



REPUBLIC OF GHANA



DROUGHT MANAGEMENT PLAN

Executive Summary

ES 1. Background and Concept

Past droughts and prolonged dry spells in Ghana have had severe impacts including wide spread food shortage and disease outbreak, loss of employment and income and a general social unrest. Droughts have also affected Ghana's hydroelectric infrastructure with its accompanying socio-economic burden on the country. Following the impacts of drought, it has become critical for a comprehensive drought management plan that will help mitigate potential drought risks, build resilience to drought impacts and establish emergency response, restoration and rehabilitation mechanisms upon the occurrence of drought.

The amended National Disaster Management Organisation Act (Act 927) emphasises proactive disaster management instead of reactive disaster management. This Drought Management Plan is consistent with proactive disaster risk management and the focus of the amended NADMO Act.

ES 2. Objectives and Scope of the Drought Management Plan

The overall objective of the Drought Management Plan is to;

“Comprehensively manage drought in Ghana through ex-ante activities, targeted at mitigating potential drought risks and building resilience while implementing proactive ex-post measures for drought response, restoration and rehabilitation with the objective of minimising the short, medium and long term social, environmental and economic impacts”

The specific objectives of the Drought Management Plan are;

- Support and guide NADMO to integrate drought management measures into development plans
- Establish an institutional co-ordination mechanism at the national and sub-national level for a comprehensive drought management
- Guide relevant institutions to develop a results-based monitoring system for drought management
- Identify innovative funding streams and means to access them for drought management
- Identify relevant capacity building needs and corresponding activities to address the capacity gaps
- Manage drought through a proactive risk management approach
- Establish a management framework for the implementation of drought management activities
- Create public awareness and engage the public through participatory processes to enhance drought risk mitigation and resilience

ES 3. Underpinning Framework

The Drought Management Plan is underpinned by the following international and national policy and legal frameworks

ES 3.1 International Frameworks

Sendai Framework

The Sendai Agreement was adopted at the Third UN World Conference on Disaster Risk Reduction on the 18th March 2015 in Japan. The Framework encourages a broader, participatory preventive approach for risk management. The following are the four priority areas of the Sendai Agreement;

- Priority 1: Understanding disaster risk.

- Priority 2: Strengthening disaster risk governance to manage disaster risk.
- Priority 3: Investing in disaster risk reduction for resilience.
- Priority 4: Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction

Sustainable Development Goals (SDGs)

The set of 17 Goals and 169 Targets were accepted as a global development paradigm aimed at comprehensively addressing economic growth, social equity and environmental sustainability for sustainable development. Out of the 17 SDGs which are also referred to as Global Goals, the Drought Management Plan is directly linked to 101. Implementing the Drought Management Plan will therefore assist Ghana in meeting the respective 10 SDGs

AU Agenda 2063

The AU Agenda 2063 provides the blueprint for Africa’s common aspiration and vision for 2063. The vision and objectives of the Drought Management Plan and the activities outlines to meet same will continue to be critical to the objectives of the Agenda 2063 especially with regards to increasing agricultural production, providing water as a basic service and investment in science, technology and research.

ES 3.2 National Frameworks

The Drought Management Plan is anchored by several national and sectoral policies and legal frameworks. Achieving the vision and/or objectives of these national and sectoral policy frameworks will be directly influenced by the implementation of the Drought Management Plan. The major among these policy and legal underpinnings include;

Coordinated Programme of Economic and Social Development Policies (CPESDP)

Ghana's current Coordinated Programme of Economic and Social Development Policies (CPESDP) (2017-2024) was prepared and presented by His Excellency Nana Addo Dankwa Akufo-Addo to the 7th Parliament of the 4th Republic on the 20th October 2017. Under this CPESDP, His Excellency’s vision is to pursue policies and programmes that will create:

“an optimistic, self-confident and prosperous nation, through the creative exploitation of our human and natural resource, and operating within a democratic, open and fair society in which mutual trust and economic opportunities exist for all.”

In order to achieve this broad vision, the President’s four major objectives include safeguarding the natural environment and ensuring a resilient built environment. This is an objective that clearly resonates with the Drought Management Plan.

Agenda for Jobs

Ghana’s current medium-term development framework is the “Agenda for Jobs: Creating Prosperity and Equal Opportunities for All” and is to be implemented from 2018 to 2021. The objective of the development framework to ensure a resilient built environment while safeguarding the natural environment is critical to the Drought Management Plan. The Drought Management Plan will therefore play an important role in helping achieve the objectives of the Agenda for Jobs

National Climate Change Policy

The National Climate Change Policy is Ghana’s policy response to addressing climate change in comprehensive manner with five priority areas including agriculture and food systems; natural resource management; disaster preparedness and response; equitable social development; and

energy and infrastructural development. The National Climate Change Policy particularly aims at promoting diversified land use practices, including agro-forestry, dry-land farming, urban/backyard vegetable production, to reduce risk and increase the capacity of farmers to cope with droughts and floods.

