

REPUBLIC OF GHANA

NATIONAL DISASTER MANAGEMENT PLAN



JANUARY, 2010

Prepared by NADMO with support from UNDP



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PREFACE

The current review and publication of the National Disaster Management Plan (NDMP) which was first drafted in 1997, marks a significant achievement for disaster management in Ghana, since the establishment of the National Disaster Management Organisation (NADMO) by the Government of Ghana (Act 517, 1996.)

Disasters are not new in both the developed and developing countries. However, the severe impact of disasters on the human being, his property, infrastructure and the environment is alarming and, therefore, needs critical preparedness for mitigation and, where possible, prevention.

Unfortunately, however, in most developing countries like Ghana, disasters are embroidered in myths, misconceptions and beliefs which sometimes debar people, even the highly educated, from taking disaster issues serious. The time has come to shed the myths associated with disasters.

Disasters have happened in the past, therefore there is every likelihood that other ones similar in nature and scale can happen again, if not immediate then in the near future. Shying away from disaster threats will not help us. It will rather weaken our resolve in disaster management and our efforts at protecting the Ghanaian life, cultural heritage and natural resources from the ravages of disasters.

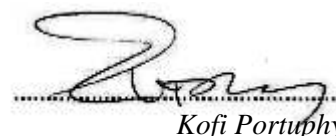
Disaster management is a relatively young field of study in this country. Therefore, all planners, members of government at all levels, individuals, organisations and communities should actively get involved in disaster management for accelerated national development.

In 1994, the United Nations resolved that *disaster prevention and mitigation* should be incorporated in the policy, project and development planning of member states. This resolution should empower us to seriously undertake disaster management in our part of the world where there are not enough resources to rehabilitate disaster victims nor to effect reconstruction of vital infrastructure damaged or destroyed by disasters.

To review this document, expert ideas and knowledge were tapped from individuals, private and public institutions and organisations as well as United Nations agencies with the relevant information, expertise and experience.

The aim of this publication is to provide practical guidance for disaster management during the three phases of the disaster cycle namely Pre disaster (prevention/mitigation and preparedness), Emergency (response and relief) and Post-disaster (rehabilitation and reconstruction). Although we have been able to review the document for now it may have to be updated periodically to meet new challenges and situations.

It is my strong wish that this document would provide the basis for each relevant organisation to carry out its role effectively through the development of appropriate procedures to ensure effective disaster management in the country.



Kofi Portuophy

National Co-ordinator,

National Disaster Management Organisation.

EXECUTIVE SUMMARY

Disasters are natural or anthropogenic (man-made) occurrences that cause ecological destruction, loss of human lives, deterioration in utility facilities and services on a scale sufficient to warrant a response from outside the affected community. When disasters strike, people are displaced, injured or killed and damage is caused to properties and infrastructure such as buildings, roads, railways, bridges, water and electricity distribution networks, as well as transport and communication systems. Disaster management is important in ensuring that the impact of the disasters on the victims and the population at large is mitigated. It requires an integrated approach since issues involved in disaster management are multi-sectoral.

Natural disasters that may occur in Ghana include:

- Pest and Insect Infestation disasters
- Disease epidemics
- Fire disasters
- Hydrometeorological disasters
- Geological disasters

Man-made disasters that may occur in Ghana include:

- Ethnic conflicts
- War
- Aviation and lake/maritime accidents
- Pollution of water bodies
- Industrial accidents
- Failure of structures (collapse of buildings, dams and mines)
- Nuclear and radiological accidents
- Oil spillage.

In order for the nation to manage these disasters in a more scientific, and effective manner and in consonance with Act 517 of 1996 which established NADMO, the National Disaster Management Plan (NDMP) has been prepared. It is to guide NADMO in achieving its main mandate of ensuring that disasters in whatever form are properly managed. The Plan also aims at making decision makers, emergency response organizations, the media and the public aware of and giving priority attention to disaster management issues, especially at work places and within the communities.

The NDMP identifies appropriate measures that are required to manage disasters at the different phases of disasters namely: the Pre-Disaster Phase (Mitigation and Preparedness), the Disaster or Emergency Phase (Response and Relief), and the Post Disaster Phase (Rehabilitation, Resettlement & Reconstruction to the continuum).

