support the integration of climate-related health risks into regional and district plans;
			Develop systems that integrate climate change data into the national health database for monitoring and informing health programming.
			Support climate and health capacity building within the health system, civil society, and the community.
		5.5 Delivery of interventions	Revise standard operating procedures to integrate climate change considerations concerning resilience in delivering public health programs/ interventions.

			Develop test and scale up projects and innovations that integrate climate change, gender, FP/SRH, and nutrition in health programs at different levels;
			Update medium and long-term plans with actions to prevent climate and health outcomes.

5. FINANCING FRAMEWORK AND STRATEGY

5.1 The H-NAP financing strategy

This section presents the financing framework of the plan. It provides the overall and disaggregated costs of the plan and the strategies for mobilizing the required financing. The H-NAP financing framework and strategy are critical to identifying feasible long-term and sustainable financing mechanisms for climate change and health while using existing ones to attract critical funding to build health system resilience. The H-NAP financing framework and strategy, thus, requires:

a) Developing a comprehensive package of interventions and actions to address health and climate change risks and vulnerabilities
b) Estimating the package of resources that are required to feasibly and sustainably implement the identified actions
c) Developing a comprehensive resource mobilization plan that specifically details the key and possible funding streams, funding mechanisms, and mechanisms for accessing and attracting funds
d) Adopting the whole-of-government approach to mainstream and integrate climate change and health, including into budgets at all levels of government
e) Preparing bankable proposals that attract funding from existing as well as future climate change funding portfolios, particularly from multi-lateral, bilateral, and philanthropic arrangements.

5.2 Costing process and methodology

The cost estimates were generated using two generic approaches, i.e., the ingredients approach and the Activity-based-cost approach. The approaches primarily involved two key phases: 1)

1. Stakeholder engagement through workshops is needed to identify key actions for the H-NAP, the activities involved in each action, the package of inputs required to conduct the activity, and the monetary value of those inputs. Participation was drawn from different government MDAs, Local governments, Civil Society Organizations, private sectors, development partners, researchers and academia;
2. Identifying the monetary values of inputs based on prevailing market prices, expert opinion, as well as review of documents. The cost estimates provide a fair picture of the resources required for the plan period.

5.3 Summary of the H-NAP Budget (2025-2030)

The estimated resource requirements for implementing the H-NAP over the five-year plan period (2025-2030 is 239,792,418,160. The summary is in Table 4 below.

Table 4: Summary of the H-NAP Budget (2025-2030)

USD1=3,800	3800					
	Amounts per year					
COMPONENTS	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Component 1: Climate-transformative leadership and governance	12,713,790,000	12,607,870,000	12,607,870,000	12,607,870,000	12,607,870,000	63,145,270,000
Component 2: Climate-smart health workforce	1,513,990,000	2,499,440,000	1,194,252,720	2,630,052,720	1,194,252,720	9,031,988,160
Component 3: Vulnerability, capacity and adaptation assessment	75,230,000	2,276,990,000	9,120,000	2,260,650,000	9,120,000	4,631,110,000
Component 4: Integrated risks monitoring, and early warning	3,848,100,000	3,871,580,000	3,774,600,000	3,774,600,000	3,774,600,000	19,043,480,000
Component 5: Health and climate research	857,580,000	772,120,000	772,120,000	772,120,000	772,120,000	3,946,060,000
Component 6: Climate resilient infrastructures, technologies, and supply chain	14,458,200,000	14,539,790,000	14,458,200,000	14,539,790,000	14,458,200,000	72,454,180,000
Component 7: Management of environmental determinants of health	6,980,270,000	6,998,250,000	6,998,250,000	6,998,250,000	6,998,250,000	34,973,270,000
Component 8: Climate-informed health programme	4,708,520,000	4,423,250,000	4,704,500,000	4,423,250,000	4,423,250,000	22,682,770,000
Component 9: Climate-related emergency preparedness and management	1,746,650,000	1,724,630,000	1,724,630,000	1,724,630,000	1,724,630,000	8,645,170,000
Component 10. Sustainable climate and health financing	236,670,000	481,440,000	173,670,000	173,670,000	173,670,000	1,239,120,000
	47,139,000,000	**50,195,360,000**	**46,417,212,720**	**49,904,882,720**	**46,135,962,720**	**239,792,418,160**

5.4 Detailed costs across components and strategies

Table 5: Detailed costs across components and strategies

USD1=3,800	3,800					
HNAP STRATEGIC PLAN	Amounts per year					
Strategic Actions	Year 1	Year 2	Year 3	Year 4	Year 5	Total
COMPONENT 1						
Strategy 1: Improve coordination for Climate Change and Health Action	81,290,000	62,660,000	62,660,000	62,660,000	62,660,000	331,930,000
Strategy 2: Mainstream climate change in planning at all levels	12,249,110,000	12,249,110,000	12,249,110,000	12,249,110,000	12,249,110,000	61,245,550,000
Strategy 3: Advocacy & Lobbying for inclusion of climate change and health issues in plans and budgets	383,390,000	296,100,000	296,100,000	296,100,000	296,100,000	1,567,790,000
COMPONENT 2						
Strategy 1: Build capacity for the health workerforce in climate change and health issues.	528,390,000	1,513,840,000	208,652,720	1,644,452,720	208,652,720	4,103,988,160
Strategy 2: Recruitment, Allocation and facilitation of health workforce for climate and health action	985,600,000	985,600,000	985,600,000	985,600,000	985,600,000	4,928,000,000
COMPONENT 3						
Strategy 1: Promote evidence informed decision making	75,230,000	2,276,990,000	9,120,000	2,260,650,000	9,120,000	4,631,110,000
COMPONENT 4						
Strategy 1: Integrated disease surveillance and early warnings	716,200,000	714,660,000	674,200,000	674,200,000	674,200,000	3,453,460,000
Strategy 2: Monitoring and progress tracking	-	56,520,000	-	-	-	56,520,000
Strategy 3: Enhance climate change risk communication:	3,131,900,000	3,100,400,000	3,100,400,000	3,100,400,000	3,100,400,000	15,533,500,000
COMPONENT 5						
Strategy 1: Knowledge generation and management	682,660,000	597,200,000	597,200,000	597,200,000	597,200,000	3,071,460,000
Strategy 2: Resource mobilization for climate change and health research	83,740,000	83,740,000	83,740,000	83,740,000	83,740,000	418,700,000
Strategy 3: Knowledge translation and use	91,180,000	91,180,000	91,180,000	91,180,000	91,180,000	455,900,000
-						
Strategy 1: Promote climate resilient infrastructures, technologies, and supply chain	14,458,200,000	14,539,790,000	14,458,200,000	14,539,790,000	14,458,200,000	72,454,180,000
COMPNENT 7						
Strategy 1: Monitoring	5,942,600,000	5,942,600,000	5,942,600,000	5,942,600,000	5,942,600,000	29,713,000,000
Strategy 2: Strengthen the regulatory Framework	1,001,640,000	1,043,640,000	1,043,640,000	1,043,640,000	1,043,640,000	5,176,200,000
Strategy 3: Coordinated cross-sectoral management	36,030,000	12,010,000	12,010,000	12,010,000	12,010,000	84,070,000
COMPONENT 8						
Strategy 1: Promote health programming	4,423,250,000	4,419,230,000	4,419,230,000	4,419,230,000	4,419,230,000	22,100,170,000
Strategy 2: Delivery of interventions	285,270,000	4,020,000	285,270,000	4,020,000	4,020,000	582,600,000
COMPONENT 9						
Strategy 1: Strengthen health sectors capacity and prepare plans and procedures for whether and climate related disaster preparedness, response and recovery	1,713,620,000	1,713,620,000	1,713,620,000	1,713,620,000	1,713,620,000	8,568,100,000
Strategy 2: Community empowerment	33,030,000	11,010,000	11,010,000	11,010,000	11,010,000	77,070,000
COMPONENT 10						
Strategy 1: strengthen capacity and coordination to access resources	101,650,000	101,650,000	101,650,000	101,650,000	101,650,000	508,250,000
Strategy 2: Advocacy for prioritizing health issues in climate funding	135,020,000	379,790,000	72,020,000	72,020,000	72,020,000	730,870,000
	47,139,000,000	**50,195,360,000**	**46,417,212,720**	**49,904,882,720**	**46,135,962,720**	**239,792,418,160**

5.5 Funding sources/ resource mobilization strategy

Several mechanisms for climate change financing exist in Uganda. However, these mechanisms are not yet focused on adaptation actions required for the health sector. The H-NAP will take advantage of already existing funding sources and mechanisms. However, additional feasible and alternative funding sources will be leveraged.

5.5.1 Internal funding mechanisms and actions

a) **Mainstream climate change financing and including it in national budgets and plans, and ultimately, local g**overnments, given that 90% of local government financing comes from the central level.

b) **Financing support from Development/implementing partners:** both on-budget and off-budget support. For example, the government has been undertaking numerous 'Climate-Smart' initiatives in collaboration with FAO, UNDP, FCDO, WB, EU, UNFPA, WHP, ATACH, and USAID.

c) **Prioritization and integration of climate change agenda into the national plan:** The climate change agenda and financing have been integrated into the National Development Plans (NDPs), and the MOFPED has been designated as the national GCF Focal Point. In 2022, MoFPED took a significant step by establishing the Climate Finance Unit (CFU) in collaboration with the British High Commission, the Commonwealth and Development Office, and the Global Green Growth Institute (GGGI). The CFU operates as a department responsible for managing and overseeing climate change financing and national implementation matters. The unit is designed to benefit Uganda's climate preparedness efforts. The CFU aligns with Uganda's nationally determined contribution (NDC) commitment, renewed in September 2022, which pledges a mitigation target of a 24.7% reduction below the Business-as-Usual Scenario by 2030. This key institutional framework will be leveraged to support the mobilization for funding and the implementation of the H-NAP.

d) **The Uganda Development Bank (UDB) Climate Finance Facility**. This initiative aims to bolster the green economy while mobilizing funds to assist smallholder farmers and rural communities mitigate financial shocks from environmental changes. Additionally, a partnership between the Financial Sector Deepening (FSD) Uganda and BIDHA SASA, a Kenyan finance company, has attracted financing to specifically extend credit to women and families to facilitate access to and acquisition of climate-friendly technologies like energy-efficient cookstoves and innovative agricultural tools. These initiatives will help a great deal to influence the adoption of tools and technologies that address the root causes of climate change while contributing to positive health outcomes.

e) **Other funding streams** under specific legal frameworks for managing natural resources include:

   I. **National Environment Fund (NEF):** Established under the National Environment Act (2019), the NEF focuses on mobilizing and managing funds for environmental conservation and protection.

   II. **Wildlife Fund:** Operates under the Wildlife Act, emphasizing the importance of financial resources for wildlife conservation efforts.

   III. **Tree Fund:** Governed by the National Forestry and Tree Planting Act (NFTPA), the Tree Fund is dedicated to supporting forestry and tree planting initiatives.

5.5.2 External Financing Mechanisms and actions

a) **Funding from the UNFCCC and the Paris Agreement,** such as the Global Environment Facility (GEF); the Green Climate Fund (GCF); the Global Fund, the Adaptation Fund (AF), the Special Climate Change Fund (SCCF); the Least Developed Country Fund (LDCF); and Loss and Damage Fund (for compensation and rebuilding).

b) **Funding from Development Partners** (at Bilateral, multilateral, or philanthropic levels). These include the Development Special Fund for Africa of AfDB; the Global Climate Change Alliance of the European Union; the World-Wide Fund for Nature (WWF); funding streams from the World Bank, IMF, and other development initiatives.