National Disaster Management Organisation Act (Act 927)

The mandate of the National Disaster Management Organisation (NADMO) in disaster risk management in Ghana is established by Act 927 (2016). The Act provides for the National Disaster Management Organisation to manage disasters and similar emergencies and to develop the capacity of communities to respond effectively to disasters and emergencies.

The Environmental Protection Agency Act, 1994 (Act 490)

The EPA Act 490 (1994) mandates the Environmental Protection Agency to regulate the environment and ensure the implementation of the government policies on the environment.

The National Environment Policy (NEP)

This policy document is to; guide environmental governance in Ghana; serve as a reference material for research and development; guide the country's development along sustainable path and ensure the country's commitment to conventions, protocols and international agreements.

National Land Policy

The National Policy is an important policy framework with regards to drought management. The objectives of the policy which include ensuring shared water bodies are utilised to the mutual benefit of all stakeholder countries as well as ensuring every socio-economic activity is consistent with sound land use through sustainable land use planning in the long-term national interest are well aligned with the Drought Management Plan.

National Social Protection Policy

The Drought Management Plan critical to implementing the Country's Social Protection Policy as in the event of a drought, the socially vulnerable are worst affected. The ex-ante and e-post activities outlines in the Drought Management Plan are critical to achieving the objectives of Ghana's National Social Protection Policy.

National Water Policy

Ghana developed its National Water Policy in 2007 with the following focus areas; 1) Integrated water resources management; 2) Access to water; 3) Water for food security; 4) Water for non-consumptive and other uses; 5) Financing; 6) Climate variability and change; 7) Capacity building and public awareness creation; 8) Good governance; 9) Planning and research; 10) International cooperation. These focus areas together with the policy objectives outlines under them highlight the Drought Management Plan as a critical tool for the implementation of the National Water Policy

ES 4. Drought Impact Assessment

The impacts of drought can be far reaching with devastating effects on the environment, economic activity and social development. Droughts present a major threat to livelihoods and human existence with the vulnerable, poor and small holder farmers usually being the worst affected.

Drought negatively affects the environment and destroys ecosystems services, destroys water resources, affecting the availability of water for domestic and economic use. Environmentally, drought also negatively impacts forestry and other natural resources and causes loss of biodiversity. Droughts also causes landscape degradation, soil erosion, bushfires and increase in insect infestations.

Drought negatively affects public safety and health. Drought increases the risk of disease outbreak. Drought also has the potential to cause conflicts and mass migration to urban centres. Migration further stresses urban infrastructure and social services which in most cases, are inadequate. Increased unemployment levels due to droughts further reduces the quality of life.

Economically, drought affects the agriculture, agribusiness and energy sectors. Drought affects crop yields and livestock production. Reduced crop yield and livestock production results in income loss to farmers, and a loss of employment.

ES 5. Drought Indicators and Monitoring Index

The following drought parameters will be monitored in assessing the occurrence and severity of drought;

- Precipitation
- Streamflow
- Rainfall
- Soil moisture
- Temperature

Drought will be monitored using the Palmers Drought Severity Index (PDSI) and the Standardised Precipitation Index (SPI). Using the PSDI and SPI, the following threshold and classifications will apply;

Table ES 1: Drought Classification

Drought Severity	Values for Drought Classification	
	PDSI	SPI
Near normal	0.49 to -0.49	1 to 0.01
Incipient dry spell	-0.5 to -0.99	0 to -0.99
Mild drought	-1.0 to -2.99	-1 to -1.49
Severe drought	-3.0 to -3.99	-1.5 to -1.99
Extreme drought	-4.0 or less	-2 or less

ES 6. Drought Prevention and Mitigation Activities

Livestock management:

The drought prevention and mitigation activities under the Drought Management Plan are;

- Promotion and development of drought tolerant breeds
- Establishment of rangelands with watering points and fodder banks
- Livestock Paddocking
- Provision of entomology and verifying survey
- Integrated livestock management

Crop yield management:

- Promotion of the use of climate services amongst farmers
- Promotion of the use of drought tolerant crop varieties
- Promotion of water harvesting technologies (both in-situ and ex-situ)
- Promotion of PSP as a planning tool amongst agricultural communities
- Promotion of soil management measures that reduces evaporation such as mulching and cover cropping

Water management:

- Improvement climate observation and monitoring
- scientific research into water resources assessment, management and development
- Use of soil water conservation methods such as bonding
- Installation of return flow systems
- Use of canals or installation of piping to control seepage
- Use of sprinklers and drip irrigation systems
- Use of deep pre-irrigation during periods when surplus water is available
- Improve tillage practices
- Use recycled water for irrigation purposes
- Fund water systems improvements and new systems

Environmental management:

- Legislation and education against farming around water bodies
- Tree planting exercises formation and training of fire volunteers.
- Extensive education on bushfire prevention especially during dry conditions
- Establishment of buffer zones
- Imposition of taxes on environmentally harmful activities

ES 7. Drought Declaration

Drought will be declared by the Minister of Interior upon the advice of the Drought Managing Committee. The determination of the potential occurrence, occurrence or severity of drought will be based on the PDSI which shall be periodically computed as part of the drought monitoring process.

ES 8. Drought Response and Relief

The following response and relief measures will be implemented upon the occurrence of drought. These activities will be implemented on a staged and progressive basis as drought intensifies from mild to extreme. Upon the declaration of mild drought, the first stage of response activities will be initiated and implemented. When drought persists and severe drought is subsequently declared, response activities already being implemented in response to mild drought will continue to be implemented and scaled up where necessary and based on needs assessment. Additional activities (second stage of response) will be initiated and implemented. Both first and second stage response activities will continue to be implemented and scaled up when drought persists and becomes extreme, with the third stage of response activities being initiated and implemented.

Table ES 2: Drought Severity Level Response and Relief Measures

Drought Severity	Activity/Additional Activity	Lead Institution
Mild <i>First Stage of Drought Response</i>	Health campaigns and education to minimise potential outbreak of diseases	Public Health department of Ghana Health Service

	Construction of bore holes	District Assemblies/NADMO
	Water rationing	Ghana Water Company
	Provision of irrigation services	Ghana Irrigation Development Authority
Severe <i>Second Stage of Drought Response</i>	Distribution of food items to worst affected	NADMO
	Supply of water to worst affected communities and households through water tankers	District Assemblies/NADMO
	Distribution of water purification materials such as chlorine	NADMO
	Expansion of school feeding programme to all public schools in worst affected areas/communities	MoGCSP
	Medical screening in worst affected communities	Ghana Health Service
Extreme <i>Third Stage of Drought Response</i>	Supply of purified drinking water (sachet) to worst affected communities and households	Ghana Water Company/NADMO
	Cash distribution to worst affected	NADMO/MoGCSP
	Establish makeshift health centers within affected communities, where a permanent health post is not available	Ghana Health Service
	Provide additional health personnel and necessary emergency medical supplies to health posts, clinics and hospitals in worst affected areas to augment existing staff and enhance delivery of medical services	Ghana Health Service
	Distribution of nutritional supplements (vitamins, folic acids, etc)	Ghana Health Service

ES 9. Water Use Restrictions During Drought

In the event of the occurrence of drought, the following water use restrictions will be implemented respective to the various drought stages.

Table ES 3: Water Use Restrictions

Drought stages	Demand reduction goal	Mandatory Water Use Restrictions
Normal condition	None	None
Insipient dry spell (Low)	10-20%	<p>Irrigation is permitted only for a specified duration based on location</p> <p>Gardens (edible and ornamental) may be hand watered using hose or drip irrigation</p> <p>Hotels and other related institutions encouraged to implement water use efficiency measures</p>
Mild drought	20-30%	<p>Irrigation is permitted only for a specified duration based on location</p> <p>Weekend irrigation is prohibited.</p> <p>Gardens (edible and ornamental) may be hand watered using hose or drip irrigation.</p> <p>Hotels and other related institutions encouraged to implement water use efficiency measures</p>
Severe drought	30-40%	<p>Irrigation is permitted only for a specified duration based on location</p> <p>Irrigation is permitted within two days depending on location.</p> <p>Irrigation on other days is prohibited.</p> <p>Gardens (edible and ornamental) may be hand watered using hose or drip irrigation.</p>

		Hotels and other related institutions encouraged to implement water use efficiency measures
Extreme drought	40-50%	Irrigation of all landscape elements are prohibited including gardens (edible and ornamental)

ES 10. Drought Rehabilitation

The following activities will be executed to help recover from the impacts drought;

- Distribution of seeds and farm inputs to farmers
- Provision of tax waivers and financial support to agro-processing companies
- Cash allowance to worst affected households
- Provision of irrigation support systems for farmers

ES 11. Information Storage and Dissemination and Public Awareness

Drought management related information shall be stored and archived on the **drought management portal**, a dedicated online platform to be created for drought management in Ghana. The platform will also be used to disseminate information on drought. Other media that will be used in disseminating information and in creating public awareness about specific drought related issues will be;