Pre-Disaster Phase

The pre-disaster phase constitutes measures taken to prevent man-made disasters and minimise the effects of natural ones. These measures include, among others, the following:

- Identification of hazards or emergency situations that may degenerate into disasters.
- Identification of safe havens
- Institution of effective communication system linking all stakeholders.
- Education and training for awareness creation and skills acquisition for disaster prevention and mitigation.
- General state of preparedness which involves planning, acquisition of relevant data and basic reference materials, designing and equipping of emergency operations and casualty centres and earmarking of spaces for relocation of victims.
- Identification and, where possible, acquisition of resources needed for relief programmes.
- Purchase and storage of relief items.
- Identification and preparation of data base on collaborating institutions or agencies.
- Formation of Disaster Volunteer Groups,.
- raining and mobilisation of equipment for simulation exercises.
- Recommendations on storage of supplies and emergency care training needs of personnel and volunteers.
- Research

Emergency Phase

This phase constitutes immediate actions necessary to meet the requirements of the victims. Various activities involved in this phase include the following:

- Activation of Emergency Operations Centres
- Formation of task forces.
- Search and rescue operations.
- Evacuation of victims and provision of shelter.
- Assessment of disaster and registration of victims.
- Distribution of food, water, clothing and medical relief.
- Provision of emergency shelter and protection of victims.
- Restoration of utility services after the crisis situation is brought under control

Women, children, the aged, the sick, the wounded and the physically handicapped are to be given priority attention.

Post-Disaster Phase

The post-disaster phase involves rehabilitation, reconstruction and resettlement. Activities here include:

- Continuation of restoration of utility services.
- Reconstruction of infrastructural facilities.
- Construction of permanent structures for accommodation.
- Promotion of self-reliance and income generating activities, e.g. agricultural production package.

The document has been divided into four main sections which give appropriate information on: Disasters in Ghana and Hazard Mapping; Education, Training and Research; Emergency Response and Relief Management; Rehabilitation, Resettlement and Reconstruction to the Continuum.

The Plan highlights on hazard mapping as a prelude to vulnerability and risk assessment while the aspect on education and training provides information for general public awareness creation, skills acquisition to facilitate risk reduction, and preparedness planning. Emergency response and relief management recommend the activation of Emergency Operations Centres for collation and sharing of information for timely and co-ordinated response. At the rehabilitation, resettlement and reconstruction to the continuum stage, the affected communities are assisted to return to self sustenance.

This NDMP will be supported by the National Standard Operating Procedures and the National Contingency Plan.

1.0 INTRODUCTION

This National Disaster Management Plan (NDMP) which has been prepared by the National Disaster Management Organisation (NADMO) and its stakeholders, catalogues studies and activities that have to be carried out by various responsible agencies for the purpose of ensuring effective disaster management in Ghana.

Until September 1996, when the National Disaster Management Organisation (NADMO) was formed, disaster management in Ghana was not based on any scientific and co-ordinated approach.

NADMO was established by ACT 517 of 1996 with the responsibility to manage disasters and similar emergencies in the country. Its mandate includes the drawing of plans to prevent disasters or mitigate their effects on residents in Ghana, to coordinate activities before and during emergencies as well as ensuring post disaster rehabilitation, resettlement and reconstruction.

The Government's action to establish NADMO was motivated by the United Nation's declaration of 1990-1999 as the International Decade for Natural Disaster Reduction (UN/IDNDR). The Decade's goals were to increase worldwide awareness and to foster disaster prevention and reduce the risk of natural disasters through the widespread application of science and technology. The National Disaster Management Plan has been formulated on these goals with the main objective of ensuring effective management of disasters in a more scientific, coordinated way and timely manner.

The NDMP has been prepared to cover both natural disasters and anthropogenic (man-made) disasters that occur in Ghana. The plan clearly outlines the tasks to be performed by organisations/institutions and individuals for identified disaster types. These tasks cover all aspects of disaster management, namely: prevention, mitigation, preparedness, emergency response, relief and recovery.