5.5.3 Additional Innovative Financing Mechanisms

a) **Insurance –** including climate change-related insurance schemes, health insurance, insurance in light of damage to property, etc.

b) **Leveraging private sector financing for climate change** – for example, through Corporate Social Responsibility (CSR), Environmental and Social Governance (ESR), etc.

c) **Partnerships and collaborations with research and academic institutions are needed to tap into existing and emerging research and capacity-building fund portfolios (for example,** collaboration with the Centre of Excellence for Sustainable Health, CESH at Makerere University School of Public Health).

6. MONITORING AND EVALUATION FRAMEWORK

6.1 Introduction

This section provides the strategy for undertaking Monitoring and Evaluation (M&E) during the implementation of the H-NAP in Uganda. The section covers the strategy for data management, reporting and use, and M&E coordination mechanisms for implementing the H-NAP. It also provides information on learning and knowledge management, performance reviews, and evaluations. The section presents the Theory of Change (TOC) and the results framework matrix for the H-NAP.

6.2 Data Management, Reporting and Use

Implementing the H-NAP will require an effective regular and periodical feedback mechanism that will generate quality data to inform decision-making and enhance learning during the implementation. This section provides the proposed data flow diagram, the routine monitoring data generation, analysis, and management processes. The section also highlights the mechanisms for data quality assurance, reporting, and use of data by decision-makers.

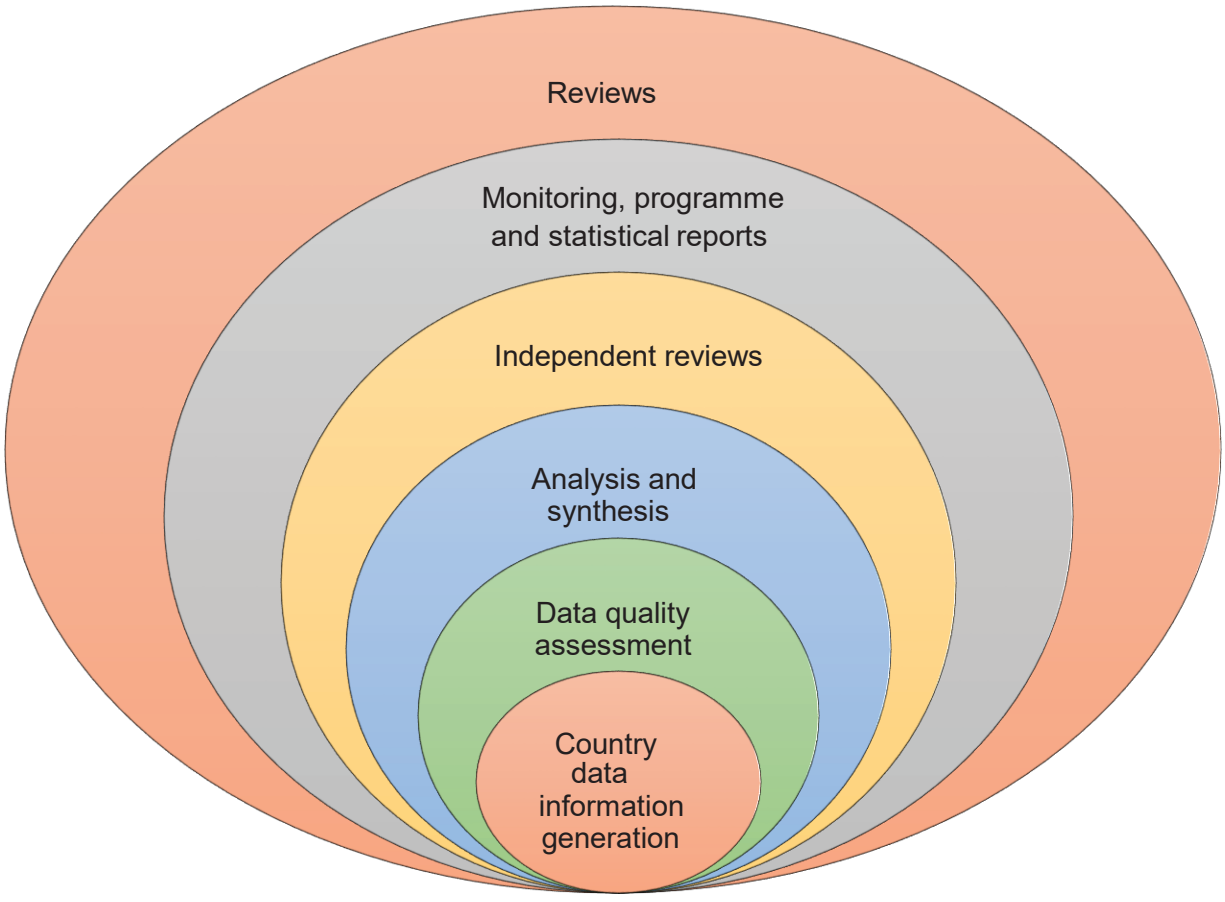

Figure 5: Data management, reporting and use

6.3 Data flow diagram

Data will be collected by the implementors (mainly the health facilities) through the existing data capture tools used by the facilities. The Ministry of Health will integrate indicators or aspects of the H-NAP into the existing tools and support the health units (public, private, and CSO health facilities)

to collect and report on the indicators. The generated data will then be captured by the district data base, cleaned, aggregated, and reported to the ministry. The reported data from the districts will then be compiled by the ministry's resource center and shared with UBOS, OPM, NPA, and other line ministries like MWE. At all levels of the data flow chat, the MEL team at the ministry and district will ensure adequate supervision and quality assurance, providing the necessary technical expertise.

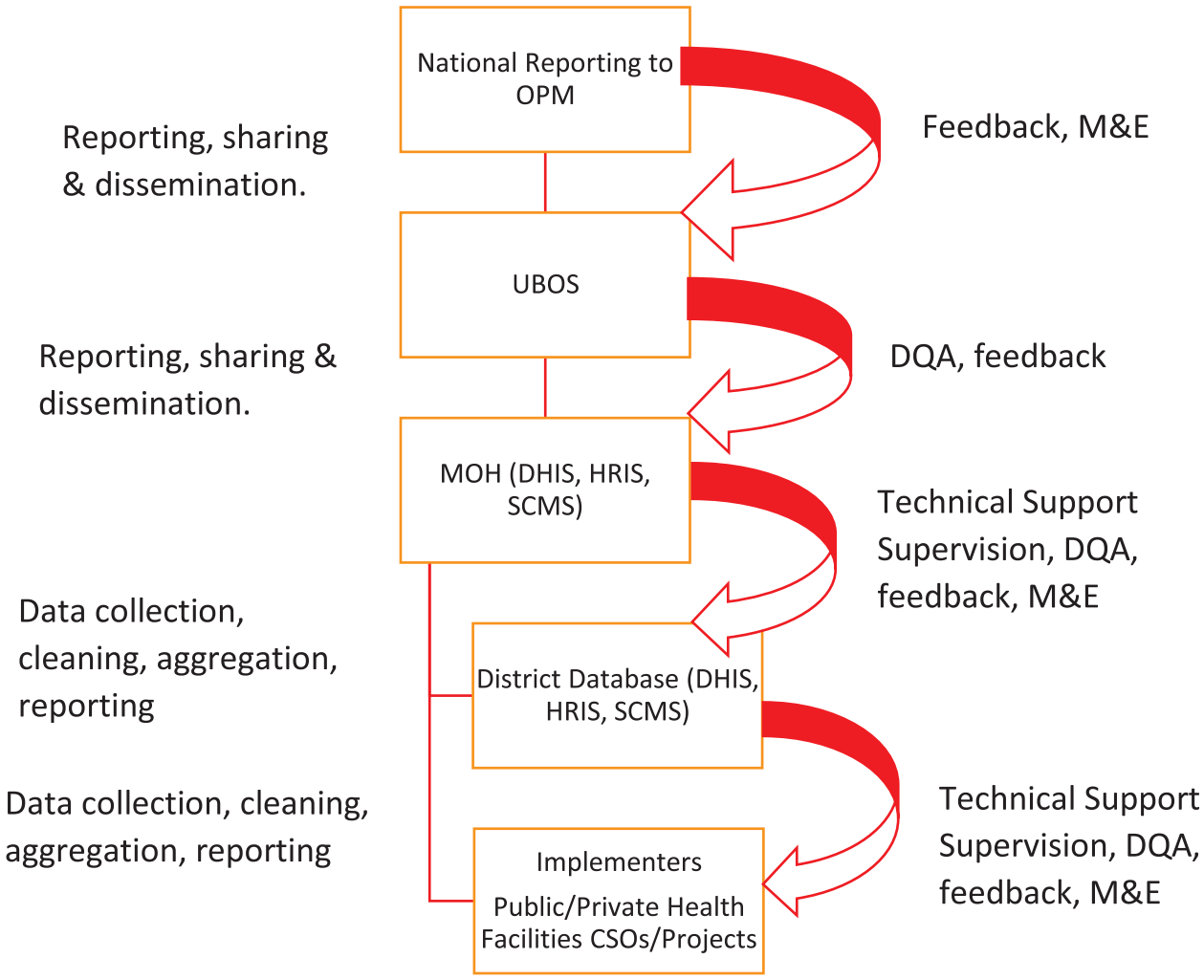

Figure 6: A figure showing data flow

6.4 Routine Monitoring data generation, Analysis and Management

Standard data collection procedures will utilize the existing data capture tools as outlined earlier. The Monitoring and Evaluation (M&E) teams at both district and ministry levels will incorporate Health-National Adaptation Plan (H-NAP) indicators into the existing data capture tools across all levels. Quantitative data about these indicators will be captured and reported at facility, district, and national levels. The designated focal person for H-NAP at the ministry will spearhead the integration process

and ensure that routine data on these indicators are included in the reporting tools. Data will be analyzed routinely at district and national levels to identify key issues and provide insights to relevant stakeholders. Separate datasets concerning the H-NAP will be extracted from the District Health Information System (DHIS), Human Resources Information System (HRIS), and Supply Chain Management System (SCMS), and made accessible for analysis at both district and national levels, enabling quarterly and annual reporting on indicators linked to National Development Goals.

6.5 Data Quality Assurance Mechanisms

The Division of Health Information will assume responsibility for formulating a comprehensive plan for data quality assurance, elucidating procedures and methodologies for managing and enhancing the quality of data gathered, particularly through the HMIS. Data validation will rely on an exhaustive system designed to scrutinize collected data for completeness and precision, with the specific method employed contingent upon the data source. Regular Data Quality Audits and Data Quality Surveys will be conducted to gauge the accuracy level of the collected data. The primary aim of Data Quality Audits (Assessments) and Adjustments (DQAA) will be to ensure that the data employed by stakeholders in decision-making is reliable and precise. After assessing the data's expected accuracy, appropriate adjustments will be made to provide a more accurate portrayal of various indicators' status. Data Quality Assessments (DQAs) will be conducted across all levels of healthcare service delivery, adhering to the Ministry of Health (MoH) DQA guidelines and utilizing approved tools. Special attention will be given to conducting DQAs, including incorporating the computed validation/data accuracy index into district annual reports, providing targeted assistance for outliers, and conducting routine (quarterly) data checks on a sample of districts, among other measures. Health facility in-charges will perform regular data verification for facility-based data to ensure accuracy and completeness, at least on a monthly basis. The DQA process will encompass various stages, including data collection methods, aggregation, and analysis, which will be conducted quarterly.

The key DQA activities will include;

1) Training of staff in conducting DQAs
2) Conducting regular DQAs
3) Data adjustments
4) Compiling and disseminating DQA reports

6.6 Reporting and utilization mechanisms

The Ministry of Health will utilize its existing reporting systems, including the District Health Information System (DHIS), Human Resources Information System (HRIS), and Supply Chain Management System (SCMS), to report on the implementation and outcomes of the Health-National Adaptation Plan (H-NAP). The Department of Planning, Financing, and Policy will spearhead the implementation of these reporting systems. The Ministry of Health will ensure thorough documentation of accomplishments, successful endeavors, lessons gleaned, best practices, and encountered challenges, thus contributing to the knowledge base on H-NAP. Progress report findings will undergo internal review and discussion by the Planning unit team before dissemination. Quarterly and annual reports detailing executed activities, progress made against predetermined targets and indicators, as well as narrative depictions of achievements, challenges, and support requisites, will be compiled and submitted to Top Management at the Ministry of Health, the Office of the Prime Minister (OPM), the National Planning Authority (NPA), and other pertinent stakeholders.