- Newsletters
- Radio and television messages
- New media channels
- Participatory Learning and Action
- Community durbars
- National newspapers
- Folk media
- District/MoFA information vans
- Drama

ES 12. Education and Capacity Building

The Drought Management Plan will involve both formal and informal education activities. Formal education will involve an incorporation of drought related courses and subjects across the formal educational system. Existing drought management related courses of study at the tertiary level will be identified and where appropriate, modified to make them relevant to current trends and Ghana's specific situation. Among others, the following areas shall be covered by drought management related courses;

- Gender perspectives in drought management/disaster risk management

- Climate information management
- Sustainable response mechanisms for disaster risk
- Innovative financing mechanisms for environmental sustainability and disaster risk management
- Addressing disaster risk through sustainable social enterprises and business models
- Community-based disaster/drought risk management

Informal education efforts will target small holder farmers, commercial farmers, community leaders, community-based organisations, among other relevant stakeholders. Informal educational efforts will be focused on enhancing the capacity of stakeholders to be resilient to drought, enhance their preparedness for drought and engage in drought mitigating activities.

ES 13. Financing

Financing of drought management activities will be accessed from the following respective sources;

Table ES 4: Financing Sources for Drought Management Activities

Drought Management Activities	Financing Source
Drought mitigation and preparedness activities	<ul style="list-style-type: none"> ➤ National Budget ➤ Development Partners
Drought response, recovery and rehabilitation activities	<ul style="list-style-type: none"> ➤ National Budget ➤ Development Partners ➤ Drought Insurance ➤ Drought fund

ES 14. Implementation

Drought management activities at the national level will be coordinated by the National Drought Management Committee which shall be chaired by the Ministry of Interior. All drought mitigation and preparedness activities will be implemented as part of the normal activities of implementing partners. The implementation of these activities will however be coordinated and monitored by the National Disaster Management Organisation (NADMO).

The Palmers Drought Severity Index (PDSI) will be updated every two months as part of the drought monitoring process. Based on the PDSI, the potential occurrence and severity of drought will be determined. In the event of an eminent drought, the Minister of Interior shall declare drought after the advice of the Drought Management Committee.

Upon the declaration of drought, the relevant implementation institutions shall activate their drought response activities with the coordination of the National Disaster management Organisation.

At the regional and district levels, the NADMO regional and district offices shall coordinate all drought response, restoration and rehabilitation activities by engaging with all relevant institutions including the District Directorates of MoFA, Community Based Organisations, NGOs, the Ghana Meteorological Agency, among others

ES 15. Monitoring and Evaluation

Monitoring will involve tracking the progress of implementation of annual planned mitigation and preparedness activities, capacity and resilience building activities and an assessment of their effectiveness in meeting the overall objectives of the Drought Management Plan.

As part of monitoring function, drought management activities will be monitored on a regular basis through monthly newsletters, quarterly reports and annual reports all of which will include tracking of expenditure against budgets. This monitoring function will be spearheaded and coordinated by NADMO. M&E of the various activities at the institutional level will be incorporated into the existing M&E framework at the institutional and national level. M&E will inform any modifications required regarding the implementation of drought management activities.

Table ES 5: Monitoring and Reporting Plan for Drought Management Activities

Monitoring Activity	Frequency (Due Dates)
Newsletters	Monthly (Second week of the next month)
Drought Management Report	Quarterly (First month of the quarter)
Annual Drought Report	Annually (First week of February)

ES 16. Periodic Review of Drought Management Plan

The Drought Management Plan will be reviewed every five years through the following steps;

1. Review of quarterly and annual reports including expenditure against planned activities and budgets
2. Evaluation of the effectiveness of all related drought management activities
3. Recommendation of modification in drought management activities based on review
4. Acceptance of recommended modification to plan
5. Revision of plan based on accepted recommendations

ES 17. Next Steps

To facilitate the implementation of the Drought Management Plan, the following next steps with respective timelines will be implemented.

ES 6: Next Steps for DMP Implementation

Next Step	Lead Institution	Support Institution	Timeline
Establishment of the Drought Management Portal	NADMO	GMet	October – December 2018
Establishment of Drought Fund Modalities	Ministry of Finance	NADMO	October – December 2018
Review membership of HTC and reconstitute it where appropriate	NADMO	November 2018	Review membership of HTC and reconstitute it where appropriate
Development and acceptance of a standardised PDSI and SDI formula for Ghana	GMet	NADMO	October – November 2018
Initiate steps to review and/or	NADMO	Tertiary Institutions	March – December 2019

develop drought/disaster management related courses			
Initiate steps to review and/or develop drought/disaster management related courses	NADMO	Tertiary/Research Institutions	March – December 2019