The method adopted is in line with known best international practices where emphasis is placed on scientific studies in hazard mapping, hazard monitoring, vulnerability and risk assessment, forecasting and prediction where possible. The other main activities are hazard/disasters awareness creation, public education, training, technology transfer, research and development, capacity building and simulation exercises for all the disaster types.

For the NDMP to be effective both on short and long term bases, the following should be seriously considered:

- There should be an effective policy as well as administrative support from the government.
- NADMO should be able to coordinate effectively and secure inputs in the administration of the Plan.
- There should be established a strategic stock, and a Disaster Management Fund or scheme of financing disaster management, especially, for relief and reconstruction.
- The various agencies that provide data/information and collaboration should be adequately trained and resourced by the government.
- The Plan shall be reviewed every five years.

1.1 VISION

The Disaster Management Vision of the Republic of Ghana is to reduce the risk of people, especially the poor and disadvantaged from the effects of natural, environmental and human induced hazards by coordinating the resources of Government Institutions and Non-Governmental Agencies and the Private Sector, and developing the capacity of individuals and Communities on the Prevention, Preparedness, Response and Recovery from disasters.

1.2 MISSION

The Mission of the National Disaster Management Organisation (NADMO) is to manage disasters by coordinating the resources of government institutions and non-governmental agencies, develop the capacity of voluntary community-based organisations to respond effectively to similar emergencies and improve livelihood through social mobilisation, employment generation and poverty reduction projects

1.3 OBJECTIVES

The objectives of the National Disaster Management Plan (NDMP) are;

- To strengthen the Institutional capacity of NADMO and its stakeholders to perform effectively.
- To implement disaster management programmes at national, regional, district and zonal levels.
- Pursue the vision and goals of disaster management.
- Create a cohesive and well coordinated programming framework incorporating Government Agencies and Departments, Non-Governmental Organizations and the Private Sector.
- To develop the capacity of communities on Prevention, Preparedness, Response and Recovery from disasters.

1.4 STRATEGIC GOALS OF THE PLAN

The strategic goals of the Plan are:

- Professional approach to disaster management system
- Mainstreaming disaster risk reduction
- Strengthening institutional mechanisms for disaster management
- Empowering communities at risk to disasters
- Strengthening emergency response systems for handling natural and man-made disasters
- Developing and strengthening networking.

2.0 DISASTER MANAGEMENT CONCEPT IN GHANA

The model for disaster management in Ghana is based upon risk reduction and emergency response.

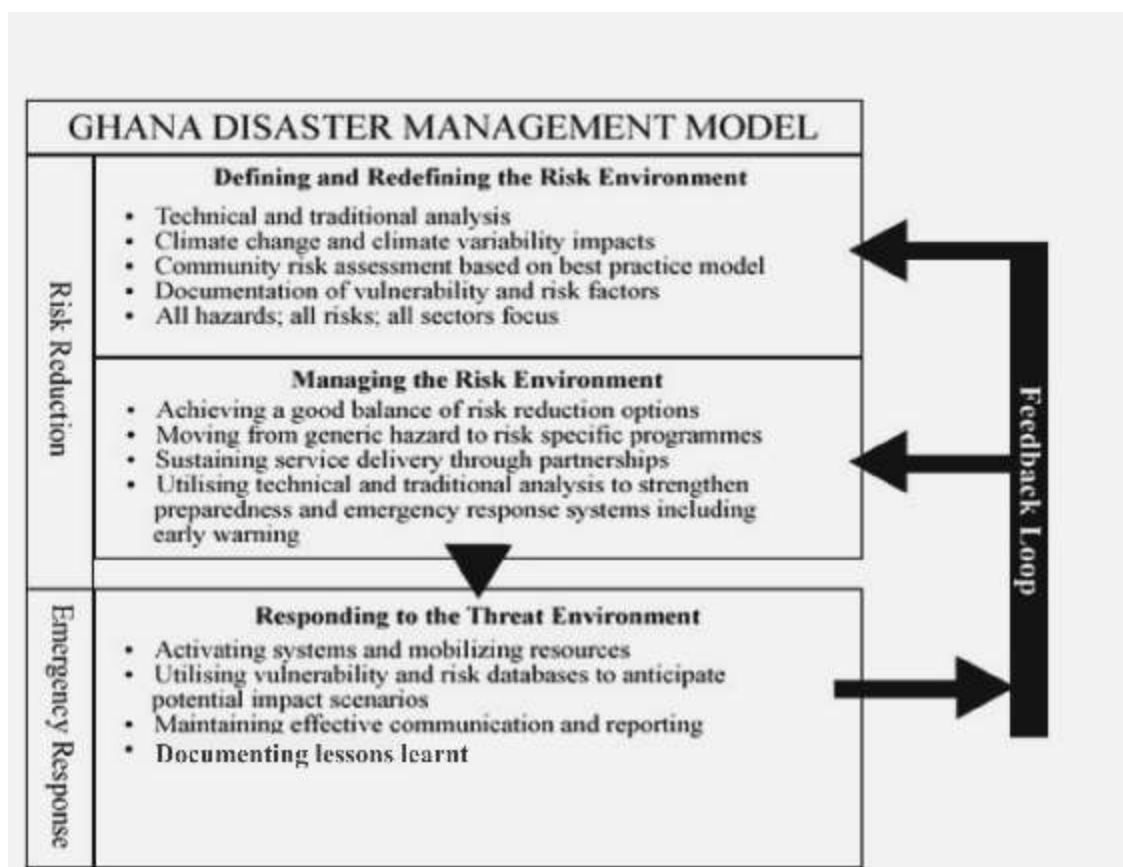
Risk reduction covers:

- Identifying and reducing the disaster risks in Ghana
- Responding to the threat posed by disasters

Emergency response covers responding timely to the consequences of disasters.

Figure 1:

Disaster Management Model for Ghana



2.1 Defining the Risk Environment

This element of the model *figure 1* promotes the use of scientific analysis as the basis for accurately determining the future risk environment relative to all hazards, all sectors and all geographical areas.

Defining the risk environment creates knowledge of the interaction of the hazard and the elements at risk (community) and is conducted in a structured and analytical process. Defining the risk environment involves both the traditional and formal hazard analysis, and includes the following steps:

- Understanding the social, political and community environment (Establishing the context)
- Establishing what are the likely threats (Identifying hazards and risks)
- Understanding the likelihood and consequences (Analyze the risks)
- Rank risks in priority (Evaluate risks)
- What can be done to eliminate, reduce or manage risk (Identify risk treatment strategies).

2.1.1 Hazard Analysis

Hazard Analysis is the process of identification of events that lead to harm or loss. It may be undertaken using traditional or formal methods.

Hazards may be represented using Geographic information System (GIS) and modern mapping methodologies, and must include details of the effects to communities of the hazard.

2.1.2 Vulnerability Analysis

In order to understand the effects of hazards on communities, it is important to conduct a vulnerability assessment. This should be completed in terms of:

- **elements within the community** (e.g. women, children, aged and the poor),
- **support elements to the community** (e.g. lifelines; electricity, transportation links, community services); and
- **livelihood factors within the community** (e.g. food, accommodation, farm activity, industry)

2.1.3 Risk Treatment

Risk Treatment options involve ranking risk in priority, and addressing vulnerability by determining actions that reduce or eliminate risk or by determining mitigation programmes for communities.

2.1.4 Managing the Risk Environment

Managing risk involves ensuring that Prevention, Preparedness, Response and Recovery programmes are multi-hazard focused and that there is a move from being hazard generic in nature to risk specific.

This will enable communities to better understand their changing risk environment and thus become more resilient through proactive risk reduction efforts.

Traditionally, mitigation programmes were viewed as engineering solutions to eliminate risk, but it is now accepted that all activities undertaken to eliminate or reduce risk are “mitigation” strategies (e.g. community education and awareness, planning activities, development of early warning systems). This includes activities previously described as the PPRR Model (Prevention, Preparedness, Response and Recovery). Activities in developing response or recovery systems are included as legitimate mitigation activities.

2.1.5 Responding to the Disaster Environment

This involves responding to an actual threat situation. It helps disaster management officials to clearly articulate the difference between disaster risk reduction and emergency response and how accurately defining risk environments can influence and enhance emergency response systems and decisions.