6.7 M&E Coordination Mechanisms

This section provides the coordination mechanisms for M&E during the implementation of the H-NAP. The section identifies the M&E coordination structure and the key roles and responsibilities of the relevant actors.

6.7.1 Functionality of the M&E system

At the national level, the Minister of Health performs the monitoring and evaluation functions. However, these roles have been cascaded and anchored within the planning department of the ministry of health. The M&E unit was created within the department to oversee and coordinate M&E activities at the national level. The unit will work closely with program-specific M&E to align all M&E activities, deliverables and expectations to be in line with MOH SP. An M&E lead will provide M&E leadership together with a team of M&E officers. The M&E unit will work closely with the DHI and the Health Information Innovation and Research (HIIRE) TWG to actualize this plan. The success of this M&E system will largely require the availability of adequate staff employed in the M&E unit with necessary M&E technical knowledge and experience. As such, this component emphasizes the need for human resources to run the M&E functions.

Table 6: Organisational structures with M&E functions

Actor	Level	Role
Ministers of health	Senior Top Management	▪ Working closely with the Cabinet through the Parliamentary ▪ Health Committee for: ▪ Overall political and policy oversight. ▪ Articulating the policy direction for the sector, considering broader government objectives. ▪ Review of sector progress against the policy imperatives set out in contribution towards the NHP and NDP
Permanent Secretary, Director General of Health Services, Directors and Commissioners	Top Management	▪ Providing governance and partnership oversight to the sector. ▪ Reviewing of sector progress against the policy imperatives set out in the NHP and NDP. ▪ Monitoring adherence to the sector's policy direction (One M&E platform). ▪ Mobilizing resources for operationalizing the plan. ▪ Monitoring health sector performance and six-monthly reporting to OPM on sector performance. This performance reporting will be based on the quarterly submissions to OPM on progress against key actions and outputs towards outcomes.
Health Policy Advisory Committee (HPAC)	National	▪ Monitor and advise on health policy issues. ▪ Monitoring adherence to the sector's policy direction (One M&E platform). ▪ Monitor implementation of the partnership arrangements e.g. the Compact and aide memoire recommendations. ▪ Guide the sector performance reviews.
SME&R TWG	National (MoH representatives from the different programs,	▪ Developing and reviewing the results framework for the MOH SP, and ensuring that relevant departments (and relevant non-state actors) develop results indicators consistent with the MOH SP. ▪ Reviewing, consolidating, and validating the various sector reports before dissemination to the relevant stakeholders.

	CSOs, HDPs, Medical Bureaus, Private Sector and academia)	▪ Facilitating utilization of M&E and Research Information knowledge translation and dissemination) in liaison with the relevant sector departments, programs, and the Policy Analysis Unit. ▪ Periodically reviewing available research/survey ▪ information to update the current evidence on the best ▪ practices to guide Planning, decision-making, or Policy Formulation.
M&E Unit	National-coordination of M&E at MOH HQ	▪ Overall coordination and oversight (monitoring and ▪ supervision) of M&E activities in the sector. ▪ Development and dissemination of the sector M&E plan for the MOH SP. ▪ Ensuring the harmonization of the institutional, program and project M&E plans with the MOH Strategic M&E Plan. ▪ Identifying capacity-building needs and training for health workers and managers in M&E. ▪ Organizing sector performance reviews. ▪ Supporting LGs in organizing regular performance review meetings. ▪ Producing periodic sector progress reports. ▪ Providing quarterly data and explanatory information on progress against performance indicators to MoFPED and OPM through the Output-based Budgeting Tool (OBT). ▪ Maintaining a Recommendations Implementation Tracking Plan which will keep track of review and evaluation recommendations, agreed follow-up actions, and the status of these actions. ▪ Monitor and evaluate the implementation of the MOH SP
Departmental specific M&E	Specific Program areas	▪ Provide oversight for monitoring implementation of work plans and preparation of quarterly and annual performance reports. ▪ Participating in data quality assurance. ▪ Providing quality data on relevant performance indicators to MoH and relevant stakeholders. ▪ Participate in M&E capacity-building activities. ▪ M&E support supervision and mentoring. ▪ Participating in the development of the program M&E plans, Mid- and end-term evaluation of the national strategic plan, and preparation of the periodic sector performance reports. ▪ Maintaining a Recommendations Implementation Tracking Plan which will keep track of review and evaluation recommendations, agreed follow-up actions, and status of these actions. ▪ Utilizing M&E findings to inform program, policy, and resource allocation decisions.
HMIS Division	National	▪ Coordinating, harmonizing and operationalizing the HMIS and e-HMIS at all levels. ▪ Strengthening capacity for collection, validation, analysis, dissemination and utilization of health data at all levels.

		▪ Conducting regular data validation in the districts, health facilities and other health institutions to ensure quality data. ▪ Ensure that HMIS and e-HMIS data is made easily and promptly available to all stakeholders while ensuring that the sharing of reports respects the Access to Information Act, 2005. ▪ Conduct data review meetings, including data use conferences to enhance data utilization at all levels. ▪ Updating the master health facility inventory of all reporting health facilities in the country. ▪ Ensure the ICD 10 coding of all diagnoses as outlines in the HMIS, and consequently update these in the eHMIS. ▪ Generating the health statistical report annually.
Regional Monitoring Teams	Sub-national Level	▪ Liaising between the national level and the districts on M&E at the regional level. ▪ Capacity building for data collection, validation, analysis, dissemination and utilization of health data at regional level. ▪ Conducting data validation in the region. ▪ Supporting the development and implementation of the M&E plans of the districts and RRH in the region. ▪ Monitoring and reviewing the implementation of the M&E plans in the region by compiling and analysing quarterly and annual reports. ▪ Maintaining a Recommendations Implementation Tracking Plan which will keep track of review and evaluation recommendations, agreed follow-up actions, and progress of these actions. ▪ Supporting operational research and survey activities
District Executive Committee (DEC)	District level	▪ Providing governance and leadership oversight in the district. ▪ Monitoring implementation of the annual work plan and District Development Plan. ▪ Monitoring adherence of all stakeholders to the policy direction (One M&E platform).
District Social Services Committee (DSSC)	District level	▪ Monitoring implementation of the annual work plan and District Development Plan. ▪ Mobilizing resources for operationalizing the district M&E plan. ▪ Participating in the district performance review meetings
DTPC	District level	▪ Monitoring implementation of the annual work plan and District Development Plan. ▪ Mobilizing resources for operationalizing the district M&E plan. ▪ Ensure timely reporting to the respective entities (MoFPED, MoLG and MoH). ▪ Coordinating all IPs and CSOs to ensure alignment with institutional arrangements and district priorities

District Health Management Team (DHMT)		▪ Monitoring implementation of the annual work plan and District Development Plan (Performance Reviews). ▪ Participating in the district performance review meetings.
District Health Teams (DHT)		▪ Development of a district M&E plan. ▪ Identifying key performance indicators and targets. ▪ Coordination of M&E activities in the district to ensure alignment with institutional arrangements and district priorities. ▪ Supervision and mentoring of HSDs in M&E. ▪ Conducting data quality audits. ▪ v Training of health workers in M&E. ▪ v Maintaining a functional district HMIS with an up-to-date district database. ▪ v Compile and submit periodic district reports to the district, MoFPED, and MoH ▪ ix) Conducting district performance Reviews
Health Sub-District Team (HSD)		▪ Supervise and mentor lower-level health facilities in M&E. ▪ Aggregation, validation, analysis, dissemination and utilization of district data. ▪ Maintaining an up-to-date HSD database. ▪ Compile and submit periodic HSD reports to the district. ▪ Conducting HSD Performance Reviews. ▪ v Maintaining a Recommendations Implementation Tracking Plan, which will keep track of review and evaluation recommendations, agreed follow-up actions, and progress of these actions. ▪ v Utilization of M&E results
Health Facility Managers	Facility level	▪ Ensuring the development of facility M&E plans. ▪ Determining performance targets for the key output indicators. ▪ Resource mobilization and allocation for M&E activities. ▪ Maintaining an up-to-date health facility database. ▪ Compile and submit periodic reports to the relevant bodies. ▪ v Conduct data verification before submission of reports. ▪ v Conducting health facility performance reviews. ▪ v Dissemination and utilization of data. ▪ ix) Maintaining a Recommendations Implementation Tracking Plan, which will keep track of review and evaluation recommendations, agreed follow-up actions, and progress of these actions
Village Health Teams (VHT)	Community	▪ Collection, compilation, analysis and reporting on ▪ community health data, including births and deaths, through the community registers. ▪ Use data to discuss performance within the community and agree on priorities to focus on
Community-based CSOs, administrative units at the grassroots,		▪ To provide information on; the delivery of various services) transparency and accountability of resources accorded; and ▪ challenges and gaps experienced in the delivery of various services. ▪ They will also participate in the validation of the outcomes of implementation of the MOH SP in their respective areas.

and health consumers		▪ Communities will also be engaged in the review process using participatory appraisal mechanisms like focus group discussions and community meetings or dialogues like the Constituency (HSD) Health Assemblies, barazas, open days,
CSOs	National, sub-national, and district level	▪ Contribution in the development of M&E standards and plans. ▪ Participating in sector monitoring processes at LG and national level. ▪ Providing performance reports and quality data to the relevant program managers at the national and district level. ▪ These will be compiled as part of departmental reports and reviewed by relevant working groups for onward transmission to SMC or DTPC. ▪ Participating in the M&E-related committee meetings at all levels. ▪ Conduct independent M&E audits and share findings for performance improvement. ▪ v Community sensitization and advocacy for accountability mechanisms.
Health Development Partners (HDPs) and Ips		▪ Contribution to the development of M&E standards and plans. ▪ Participating in sector monitoring processes at LG and national level. ▪ Participating in the M&E-related committee meetings at all levels. ▪ Utilizing M&E findings for policy dialogue, resource mobilization, and planning. ▪ Providing feedback to domestic and international ▪ constituencies on health sector performance and results. ▪ v Supporting the health sector through financial, technical and other forms of assistance to strengthen M&E performance.

Actor	**Level**	**Role**
Ministers of health	Senior Top Management	▪ Working closely with the Cabinet through the Parliamentary ▪ Health Committee for: ▪ Overall political and policy oversight. ▪ Articulating the policy direction for the sector, taking broader government objectives into consideration. ▪ Review of sector progress against the policy imperatives set out in contribution towards the NHP and NDP
Permanent Secretary, Director General of Health Services, Directors and Commissioners	Top Management	▪ Providing governance and partnership oversight to the sector. ▪ Reviewing of sector progress against the policy imperatives set out in the NHP and NDP. ▪ Monitoring adherence to the policy direction (One M&E platform) of the sector.

		▪ Mobilizing resources for operationalizing the plan. ▪ Monitoring health sector performance and six-monthly reporting to OPM on sector performance. This performance reporting will be based on the quarterly submissions to OPM on progress against key actions and outputs towards outcomes.
Health Policy Advisory Committee (HPAC)	National	▪ Monitor and advise on health policy issues. ▪ Monitoring adherence to the sector's policy direction (One M&E platform). ▪ Monitor implementation of the partnership arrangements e.g., the Compact and aide memoire recommendations. ▪ Guide the sector performance reviews.
SME&R TWG	National (MoH representatives from the different programs, CSOs, HDPs, Medical Bureaus, Private Sector and academia)	▪ Developing and reviewing the results framework for the MOH SP, and ensuring that relevant departments (and relevant non-state actors) develop results indicators that are consistent with the MOH SP. ▪ Reviewing, consolidating, and validating the various sector reports before dissemination to the relevant stakeholders. ▪ Facilitating utilization of M&E and Research Information knowledge translation and dissemination) in liaison with the relevant sector departments, programs, and the Policy Analysis Unit. ▪ Periodically reviewing available research/survey ▪ information to update the current evidence on best ▪ practices to guide Planning, decision-making or Policy Formulation.
M&E Unit	National coordination of M&E at MOH HQ	▪ Overall coordination and oversight (monitoring and ▪ supervision) of M&E activities in the sector. ▪ Development and dissemination of the sector M&E plan for the MOH SP. ▪ Ensuring the harmonization of the institutional, program and project M&E plans with the MOH Strategic M&E Plan. ▪ Identifying capacity-building needs and training for health workers and managers in M&E. ▪ Organizing sector performance reviews. ▪ Supporting LGs to organize regular performance review meetings. ▪ Producing periodic sector progress reports. ▪ Providing every quarter, data and explanatory information on progress against performance indicators to MoFPED and OPM through the Output-based Budgeting Tool (OBT).

		▪ Maintaining a Recommendations Implementation Tracking Plan which will keep track of review and evaluation recommendations, agreed follow-up actions, and status of these actions. ▪ Monitor and evaluate the implementation of the MOH SP
Departmental specific M&E	Specific Program areas	▪ Provide oversight for monitoring implementation of work plans and preparation of quarterly and annual performance reports. ▪ Participating in data quality assurance. ▪ Providing quality data on relevant performance indicators to MoH and relevant stakeholders. ▪ Participate in M&E capacity-building activities. ▪ M&E support supervision and mentoring. ▪ Participating in the development of the program M&E plans, Mid- and end-term evaluation of the national strategic plan and preparation of the periodic sector performance reports. ▪ Maintaining a Recommendations Implementation Tracking Plan which will keep track of review and evaluation recommendations, agreed follow-up actions, and the status of these actions. ▪ Utilizing M&E findings to inform program, policy, and resource allocation decisions.
HMIS Division	National	▪ Coordinating, harmonizing and operationalizing the HMIS and e-HMIS at all levels. ▪ Strengthening capacity for collection, validation, analysis, dissemination and utilization of health data at all levels. ▪ Conducting regular data validation in the districts, health facilities and other health institutions to ensure quality data. ▪ Ensure that HMIS and e-HMIS data is made easily available to all stakeholders in a timely manner while ensuring that the sharing of reports respects the Access to Information Act, 2005. ▪ Conduct data review meetings including data use conferences to enhance data utilization at all levels. ▪ Updating the master health facility inventory of all reporting health facilities in the country. ▪ Ensure the ICD 10 coding of all diagnoses as outlines in the HMIS, and consequently updating these in the eHMIS. ▪ Generating the health statistical report annually.
Regional Monitoring Teams	Sub-national Level	▪ Liaising between the national level and the districts on M&E at the regional level.

		▪ Capacity building for data collection, validation, analysis, dissemination and utilization of health data at regional level. ▪ Conducting data validation in the region. ▪ Supporting the development and implementation of the M&E plans of the districts and RRH in the region. ▪ Monitoring and reviewing the implementation of the M&E plans in the region by compiling and analysing quarterly and annual reports. ▪ Maintaining a Recommendations Implementation Tracking Plan which will keep track of review and evaluation recommendations, agreed follow-up actions, and progress of these actions. ▪ Supporting operational research and survey activities
District Executive Committee (DEC)	District level	▪ Providing governance and leadership oversight in the district. ▪ Monitoring implementation of the annual work plan and District Development Plan. ▪ Monitoring adherence of all stakeholders to the policy direction (One M&E platform).
District Social Services Committee (DSSC)	District level	▪ Monitoring implementation of the annual work plan and District Development Plan. ▪ Mobilizing resources for operationalizing the district M&E plan. ▪ Participating in the district performance review meetings
DTPC	District level	▪ Monitoring implementation of the annual work plan and District Development Plan. ▪ Mobilizing resources for operationalizing the district M&E plan. ▪ Ensure timely reporting to the respective entities (MoFPED, MoLG and MoH). ▪ Coordinating all IPs and CSOs to ensure alignment with institutional arrangements and district priorities
District Health Management Team (DHMT)		▪ Monitoring implementation of the annual work plan and District Development Plan (Performance Reviews). ▪ Participating in the district performance review meetings.
District Health Teams (DHT)		▪ Development of a district M&E plan. ▪ Identifying key performance indicators and targets. ▪ Coordinate M&E activities in the district to ensure alignment with institutional arrangements and district priorities. ▪ Supervision and mentoring of HSDs in M&E. ▪ Conducting data quality audits.

		▪ Training of health workers in M&E. ▪ Maintaining a functional district HMIS with up-to-date district database. ▪ Compile and submit periodic district reports to the district, MoFPED and MoH ▪ Conducting district performance Reviews
Health Sub-District Team (HSD)		▪ Supervise and mentor lower-level health facilities in M&E. ▪ Aggregation, validation, analysis, dissemination and utilization of district data. ▪ Maintaining an up-to-date HSD database. ▪ Compile and submit periodic HSD reports to the district. ▪ Conducting HSD Performance Reviews. ▪ Maintaining a Recommendations Implementation Tracking Plan which will keep track of review and evaluation recommendations, agreed follow-up actions, and progress of these actions. ▪ Utilization of M&E results
Health Facility Managers	Facility level	▪ Ensuring the development of facility M&E plans. ▪ Determining performance targets for the key output indicators. ▪ Resource mobilization and allocation for M&E activities. ▪ Maintaining an up-to-date health facility database. ▪ Compile and submit periodic reports to the relevant bodies. ▪ Conduct data verification before submission of reports. ▪ Conducting health facility performance reviews. ▪ Dissemination and utilization of data. ▪ Maintaining a Recommendations Implementation Tracking Plan will keep track of review and evaluation recommendations, agreed-upon follow-up actions, and the progress of these actions.
Village Health Teams (VHT)	Community	▪ Collect, compile, analyze, and report on community health data, including births and deaths, through the community registers. ▪ Use data to discuss performance within the community and agree on priorities to focus on
Community-based CSOs, administrative units at the grassroots, and health consumers		▪ To provide information o:; the delivery of various services) transparency and accountability of resources accorded; and ▪ challenges and gaps experienced in the delivery of various services. ▪ They will also participate in validating the outcomes of implementation of the MOH SP in their respective areas.

		▪ Communities will also be engaged in the review process using participatory appraisal mechanisms like focus group discussions and community meetings or dialogues like the Constituency (HSD) Health Assemblies, barazas, open days,
CSOs	National, sub-national and district level	▪ Contribution in the development of M&E standards and plans. ▪ Participating in sector monitoring processes at LG and national level. ▪ Providing performance reports and quality data to the relevant program managers at the national and district level. ▪ These will be compiled as part of departmental reports to be reviewed by relevant working groups for onward transmission to SMC or DTPC. ▪ Participating in the M&E-related committee meetings at all levels. ▪ Conduct independent M&E audits and share findings for performance improvement. ▪ Community sensitization and advocacy for accountability mechanisms.
Health Development Partners (HDPs) and Ips		▪ Contribution in the development of M&E standards and plans. ▪ Participating in sector monitoring processes at LG and national level. ▪ Participating in the M&E-related committee meetings at all levels. ▪ Utilizing M&E findings for policy dialogue, resource mobilization and planning. ▪ Providing feedback to domestic and international ▪ constituencies on health sector performance and results. ▪ Supporting the health sector through financial, technical and other forms of assistance to strengthen M&E performance.

6.8 Human capacity for M&E

The M&E Section will build health managers' capacity at all levels in data management, data analysis, and report generation on climate change programs. Semi-annual data-sharing forums will be organized at the national level, where MOH HNAP will be held. M&E data will be shared and improvement plans will be generated. At the sub-national, district and facility levels, the HMIS unit will continue building the capacity of health data managers in climate change data capture, records management, data analysis and reporting.

6.9 Partnerships to plan, coordinate, and manage the M&E system

The M&E unit will collaborate with other MOH departments, government agencies, development partners, and program-specific implementing partners to drive the M&E agenda of MOH at all levels. Partnership will be sought from program-specific implementing partners of climate change to support district and subnational-level M&E activities, including data quality improvement, quality facility reporting, M&E tools management & development, and data utilization.

6.10 National multi-sectoral M&E plan

The M&E, and HMIS/data units will be responsible for managing this MOH HNAP M&E plan, the HMIS guidelines, the EMR guidelines, the DQA protocol/plan, and related M&E plans. There will be sectoral coordination among the MoH, other MDAs and implementing partners to ensure inclusion and routine monitoring of health indicators within the human capital development program.

6.11 Annual costed M&E work plan

A detailed costed MOH SP M&E work plan including specified and costed M&E activities of all relevant stakeholders and identified sources of funding will be provided in this HNAP. Efforts have been made to capture all related activities, as outlined in the implementation plan of the HNAP.

6.12 Advocacy, communication and culture for M&E

The unit will champion the knowledge of and commitment to M&E and the M&E system among policymakers, program managers, program staff and other stakeholders. This will be done through M&E TWGs, dissemination of M&E publications, during work planning and M&E activities.

6.13 Routine program monitoring

The Division of Health Information (DHI) will collaborate with the district teams to support the management, and production of M&E tools for use at facility and community level. The DHIS 2 system will be used for reporting routine climate change data from facility level. Data from DHIS 2 will routinely be analysed and interrogated to check for consistency, quality and completeness. Appropriate measures will be employed to ensure data is always of high quality (valid, reliable, comprehensive and timely). The M&E unit will work with the HMIS unit and the program M&E teams to collect and updated the MOH HNAP routine database and matrix.

6.14 Surveys and Surveillance

The unit through the planning department, will work with UBOS to ensure indicators listed in this HNAP that require surveys to generate are planned for and collected in a timely manner. Appropriate measures will be put in place to ensure data produced is timely, valid and reliable data from the surveys and surveillance systems.

6.15 National and sub-national databases

The M&E unit will develop and maintain a national health database that will pull data from different data sources to one repository for MOH HNAP data elements. The database will be as real-time as can be and will be available to all levels of health service delivery from district to national. Data will be

desegregated by region, gender, and age where applicable. High level program specific data will also be made available.

6.16 Supportive supervision and data assessment

Periodic data quality assessment (DQA) and cleaning will be integrated in the implementation of this HNAP to address obstacles to producing high quality (valid, reliable, comprehensive and timely) data. A national DQA and cleaning exercises will be conducted at least once a year for all hospitals and large volume health centres. The DQA activity will be led from the national level, and a data quality improvement plan developed for each facility where data is collected. Data cleaning will be carried out on a more regular basis as need be and will be coordinate from the district level.

6.17 Evaluation and research

Evaluation and research agenda of the HNAP M&E plan will be led by the M&E unit, working closely with the Health Research unit, UBOS and institutions of higher learning. Evaluation and research questions will be developed/identified, and studies conducted to meet identified needs and enhance the use to evaluation and research findings.

6.18 Data dissemination and use

Platforms for disseminating research findings from surveys, evaluations and routine data will be sought. On an annual basis, the unit will produce the HNAP progress report detailing its performance against its targets to all health sector stakeholders. Efforts will be taken by the M&E unit and planning department to provide necessary data statistics to MOH at planning and policy formulation stages to enhance use of data from the M&E system to guide the formulation of policy and the planning and improvement of programs.