Not all hazards can be prevented (e.g. earthquakes) and not all risks can be eliminated or minimized (e.g. windstorms). Therefore a response to an emerging threat or an event that has happened is necessary. In this case, response and recovery systems that have been developed in managing the risk environment are activated as needed to respond to the disaster. Such response may include:

- Warning Period (Alert and activation).
- Disaster Onset (Response),
- Post Disaster Period (Relief, Recovery and Rehabilitation).

Disaster Risk Reduction Strategies

A collaborative approach to risk reduction efforts within Government, NGOs and private sector is viewed as being the key to achieving sustainable all hazards risk reduction interventions across the whole country. The strategies are summarized below:

Advocacy

Awareness creation among Political, Senior Policy and Government Department Officials, Media and Academic Institutions is a priority strategy for building knowledge and understanding on the benefits of disaster risk reduction and the roles these organizations play in implementing programmes.

Policy and Planning Reform

A significant review of disaster management and development planning policy should be undertaken periodically to ensure that they facilitate mainstreaming and promote a comprehensive risk reduction culture.

Capacity Building

This strategy is aimed at ensuring that all stakeholders involved in disaster management know t h e i r roles and responsibilities at all levels. They should be educated and trained to ensure they can handle effectively risk reduction as well as emergency response functions. A national education and training curriculum must be developed to ensure that Disaster Management Committees and all response Agencies receive training to ensure they understand and can fulfill their functions effectively.

2.1.6 Planning Frameworks

Disaster Management planning at all levels is to ensure that Disaster Management Plans accommodate disaster risk reduction and emergency response at all levels.

SECTION ONE

3.0 DISASTERS IN GHANA AND HAZARD MAPPING

3.1 DISASTER IN GHANA

Disasters that may occur in Ghana include:

- Pest and Insect Infestation.
- Disease epidemics
- Fires.
- Hydrometeorological
- Geological
- Man-made

3.1.1 Pest and Insect Infestation Disasters

Hosts which can be affected by pests and insects are:

- Crops and timber : Armyworm/caterpillar/locust
Grasshopper, Larger Grain Borer; Fruit Flies, Cape
Saint Paul Wilt Disease, Black pod Disease
- Livestock and poultry : Swine Fever, Avian Flu , Rheinder Pest, Anthrax
- Food storage (stored food) : Larger Grain Borer, Grain Weevil

3.1.2 Disease Epidemic Disasters

The three main disease epidemics that have been identified in Ghana are:

- Cerebro-Spinal Meningitis (CSM)
- Cholera
- Yellow Fever.

Areas of high incidence of Cerebro-Spinal Meningitis (CSM), Yellow Fever, Cholera and other diseases shall be mapped according to districts and assessment of the burden of diseases shall be done for the development of national, regional and district data bases as indicated in Table 1.

Table 1: Geographical Areas of Maximum Incidence of Diseases

Disease type	Areas of maximum occurrence	Period of occurrence
CSM	Northern sector of the country (i.e. Upper West, Upper East, Northern, Northern Volta & Brong Ahafo Regions)	November – March
Cholera	Northern and Southern sectors (mainly coastal areas)	May – July, September-November
Yellow fever	Northern sector (i.e. Upper West, Upper East & Northern Regions) but can occur in other parts	Not seasonal

3.4 Fire Disasters

Fires disasters include:

- Domestic fires
- Industrial/commercial fires
- Bushfires
- Fires caused by lightning.

The degree and type of risks for domestic, industrial and bushfires are shown in Tables 2 -5

Table 2: Location of High Risk Fire Disasters - Domestic and Industrial

Locations	Source of Risk
Military installations	Ammunition.
Petroleum depots	Low flash point products (<i>e.g.</i> petrol or any combustible liquid).
Mines	Volatile chemicals and hazardous materials (<i>e.g.</i> gases, alcohol).
Heavy industrial premises	Chemicals and hazardous materials
Hospitals	Volatile chemicals, electrical faults
High rise buildings/structures	Lightning, difficulty in evacuation.
Research centres/laboratories	Chemicals and hazardous materials
Ghana Atomic Energy Commission	Dangerous chemicals, radioactive materials, contaminated materials (<i>e.g.</i> food, animal feed, sick animals)
Airports/seaports	Crashes resulting in fire