6.19 Learning and Knowledge Management

6.19.1 Learning Mechanisms for H-NAP

The Ministry of Health (MoH) will guarantee that all stakeholders are provided with guidance and evidence of the ministry's initiatives in a manner that aligns with their expectations. These stakeholders encompass the broader Government (Office of the Prime Minister), Parliament, citizens, and all other health consumers under the Access to Information Act. All Monitoring and Evaluation (M&E) findings and research outcomes from stakeholders will be translated, and the data/information derived will be utilized for decision-making, policy discussions, reviews, and advancements.

6.19.2 Knowledge Management Processes

The Monitoring and Evaluation (M&E) team at the Ministry of Health (MOH) will incorporate elements of the Health-National Adaptation Plan (H-NAP) into the ministry's existing knowledge management system. This integration aims to ensure that the knowledge products produced are documented and handled effectively to facilitate learning among different stakeholders. The management of knowledge related to the H-NAP will be carried out using the ministry's current systems and procedures.

6.20 Performance Reviews and Evaluations

Achieving effective implementation of the Health-National Adaptation Plan (H-NAP) will necessitate conducting performance reviews and evaluations. These assessments offer timely feedback on the performance and outcomes of adaptation interventions carried out by diverse actors and units nationwide. This section outlines the primary performance reviews and evaluations planned for the H-NAP implementation.

6.20.1 Periodic audits of the M&E processes

The Ministry of Health, in collaboration with the Ministry of Water and Environment (MoWE) and the Monitoring and Evaluation (M&E) directorate at the Office of the Prime Minister (OPM), will ensure the regular auditing of M&E processes for the Health-National Adaptation Plan (H-NAP). This initiative aims to identify any deficiencies in the M&E processes, devise corrective actions, and pinpoint areas for improvement to enhance the production and utilization of M&E information. These enhancements are crucial for facilitating evidence-based decision-making among implementing entities. A select committee or M&E working group, comprising M&E technical officers from the Ministry of Health, MoWE, OPM, and other stakeholders such as Civil Society Organizations (CSOs), academia, and key stakeholders at the district level, will conduct these periodic audits. Audits will occur every two years, and comprehensive reports will be compiled to guide the review of M&E processes for the H-NAP

6.20.2 Annual Performance reviews

The Ministry of Health (MOH) will conduct yearly performance evaluations to assess the progress and outcomes of the Health-National Adaptation Plan (H-NAP). These annual performance reports will be compiled and disseminated to important ministry decision-makers and relevant stakeholders. The insights gained from these reviews will guide the development of annual plans and the subsequent implementation of H-NAP activities.

6.20.3 Midterm evaluation of the H-NAP

The Monitoring and Evaluation team at the ministry will oversee the organization of an independent evaluation team to conduct the midterm evaluation of the Health-National Adaptation Plan (H-NAP). This evaluation will adhere to the policy stipulations outlined in the National Public Sector Monitoring and Evaluation (M&E) policy for Uganda (2013). Subsequently, a thorough evaluation report will be compiled and disseminated among key stakeholders within the government system

6.20.4 Endline evaluation of the H-NAP

The Ministry of Health will commission an independent evaluation team to conduct an endline evaluation of the Health-National Adaptation Plan (H-NAP), with the participation of key stakeholders from line ministries and other relevant agencies. Following this evaluation, a comprehensive endline evaluation report will be compiled. The findings from this report will be utilized to inform the development of the second iteration of the H-NAP.

Table 7: M&E Framework matrix for the H-NAP 2025-2030

Goal	To strengthen the adaptive capacity of the health system to climate change and related hazards													
Specific Purpose/Outcome-1: Improved coordination and inclusive climate and health adaptation planning across all levels														
Result	**Component**	**Proposed actions**	**Performance Indicators**	**Level of result**	**Five Year Target**	**Baseline 2024/225**	**Means of Verification**	**Annual targets**					**Reporting frequency**	**Agency**
								25/26	**26/27**	**27/28**	**28/29**	**29/30**		
A framework for enhanced coordination and inclusive climate and health adaptation planning at every level of operation	Climate-transformative leadership and governance	1. Establish and functionalize a Climate and Health coordination mechanism within the MOH Environmental Health Department	Climate and Health coordination mechanism within the MOH Environmental Health Department established	Output	1	0	Functional Climate and Health coordination mechanism evidenced by minutes/ reports	0	1	0	0	0	One-off	EHD-MoH
		2. Develop guidelines for mainstreaming climate and health in the health sector	Guidelines for mainstreaming climate and health in the health sector developed.	Output	1	0	Guidelines for mainstreaming climate and health in the health sector	1	0	0	0	0	One-off	EHD-MoH
		3. Establish inter-ministerial steering committee on health and climate change (including CSOs and the private sector);	Inter-ministerial steering committees on health and climate change (including CSOs and the private sector established	Output	1	0	Inter-ministerial steering committees on climate change and health as evidenced by minutes	1	0	0	0	0	One-off	EHD-MoH
		4. Establish the Climate Change and Health Technical Working Group (TWGs)	Climate Change and Health Technical Working Groups (TWGs) established	Output	1	0	Technical Working Groups (TWGs) on Climate Change and Health as evidenced by minutes and reports	1	0	0	0	0	One-off	EHD-MoH
Expected Outcome-2: Integration of climate and health in MDAs and non-state actors in their respective programs														
Expected Output-2.1: Climate and health actions mainstreamed into programs of government	Climate-transformative leadership and governance	1. Develop guidelines for mainstreaming climate and health in other MDAs, local government and the private sector	Availability of guidelines for mainstreaming climate and health in other MDAs, local government and the private sector	Output	1	0	Guidelines	1	0	0	0	0	One-off	EHD-MoH

agencies and non-state actors		2. Advocate for climate and health across stakeholders at all levels	Number of advocacy events held	Output	100	0	Reports	20	20	20	20	20	Annually	EHD-MoH/MWE CCD
		3. Dissemination of the H-NAP across stakeholders at all levels – National, regional, and sub-national level	Number of dissemination meetings conducted	Output	20	0	Dissemination meeting minutes	15	5	0	0	0	First two years	MOH EHD MWE CCD NGOs CSOs DHT
		4. Train leaders at various national and sub-national levels including public and private	Number of workshops conducted among leaders at various national and sub-national levels including public and private	Output	50	0	Reports	10	10	10	10	10	Annually	EHD-MoH
		5. Train media practitioners in climate and health messaging	Number of training events held	Output	5	0	Training reports	1	1	1	1	1	Annually	EHD-MoH
		6. Support community-level advocacy campaigns (including youth, and women)	Number of community-level advocacy campaigns (including youth, and women) supported	Output	30	0	Campaign minutes	5	5	5	5	10	Annually	EHD-MoH
		7. Revise the Uganda national climate change communications strategy (UNCCS)	Uganda National Climate Change Communications Strategy (UNCCS) revised	Output	1	0	Communication Strategy	1	0	0	0	0	Annually	CCD-MWE/MOH
Specific Purpose/Outcome-3: Impacts of climate change on health addressed														
Expected Output-3.1: Comprehensive measures addressing health impacts of climate change implemented.	Climate-smart health workforce	1. Train health workers in climate and health	Number of trainings conducted	Output	100	0	Training reports	20	20	20	20	20	Annually	EHD-MoH
		2. Integrate climate and health in curricula for the health workforce	Percentage of curricula that integrate climate and health	Output	100%	0	Curricula that integrate climate change and health	10%	20%	30%	75%	100%	Annually	EHD-MoH
		3. Provide IEC materials to the health workforce on climate and health	Percentage of healthcare facilities with IEC materials on climate and health	Output	100%	0	Observation of IEC materials provided	0	20%	40%	75%	100%	Annually	EHD-MoH
		4. Conduct supervision and mentorship visits at regional and district level	Number of supervision and mentorship visits conducted at regional and district level	Output	90	0	Supervision visits	18	18	18	18	18	Annually	EHD-MoH

		5. Support districts to assign a climate and health focal persons	Percentage of districts with climate and health focal persons assigned	Output	100%	0	Minutes assigning focal persons	0	30%	50%	75%	100%	Annually	EHD-MoH
	Vulnerability, capacity and adaptation assessment	1. Develop guidelines and standardized approaches for VAA and risk assessments at national and sub-national levels	Guidelines and standardized approaches for VAA and risk assessments at national and sub-national levels developed	Output	1	0	Availability and use of guidelines, tools and standards	0	1	0	0	0	One-off	EHD-MoH
		2. Support districts to conduct periodic climate and health VAA	Percentage of districts supported to conduct periodic climate and health VAA	Output	100%	0	VAA reports	0	100%	0	0	100%	2nd and 5th year	EHD-MoH
		3. Map out institutions involved in climate and health	Institutions involved in climate and health mapped out	Output	1	0	Mapping report	1	0	0	0	0	One-off	EHD-MoH
		4. Develop a one-stop data repository for climate and health	A one-stop data repository for climate and health developed	Output	1	0	One-stop data repository for climate and health	0	1	0	0	0	0	EHD-MoH
	Integrated risk monitoring, and early warning	1. Develop a platform under DHIS2 that integrates climate and health data for early warning	A platform or system under DHIS2 that integrates climate and health data for early warning developed	Output	1	0	Integrated technology in routine data collection & analysis on environmental risks, hazards, and epidemiological trends	0	1	0	0	0	One-off	EHD-MoH
		2. Update the surveillance system to monitor climate-sensitive diseases	Surveillance systems updated to monitor climate-sensitive diseases	Output	1	0	Strengthened surveillance system	0	1	0	0	0	One-off	EHD-MoH
		3. Synchronize and enhance the interoperability of OPM- Disaster database, MOH (DHIS2), and MWE-CCD climate forecast	OPM- Disaster database, MOH (DHIS2), and MWE-CCD climate forecast synchronized	Output	1	0	Synchronized OPM- Disaster database, MOH (DHIS2), and MWE- CCD climate forecast	0	1	0	0	0	Over the lifespan of the plan	EHD-MoH

		4. Develop a dashboard at the national and sub-national level	Dashboard on climate change and health at the national and subnational levels developed within the DHIS2	Output	1	0	Dashboard	0	1	0	0	0	One-off	EHD-MoH
		5. MOH periodically communicates climate and health updates and early warnings to subnational stakeholders	Percentage of climate and health updates and early warnings communicated to subnational stakeholders	Output	100%	0	Reports	10%	20%	30%	75%	100%	Annually	EHD-MoH
		6. Integrate indigenous knowledge in risk analysis and communication	Indigenous knowledge in risk analysis and communication integrated	Output	1	0	Survey reports/Communication bulletins	0	0	1	0	0	Quarterly	EHD-MoH
	Climate resilient infrastructures, technologies, and supply chain	1. Revise current health infrastructure standards for climate-proofing	Health infrastructure standards revised for climate-proofing	Output	1	0	Revised Health infrastructure standards for climate-proofing	0	0	1	0	0	One-off	Health Infrastructure Department/ EHD-MoH/CCD MWE
		2. Monitor compliance with the revised Health infrastructure standards for climate-proofing	Number of visits conducted to monitor compliance with the revised Health infrastructure standards for climate-proofing	Output	90	0	Monitoring reports	18	18	18	18	18	Annually	EHD-MoH
		3. Train key stakeholders (healthcare managers and contractors) on climate-proofing for health infrastructure	Number of trainings conducted for key stakeholders (healthcare managers and contractors) on climate-proofing for health infrastructure	Output	36	0	Training reports	0	18	0	18	0	2nd and 4th Year	Health Infrastructure Department/ EHD-MoH/CCD MWE/Ministry of Lands
		4. Advocate for the installation of clean energy technologies such as solar systems to reduce electricity infrastructure disruptions at health facilities	Percentage of healthcare facilities with clean energy technologies that reduce electricity infrastructure disruptions	Output	100%		Survey report	0	20%	40%	60%	100%	Quarterly	Infrastructure Department/ EHD-MoH/Ministry of Energy

		5. Conduct support supervision for digitalization of records at healthcare facility level	Percentage of healthcare facilities supported to digitize records	Output	100%	0	Digital platform to manage record-keeping	10%	20%	30%	75%	100%	Annually	EHD-MoH
	Management of environmental determinants of health	1. Conduct joint multi-sectoral risk assessment to proactively manage health risks related to water, sanitation, food and nutrition security and air quality	Joint multi-sectoral risk assessment to proactively manage health risks related to water, sanitation, food and nutrition security and air quality conducted	Output	1	0	Reports	1	1	1	1	5	Annually	MoH, MAAIF, MWE,OPM
		2. Conduct public awareness to increase household resilience to the impacts of climate change on WASH, food security, nutrition and air quality	Number of public awareness events aimed to increase household resilience to the impacts of climate change on WASH, food security, nutrition and air quality campaigns conducted (one per district per year)	Output	730	0	Activity reports	146	146	146	146	146	Annually	EHD-MoH
		Advocate for the revision of the Environmental Impact Assessment and Audit Regulations to strengthen the involvement of health experts in the EIA and audit process	Revision of the Environmental Impact Assessment and Audit Regulations to strengthen the involvement of health experts in the EIA and audit process	Output	1	0	Revised Environmental Impact Assessment and Audit Regulations	0	0	1	0	0	In the 3rd Year	EHD-MoH
		Support MDAs and LG to ensure compliance with laws and regulations on environmental pollution	Percentage of MDAs and LG supported to ensure compliance with laws and regulations on environmental pollution	Output	100%	0	Compliance report	10%	20%	30%	75%	100%	Annually	EHD-MoH
		Support districts to review community programs/projects (such as the Parish Development Model)	Percentage of districts supported to review community programs/projects (such as the Parish	Output	100%	0	Compliance reports	10%	20%	30%	75%	100%	Annually	EHD-MoH

		for climate and health mainstreaming	Development Model) for climate and health mainstreaming											
		Document entities with funds to implement climate change and health-related programs/activities	Percentage of entities with funds to implement climate change and health-related programs/activities	Output	50%	0	Activity report	10%	20%	30%	40%	50%	Annually	EHD-MoH
		Revise the roles and responsibilities of partners under the multi-sectoral management of environmental determinants of health	Availability of a document with well-spelled-out roles and responsibilities of partners under the multi-sectoral management of environmental determinants of health	Output	2	0	Activity report	0	0	1	0	1	3rd and 5th year	EHD-MoH
	Climate-related emergency preparedness and management	Update national disaster reduction strategies to incorporate the use of climate-related emergency preparedness and management data	Updated national disaster reduction strategies to incorporate the use of climate-related emergency preparedness and management data	Output	1	0	Updated national disaster reduction strategies, plans and protocols	0	0	1	0	0	One-off	EHD-MoH
		To improve multi-sectoral collaboration in responding to emergencies at regional and district levels	Percentage of sectors working together in responding to emergencies at regional and district levels improved	Output	730	0	Activity reports	146	146	146	146	146	Annually	EHD-MoH
		Conduct public awareness to increase household resilience to the impacts of climate change (Covered above)	Number of public awareness events aimed to increase household resilience to the impacts of climate change on WASH, food security, nutrition and air quality campaigns conducted (one per district per year)	Output	730	0	Activity reports	146	146	146	146	146	Annually	EHD-MoH

		Integrate climate-related health emergency preparedness and response in the School Health Programme/ college and university	The percentage of education institutions with workplans with evidence of integrating climate-related health emergency preparedness and response in their activities	Output	100%	0	Survey report/Periodic reports	10%	20%	30%	75%	100%	Annually	EHD-MoH
Specific Purpose/Outcome 4: Enhanced access to financing for climate and health														
Expected Outputs-4.1: Increased financing streams for climate and health	Sustainable climate and health financing	Training stakeholders in resource mobilization and grant writing at national and sub-national levels	Number of trainings conducted on resource mobilization and grant writing	Output	5	0	Training reports	1	1	1	1		Annually	EHD-MoH
			Percentage of trainees who have submitted grants on climate and health	Output	70%	0	Submission reports	10%	20%	35%	50%	70%	Annually	MoFPED, MWE, MoH, MakSPH
		Increase funding for project management operations for climate change projects and programs in the Ministry of Finance, Planning and Economic Development considering national administrative arrangements	Percentage of project management operations funded	Output	5%	0	Activity reports and budgets	1%	2%	3%	4%	5%	Annually	EHD-MoH, MoFPED
		Increase national budgets for health and climate change policies and actions	National budgets for health and climate change policies and actions	Output	5%	0	Activity reports and budgets	1%	2%	3%	4%	5%	Annually	EHD-MoH, MoFPED
		Develop and submit proposals for projects and programmes on building health system resilience to different funding sources	Proposal for projects and programmes on building health system resilience to different funding sources developed and submitted	Output	5	0	Submitted project proposals	1	1	1	1	1	Quarterly	EHD-MoH
		Conduct advocacy training to increase, negotiation skills for health and climate change financing to	The number of advocacy trainings conducted to increase negotiation for health and climate change	Output	10	0	Activity reports	2	2	2	2	2	Annually	EHD-MoH

		advocate for adequate allocation of resources for health system resilience to climate variability and change in line with actions proposed under the H-NAP	financing to advocate for adequate allocation of resources for health system resilience to climate variability and change in line with actions proposed under the H-NAP built											
		Hold engagement meetings with other sectors and development partners to mobilize resources to address health and climate change	Number of engagement meetings with other sectors and development partners to mobilize resources to address health and climate change held	Output	10	0	Activity reports	2	2	2	2	2	Annually	EHD-MoH
		Develop a comprehensive resource mobilization plan that identifies funding mechanisms for health, sectors influencing health and climate change, specific proposal options, timelines and responsibilities;	A comprehensive resource mobilization plan that identifies funding mechanisms for health, sectors influencing health and climate change, specific proposal options, timelines and responsibilities developed	Output	1	0	Resource mobilization plan	1	0	0	0	0	Annually	EHD-MoH
Specific Purpose/Outcome 5: Evidence-based decision-making in climate and health actions														
Expected Outputs-5.1: Enhanced integration of evidence-based approaches in climate and health decision-making processes	Health and climate research	Conduct training to enhance research capacities	Number of trainings to improve research capacities conducted	Output	10	0	Training reports	2	2	2	2	2	Annually	MUK, EHD-MoH
		Conduct periodic research to generate evidence across the board	Number of research studies conducted to generate evidence on climate and health	Output	5	0	Research reports	1	1	1	1	1	Annually	MUK, EHD-MoH
		Develop a data platform e.g. repository for use by all stakeholders	A data platform e.g., a repository for use by all stakeholders developed	Output	1	0	Data platform e.g. repository	1	0	0	0	0	Only in the 1st year	MUK, EHD-MoH
		Build capacity for knowledge translation, data analytics, and evidence use	Number of capacity-building events for knowledge translation, data analytics, and evidence use build	Output	10	0	Training reports	2	2	2	2	2	Quarterly	EHD-MoH

		Develop a platform for sharing health and climate change–related research and information to inform policies, plans and strategies	A platform for sharing health and climate change–related research and information to inform policies, plans and strategies developed	Output	1	0	A platform for sharing health and climate change–related research and information for policy action	0	1	0	0	0	Only in the 2nd year	EHD-MoH
	Climate-informed health programme	Integrating information on current and projected (future) climatic conditions into strategic planning of health programmes for climate-sensitive diseases	Information on current and projected (future) climatic conditions integrated into strategic planning of health programmes for climate-sensitive diseases	Output	1	0	Activity reports	1	0	0	0	0	Only in the 1st year	EHD-MoH
		Mainstream climate change into the national health policy and its implementation strategies and guidelines;	Climate change mainstreamed into the national health policy and its implementation strategies and guidelines	Output	1	0	National Health Policy	1	0	0	0	0	Only in the 1st year	EHD-MoH
		Support the integration of climate-related health risks into regional and district plans;	Number of districts and cities' plans that integrate climate-related health risks	Output	146 (136 districts and 10 cities)	0	District plans	26	30	30	30	30	Annually	EHD-MoH
		Develop systems that integrate climate change data into the national health database for purposes of monitoring and early warning	A system that integrates climate change data into national health databases for purposes of monitoring and early warning developed	Output	1	0	Systems that integrate climate change Activity reports	1	0	0	0	0	Annually	EHD-MoH
		Support climate and health capacity building within the health system, civil society and the community	Number of climate and health capacity-building events within the health system, civil society and the community-supported	Output	5	0	Activity reports	1	1	1	1	1	Annually	EHD-MoH
		Revise standard operating procedures to integrate climate change considerations	Number of climate-sensitive standard operating procedures to integrate climate	Output	3	0	Revised Standard operating procedures	0	0	1	1	1	Annually	EHD-MoH

		about resilience in the delivery of public health programmes/ interventions	change considerations about resilience in the delivery of public health programmes/ interventions revised											
		Develop Projects that mainstream climate change in all health programs at different levels;	Percentage of projects that mainstream climate change in all health programs at different levels developed	Output	50%	0	Projects that mainstream climate change in all health programs	10%	20%	30%	40%	50%	Annually	EHD-MoH
		Update medium and long-term plans with actions to prevent climate and health outcomes	Number of medium and long-term plans with actions to prevent climate and health outcomes updated	Output	3	0	Medium and long-term plans with actions to prevent climate and health outcomes	0	0	1	1	1	Annually	EHD-MoH

6.21 M&E Implementation Plan

Monitoring and Evaluation is not only a semi-annual or quarterly event, but a set of activities all of which provide data, that add to the periodic data collections, reviews, and data use. The implementation plan is annualized for the key M&E activities, showing the responsible persons or departments and the frequency of the activities.

Table 8: M&E Implementation plan for the H-NAP

Output	Component	Proposed actions	Responsible Person/Department	Frequency					Budget per component
				2025/26	2026/27	2027/28	2028/29	2029/30	
A framework for enhanced coordination and inclusive climate and health adaptation planning at every level of operation	Climate-transformative leadership and governance	1. Establish and functionalize a Climate and Health coordination[administrative] Unit within the MOH Environmental Health Department	MOH EHD	Annually	-	-	-	-	**$16,617,176**
		2. Develop guidelines for mainstreaming climate and health in the health sector	MOH EHD	Annually	-	-	-	-	
		3. Establish inter-ministerial steering committee on health and climate change (including CSOs and the private sector);	MDAs OPM	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	
		4. Establish the Climate Change and Health Technical Working Group (TWGs)	MDAs	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	
Climate and health actions mainstreamed into programs of government agencies and non-state actors		1. Develop guidelines for mainstreaming climate and health in other MDAs, local government and the private sector	MOH EHD MWE CCD	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	
		2. Advocate for climate and health across stakeholders at all levels	MOH EHD MWE CCD NGOs CSOs DHT Academia	Annually	Annually	Annually	Annually	Annually	
		3. Dissemination of the H-NAP across stakeholders at all levels – National,	MOH EHD MWE CCD NGOs	Annually	-	-	-	-	

		regional, and sub-national level	CSOs DHT						
		4. Train leaders at various national and sub-national levels including public and private	MOH EHD MWE CCD NGOs CSOs DHT Academia	Semi-annual	Semi-annual	Semi-annual	Semi-annual	Semi-annual	
		5. Train media practitioners in climate and health messaging	MOH EHD Media	Semi-annual	Semi-annual	Semi-annual	Semi-annual	Semi-annual	
		6. Support community-level advocacy campaigns (including youth, and women)	MOH EHD MWE CCD NGOs CSOs DHT	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	
		7. Revise the Uganda national climate change communications strategy (UNCCS)	MOH EHD MWE CCD Academia	Annually	Annually	Annually	Annually	Annually	
Comprehensive measures addressing health impacts of climate change implemented.	Climate-smart health workforce	1. Train health workers in climate and health	MOH EHD MWE CCD Academia DHT Facility in-charges	Annually	Annually	Annually	Annually	Annually	**$2,376,839**
		2. Integrate climate and health in curricula for the health workforce	MOH EHD Academic institutions	Annually	Annually	Annually	Annually	Annually	
		3. Provide IEC materials to the health workforce on climate and health	MOH EHD DHT Facility in-charges	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	
		4. Conduct supervision and mentorship visits at regional and district level	MOH EHD DHT Facility in-charges	Annually	Annually	Annually	Annually	Annually	
		5. Support districts to assign a climate and health focal persons	MOH EHD	Annually	Annually	Annually	Annually	Annually	
	Vulnerability, capacity and adaptation assessment	1. Develop guidelines and standardized approaches for VAA and risk assessments at national and sub-national levels	MOH EHD MWE CCD	Annually	Annually	Annually	Annually	Annually	**$1,218,713**
		2. Support districts to conduct periodic climate and health VAA	MOH EHD MWE CCD	Annually	Annually	Annually	Annually	Annually	

		3. Map out institutions involved in climate and health	MOH EHD	Annually	Annually	Annually	Annually	Annually	
		4. Develop a one-stop data repository for climate and health	MOH EHD MWE CCD	Annually	Annually	Annually	Annually	Annually	
	Integrated risk monitoring, and early warning	1. Develop a platform under DHIS2 that integrates climate and health data for early warning	MOH EHD MWE CCD	Annually	Annually	Annually	Annually	Annually	**$5,011,442**
		2. Update the surveillance system to monitor climate-sensitive diseases	MOH EHD MWE CCD	Semi-annually	Semi-annually	Semi-annually	Semi-annually	Semi-annually	
		3. Synchronize and enhance the interoperability of OPM-Disaster database, MOH (DHIS2), and MWE- CCD climate forecast	MOH EHD MWE CCD OPM	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	
		4. Develop a dashboard at the national and sub-national level	MOH EHD MWE CCD	Annually	Annually	Annually	Annually	Annually	
		5. MOH periodically communicates climate and health updates and early warnings to subnational stakeholders	MOH EHD NMA	Annually	Annually	Annually	Annually	Annually	
		6. Integrate indigenous knowledge in risk analysis and communication	MOH EHD DHT	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	
	Climate resilient infrastructures, technologies, and supply chain	1. Revise current health infrastructure standards for climate-proofing	MOH EHD	Semi-annual	Semi-annual	Semi-annual	Semi-annual	Semi-annual	**$19,066,889**
		Ensure compliance with the revised building and renovation climate-resilience standards in new health facilities and refurbishment of existing health facilities to create Climate-Smart health systems.	MOH EHD DHT	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	
		2. Monitor compliance with the revised Health infrastructure standards for climate-proofing	MOH EHD	Annually	Annually	Annually	Annually	Annually	

		3. Train key stakeholders (healthcare managers and contractors) on climate-proofing for health infrastructure	MOH EHD	Annually	Annually	Annually	Annually	Annually	
		5. Conduct support supervision for digitalization of records at healthcare facility level							
	Management of environmental determinants of health	1. Conduct joint multi-sectoral risk assessment to proactively manage health risks related to water, sanitation, food and nutrition security and air quality	MOH EHD MWE CCD DHT	Annually	Annually	Annually	Annually	Annually	**$9,203,492**
		2. Conduct public awareness to increase household resilience to the impacts of climate change on WASH, food security, nutrition and air quality	MOH EHD MWE CCD NGOs CSOs DHT	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	
		3. Advocate for the revision of the Environmental Impact Assessment and Audit Regulations to strengthen the involvement of health experts in the EIA and audit process	MOH EHD NEMA	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	
		4. Support MDAs and LG to ensure compliance with laws and regulations on environmental pollution	MDAs NGOs CSOs DHT	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	
		5. Support districts to review community programs/projects (such as the Parish Development Model) for climate and health mainstreaming	MOH EHD	Annually	Annually	Annually	Annually	Annually	
		6. Document entities with funds to implement climate change and health related programs/activities	MOH EHD	Semi-Annual	Semi-Annual	Semi-Annual	Semi-Annual	Semi-Annual	
		7. Revise the roles and responsibilities of partners	MOH EHD	Semi-Annual	Semi-Annual	Semi-Annual	Semi-Annual	Semi-Annual	

		under the multi- sectoral management of environmental determinants of health							
	Climate-related emergency preparedness and management	1. Update national disaster reduction strategies to incorporate the use of climate-related emergency preparedness and management data	MOH EHD EOC MWE CCD OPM	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	**$2,275,045**
		2. Improve multi-sectoral collaboration in responding to emergences at regional and district levels	MOH EHD MWE CCD NGOs CSOs	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	
		3. Conduct public awareness to increase household resilience to the impacts of climate change (Covered above)	MOH EHD MWE CCD NGOs CSOs DHT	Semi-annual	Semi-annual	Semi-annual	Semi-annual	Semi-annual	
		4. Integrate climate-related health emergency preparedness and response in the School Health Programme/ college and university curriculum;	MOH EHD MOES NCDC and other training institutions	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	
Increased financing streams for climate and health	Sustainable climate and health financing	Training stakeholders in resource mobilization and grant writing at national and sub-national levels	MOH EHD MWE CCD MOFPED	Annually	Annually	Annually	Annually	Annually	**$326,084**
		Increase funding for project management operations for climate change projects and programs in the Ministry of Finance, Planning and Economic Development considering national administrative arrangements	MOH EHD MOFPED	Annually	Annually	Annually	Annually	Annually	
		Increase national budgets for health and climate change policies and actions	MOH	Annually	Annually	Annually	Annually	Annually	
		Develop and submit proposal for projects and programmes on building	MOH EHD Academia MOFPED	Annually	Annually	Annually	Annually	Annually	

		health system resilience to different funding sources							
		Conduct advocacy trainings to increase, negotiation skills for health and climate change financing to advocate for adequate allocation of resources for health system resilience to climate variability and change in line with actions proposed under the H-NAP	MOH MWE MOFPED	Annually	Annually	Annually	Annually	Annually	
		Hold engagement meetings with other sectors and development partners to mobilize resources to address health and climate change	MOH EHD MWE CCD NGOs CSOs DHT Academia	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	
		Develop a comprehensive resource mobilization plan that identifies funding mechanisms for health, sectors influencing health and climate change, specific proposal options, timelines and responsibilities;	MOH EHD MOFPED	Annual	Annual	-	-	-	
Enhanced integration of evidence-based approaches in climate and health decision-making processes	Health and climate research	Conduct training to enhance research capacities	MOH EHD Academia	Semi-annual	Semi-annual	Semi-annual	Semi-annual	Semi-annual	**$1,038,437**
		Conduct periodic research to generate evidence across the board	MOH EHD Academia	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	
		Develop a data platform e.g. repository for use by all stakeholders	MOH EHD EOC NMA OPM	Annual	Annual	Annual	Annual	Annual	
		Build capacity for knowledge translation, data analytics, and evidence use	MOH EHD Academia and other research organizations	Semi-annual	Semi-annual	Semi-annual	Semi-annual	Semi-annual	
		Develop a platform for sharing health and climate change–related research and information to inform policies, plans and strategies	MOH EHD Academia and other research organizations	Semi-annual	Semi-annual	Semi-annual	Semi-annual	Semi-annual	

	Climate-informed health programme	Integrating information on current and projected (future) climatic conditions into strategic planning of health programmes for climate-sensitive diseases	MOH EHD NMA	Annually	Annually	Annually	Annually	Annually	**$5,969,150**
		Mainstream climate change into the national health policy and its implementation strategies and guidelines;	MOH NPA OPM	Annually	Annually	Annually	Annually	Annually	
		Support the integration of climate-related health risks into regional and district plans;	MOH EHD DHT	Annually	Annually	Annually	Annually	Annually	
		Develop systems that integrate climate change data into the national health database for purposes of monitoring and informing health programming	MOH EHD DHT	Annually	Annually	Annually	Annually	Annually	
		Support climate and health capacity building within the health system, civil society and the community	MOH EHD MWE CCD Academia DHT	Semi-annual	Semi-annual	Semi-annual	Semi-annual	Semi-annual	
		Revise standard operating procedures to integrate climate change considerations about resilience in the delivery of public health programmes/ interventions	MOH EHD	-	-	Annual	-	-	
		Develop Projects that mainstream climate change in all health programs at different levels;	MOH EHD Academia and other research organizations	Semi-annual	Semi-annual	Semi-annual	Semi-annual	Semi-annual	
		Update medium and long-term plans with actions to prevent climate and health outcomes	MOH EHD MWE CCD OPM NPA	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	

REFERENCES

1. UNAS. Owning Our Futures: Approaches to Realizing Community Action for Climate Change Adaptation in Uganda. Report of the Committee on Community Action for Climate Change Adaptation. Kampala Uganda. 2023.
2. World Bank. CLIMATE RISK COUNTRY PROFILE: UGANDA. 2021.
3. Nakalembe C. Characterizing agricultural drought in the Karamoja subregion of Uganda with meteorological and satellite-based indices. Natural Hazards. 2018;91(3):837-62.
4. Nansamba M, Sibiya J, Tumuhimbise R, Ocimati W, Kikulwe E, Karamura D, et al. Assessing drought effects on banana production and on-farm coping strategies by farmers—A study in the cattle corridor of Uganda. Climatic Change. 2022;173(3-4):21.
5. McKinney L, Wright DC. Climate change and water dynamics in rural Uganda. Sustainability. 2021;13(15):8322.
6. WHO. Health in National Adaptation Plans. 2021.
7. Namanya DB, Berrang-Ford L, Harper SL, Ford J, Bikaitwoha EM, Lwasa S, et al. Geography, Climate Change and Health Adaptation Planning in Uganda. Practicing Health Geography: The African Context: Springer; 2021. p. 175-90.
8. USAID. UGANDA CLIMATE VULNERABILITY PROFILE 2012 [Available from: https://www.climatelinks.org/sites/default/files/asset/document/uganda_climate_vulnerability_profile_jan2013.pdf.
9. Rivara F, Adhia A, Lyons V, Massey A, Mills B, Morgan E, et al. The effects of violence on health. Health Affairs. 2019;38(10):1622-9.
10. Pulimeno M, Piscitelli P, Colazzo S, Colao A, Miani A. School as ideal setting to promote health and wellbeing among young people. Health promotion perspectives. 2020;10(4):316.
11. Lee J. Mental health effects of school closures during COVID-19. The Lancet Child & Adolescent Health. 2020;4(6):421.
12. MWE. CLIMATE-INDUCED LOSS AND DAMAGE AND HUMAN MOBILITY IN UGANDA 2023 [Available from: https://www.slycantrust.org/knowledge-resources/primer-climate-induced-loss-and-damage-and-human-mobility-in-uganda.
13. Twinomuhangi R, Sseviiri H, Mfitumukiza D, Nzabona A, Mulinde C. Assessing the evidence: Migration, environment and climate change nexus in Uganda. International Organisation for Migration, Kampala https://doi org/1013140/RG. 2022;2(28791):70561.
14. MMC. Climate and mobility case study 2023 [Available from: file:///C:/Users/HP/Downloads/259_Case_Study_5_Uganda.pdf.
15. IOM. UGANDA MULTI-HAZARD INFOGRAPHIC. In: INFOGRAPHIC UM-H, editor. IOM UN Migaration. Webpage: IOM; 2023.
16. Oriangi G, Albrecht F, Di Baldassarre G, Bamutaze Y, Mukwaya PI, Ardö J, et al. Household resilience to climate change hazards in Uganda. International Journal of Climate Change Strategies and Management. 2019;12(1):59-73.
17. Relief Web. Floods in Eastern Uganda kill at least 30 people and leave 400,000 without access to clean water 2022 [Available from: https://reliefweb.int/report/uganda/floods-eastern-uganda-kill-least-30-people-and-leave-400000-without-access-clean-water.
18. Oriangi G, Albrecht F, Di Baldassarre G, Bamutaze Y, Mukwaya PI, Ardö J, et al. Household resilience to climate change hazards in Uganda. International Journal of Climate Change Strategies and Management. 2020;12(1):59-73.
19. Trummer U, Ali T, Mosca D, Mukuruva B, Mwenyango H, Novak-Zezula S. Climate change aggravating migration and health issues in the African context: The views and direct experiences of a community of interest in the field. Journal of Migration and Health. 2023;7:100151.
20. McMichael C. Human mobility, climate change, and health: Unpacking the connections. The Lancet Planetary Health. 2020;4(6):e217-e8.
21. Nayna Schwerdtle P, Stockemer J, Bowen KJ, Sauerborn R, McMichael C, Danquah I. A meta-synthesis of policy recommendations regarding human mobility in the context of climate change. International journal of environmental research and public health. 2020;17(24):9342.
22. Bharadwaj R, Huq S. Climate-induced migration and health issues. 2022.
23. Relief Web. Landslides kill 1,000 in Bugisu over the past decade 2019 [Available from: https://reliefweb.int/report/uganda/landslides-kill-1000-bugisu-over-past-decade.

24. Atuyambe LM, Ediau M, Orach CG, Musenero M, Bazeyo W. Land slide disaster in eastern Uganda: rapid assessment of water, sanitation and hygiene situation in Bulucheke camp, Bududa district. Environmental health : a global access science source. 2011;10:38.
25. OCHA. Uganda: Floods & Landslides - Flash Update No. 1 (As of 19 December 2019) 2019 [Available from: https://reliefweb.int/report/uganda/uganda-floods-landslides-flash-update-no-1-19-december-2019.
26. Agrawal S, Gopalakrishnan T, Gorokhovich Y, Doocy S. Risk factors for injuries in landslide-and flood-affected populations in Uganda. Prehospital and disaster medicine. 2013;28(4):314-21.
27. MWE. Updated Nationally Determined Contribution (NDC). 2022.
28. USAID. AN OVERVIEW OF CLIMATE CHANGE AND HEALTH IN UGANDA 2014 [Available from: https://www.climatelinks.org/sites/default/files/asset/document/Uganda%2520CC%2520and%2520Health%2520Overview_CLEARED.pdf.
29. Adams Q. Diarrheal diseases in rural and urban Uganda: examining the association between temperature and rainfall anomalies and diarrheal incidence. 2019.
30. Godfrey B, Imelda T, Leocadia K, Makoba WM, Anne N, Samuel AE, et al. Rapid cholera outbreak control following catastrophic landslides and floods: A case study of Bududa district, Uganda. African health sciences. 2023;23(4):203-15.
31. Bwire G, Waniaye JB, Otim JS, Matseketse D, Kagirita A, Orach CG. Cholera risk in cities in Uganda: understanding cases and contacts centered strategy (3CS) for rapid cholera outbreak control. The Pan African medical journal. 2021;39:193.
32. Bwire G, Malimbo M, Makumbi I, Kagirita A, Wamala JF, Kalyebi P, et al. Cholera surveillance in Uganda: an analysis of notifications for the years 2007–2011. The Journal of infectious diseases. 2013;208(suppl_1):S78-S85.
33. Ismail K, Maiga G, Ssebuggwawo D, Nabende P, Mansourian A. Spatio-temporal trends and distribution patterns of typhoid disease in Uganda from 2012 to 2017. Geospatial health. 2020;15(2).
34. Siiba A, Kangmennaang J, Baatiema L, Luginaah I. The relationship between climate change, globalization and non-communicable diseases in Africa: A systematic review. PLoS One. 2024;19(2):e0297393.
35. WHO. Country Disease Outlook-Uganda 2023 [Available from: https://www.afro.who.int/sites/default/files/2023-08/Uganda.pdf.
36. D'Amato G, Cecchi L, D'Amato M, Annesi-Maesano I. Climate change and respiratory diseases. European Respiratory Review. 2014;23(132):161-9.
37. Tong M, Wondmagegn B, Xiang J, Hansen A, Dear K, Pisaniello D, et al. Hospitalization costs of respiratory diseases attributable to temperature in Australia and projections for future costs in the 2030s and 2050s under climate change. International Journal of Environmental Research and Public Health. 2022;19(15):9706.
38. De Sario M, Katsouyanni K, Michelozzi P. Climate change, extreme weather events, air pollution and respiratory health in Europe. European Respiratory Journal. 2013;42(3):826-43.
39. Bernstein AS, Rice MB. Lungs in a warming world: climate change and respiratory health. Chest. 2013;143(5):1455-9.
40. Zuo C, Luo L, Liu W. Effects of increased humidity on physiological responses, thermal comfort, perceived air quality, and Sick Building Syndrome symptoms at elevated indoor temperatures for subjects in a hot-humid climate. Indoor air. 2021;31(2):524-40.
41. Khosravi M, Collins PB, Lin R-L, Hayes Jr D, Smith JA, Lee L-Y. Breathing hot humid air induces airway irritation and cough in patients with allergic rhinitis. Respiratory physiology & neurobiology. 2014;198:13-9.
42. Nuwagaba A, Kisekka Namateefu L. Climatic change, land use and food security in Uganda: A survey of Western Uganda. 2013.
43. FAO. It is not food if it is not safe: Advocating for food safety and quality assurance to improve Uganda's economy and people's health 2024 [Available from: ao.org/uganda/news/detail-events/en/c/1628194/#:~:text=According%20to%20the%20Uganda%20Ministry,dysentery%2C%20cholera%20and%20aflatoxin%20contaminatio.
44. UNICEF. On the Occasion of the 2022 Karamoja IPC for Acute Malnutrition Report Launch 2022 [Available from: https://www.unicef.org/uganda/press-releases/occasion-2022-karamoja-ipc-acute-malnutrition-report-launch.
45. Maniragaba VN, Atuhaire LK, Rutayisire PC. Undernutrition among the children below five years of age in Uganda: a spatial analysis approach. BMC Public Health. 2023;23(1):390.
46. Forestry and environement department. CLIMATE CHANGE EFFECTS ON NUTRITION AS A RESULT OF FOOD INSECURITY IN EASTERN UGANDA 2011 [Available from:

https://www.ipcinfo.org/fileadmin/user_upload/fsn/docs/HLPE/C-LIMATE_CHANGE_EFFECTS_ON_NUTRITION_THROUGH_FOOD_INSECURITY.pdf.
47. MOH, MAAIF, MWE, UWA, USAID. UGANDA ONE HEALTH STRATEGIC PLAN 2018 - 2022. 2018.
48. Sekamatte M, Krishnasamy V, Bulage L, Kihembo C, Nantima N, Monje F, et al. Multisectoral prioritization of zoonotic diseases in Uganda, 2017: A One Health perspective. PloS one. 2018;13(5):e0196799.
49. Buregyeya E, Atusingwize E, Nsamba P, Musoke D, Naigaga I, Kabasa JD, et al. Operationalizing the one health approach in Uganda: challenges and opportunities. Journal of epidemiology and global health. 2020;10(4):250-7.
50. CDC. One Health Zoonotic Disease Prioritization for Multi-Sectoral Engagement in Uganda. 2017.
51. Wong C. Climate change is also a health crisis—these 3 graphics explain why. Nature. 2023;624(7990):14-5.
52. Ost K, Berrang-Ford L, Bishop-Williams K, Charette M, Harper SL, Lwasa S, et al. Do socio-demographic factors modify the effect of weather on malaria in Kanungu District, Uganda? Malaria journal. 2022;21(1):98.
53. MOH. UNDER THE NET: PROGRESSING TOWARDS LOWERING MALARIA BURDEN AND IMPACT IN UGANDA 2023 [Available from: https://www.health.go.ug/2023/09/13/under-the-net-progressing-towards-lowering-malaria-burden-and-impact-in-uganda/#:~:text=Uganda%20holds%20the%20unfortunate%20distinction,cases%20per%201%2C000%20population%20annually.
54. Okia M, Okui P, Lugemwa M, Govere JM, Katamba V, Rwakimari JB, et al. Consolidating tactical planning and implementation frameworks for integrated vector management in Uganda. Malaria Journal. 2016;15:1-11.
55. Muwanika F, Atuhaire L, Ocaya B, Isoto R. Consequences of Climate Variation on Malaria Incidence in Uganda. Climatol Weather Forecasting. 2019;7(244):2.
56. Adekiya TA, Aruleba RT, Oyinloye BE, Okosun KO, Kappo AP. The effect of climate change and the snail-schistosome cycle in transmission and bio-control of schistosomiasis in Sub-Saharan Africa. International journal of environmental research and public health. 2020;17(1):181.
57. Tabo Z, Kalinda C, Breuer L, Albrecht C. Exploring the interplay between climate change and schistosomiasis transmission dynamics. Infectious Disease Modelling. 2024;9(1):158-76.
58. De Leo GA, Stensgaard A-S, Sokolow SH, N'Goran EK, Chamberlin AJ, Yang G-J, et al. Schistosomiasis and climate change. BMJ (Clinical research ed). 2020;371.
59. New Vision. Climate change fuelling mental health problems among Ugandans 2023 [Available from: https://www.newvision.co.ug/category/news/climate-change-fuelling-mental-health-problem-NV_172702.
60. IFCR. MHPSS and the Climate Crisis: a short workshop guide 2023 [Available from: https://pscentre.org/resource/mhpss-and-the-climate-crisis-a-short-workshop-guide/.
61. WMO. 2023 STATE OF CLIMATE SERVICES HEALTH. 2023.
62. WHO. Operational framework for building climate resilient and low carbon health systems. 2023.

ANNEX

ANNEX 1: SWOT ANALYSIS FOR THE H-NAP

Table 9: SWOT Analysis for the H-NAP

STRENGTHS
1. Uganda's commitment to key international treaties backed by a strong and clear domestic Legal, policy, and institutional framework. 2. Resource allocation framework with budget codes specifically for climate change initiatives 3. Mainstreaming climate change in the National Development framework – specifically under the National Development Plan (NDP) 4. Existing institutions such as the Regional Emergency Operation Centers (REOCs), the Public Health Emergency Operation Centers (PHEOCs), active sentinel sites, and the Uganda National Meteorological Authority (UNMA).
WEAKNESSES
1. Limited coordination among stakeholders, including the limited representation of the private sector 2. Inadequate resources for climate-resilient healthcare infrastructure and initiatives 3. Poor implementation of physical plans 4. Climate Change related data is not well synchronized with existing government data platforms 5. Limited accessibility and use of technologies in climate change action 6. The slow pace of domestication of international commitments 7. Non-standardized disease coding 8. Poor data utilization 9. Insufficient climate change awareness and advocacy across stakeholders.
OPPORTUNITIES
1. The climate change agenda is high on the global Agenda 2. Availability of climate financing mechanisms and frameworks including private sector investments and avenues for collaboration at global, regional, and national levels 3. The Uganda National Climate Change Learning Strategy 2012 as a framework for building a workforce with necessary climate change resilient and adaptability skills.
THREATS
1. Corruption and human greed which jeopardizes the transparent and ethical allocation of resources 2. Limited institutional independence and the potential for mandates to be overridden can compromise the autonomy of organizations involved in climate change adaptation, hindering their effectiveness. 3. The migration of specialists to other countries for better opportunities poses a significant threat, as it can lead to a loss of skilled healthcare professionals, impacting the overall capacity and expertise of the health workforce within the country. 4. Inadequate resources allocated to climate-resilient healthcare infrastructure and systems strain the health workforce's capacity and effectiveness. 5. Commercialization of research which compromises quality 6. Overbearing demands from donor partners 7. Prioritization of development agendas over emergency preparedness, potentially diverting resources away from critical response efforts.

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Printing Supported by
USAID/Uganda Family Planning Activity

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