Table 3: Location of Medium Risk Fire Disasters - Domestic and Industrial

Location	Source of Risk
Warehouses	Inflammable materials and chemicals, electrical faults.
Converging centres (e.g. markets, stadia, conference/entertainment halls)	Open fires, structures collapsing electrical faults.
Educational centres/institutions	Chemicals, electrical faults.
Bulk power supply point stations	Lightning strikes, electrical faults
Densely populated areas	Electrical faults, open fires
Light industrial areas	Faulty electrical gadgets, lightning, inflammable materials electrical faults
Residential Areas	Faulty electrical gadgets, gas leakages, electrical faults

Table 4: Location of Low Risk Fire Disasters - Domestic and Industrial

Location	Source of Risk
Castles/forts	Electrical faults
Special Homes (e.g. Children / Aged)	Electrical faults, open fires
Offices (e.g. Ministries)	Electrical faults
Old un-maintained buildings	Electrical faults, gas leakage, burst pipes
Household	Electrical faults, gas leakage

Table 5: Mapping of Bushfire Risk Areas

A. High risk Areas	Period of Occurance
Northern Region, Upper East Region, Upper West Region	December - April
B. Medium Risk Areas	
Brong Ahafo, Ashanti Region, Eastern Region, Volta Region	December - April
C. Low Risk Areas	
Greater Accra Region, Central Region, Western Region	December - April

3.5 Hydrometeorological Disasters

Hydrometeorological disasters include:

- Rainfall/runoff flooding
- River/lagoon flooding
- Tidal flooding
- Man-made flooding (dam burst, blocking of river courses *etc*)
- Rain/wind storm
- Drought.

Table 6 shows the broad geographical distribution of the major hydrometeorological disaster areas and period of occurrences in the country.

Table 6: Geographical Distribution of Hydrometeorological Disasters

<i>Disaster Type</i>	<i>Areas of Occurrence</i>	<i>Period of Occurrence</i>
Floods Rainfall – runoff floods	Ashanti, Brong Ahafo, Central, Eastern, Greater Accra, Northern & Volta Regions Upper East & Upper West Regions	May – July & September – November
Man-made floods (Dam-burst spillage)	Greater Accra, Northern, Upper East, Upper West & Volta Regions	January - December
Tidal waves	Central, Greater Accra, Volta & Western Regions.	August - October
Rain/wind storm	Central, Eastern, Northern, Upper East, Upper West, Mid/Northern Volta & Western Regions	March – May June - August
Drought	Greater Accra, Northern, Upper East, Upper West & Volta Regions	November – April & May – October (when the rains fail)

3.6 Geological Disasters

The following are the major geological disasters that are of concern in the country:

- Earthquakes
- Mass movements (e.g. Landslides, rock falls, liquefaction etc)
- Soil erosion
- Expansive soils
- Coastal erosion
- Ground subsidence.

The vulnerable areas of the various geological disasters in the country is presented in Table 7.

Table 7: Geographical distribution of Geological Disasters.

<i>Disasters Types</i>	<i>Vulnerable Areas</i>
Earthquakes	Greater Accra, Central, Eastern, Western & Volta Regions
Landslides	Eastern (Akwapim Ridge), Ashanti (Mampong Scarp) & Northern Regions (Gambaga Scarp) Volta (Kabakaba Hills)
Soil erosion	Widespread (mostly in Ashanti, Brong Ahafo, Central, Eastern, Volta & Western Regions)
Expansive soils	Greater Accra, Ashanti, Central, Northern, Volta & Western Regions
Coastal erosion	Coasts of Ghana: Volta (Dzita), Greater Accra (Ada), Central (Cape Coast – Elmina) & Western (Shama) Regions
Ground subsidence	Greater Accra, Ashanti & Western Regions, particularly in mining areas

4.0 HAZARD MAPPING

Hazard mapping in disaster management is a process of identifying and documenting geographic information on hazards and their potential degree of risk. For hazard mapping to be effective, the exercise shall be carried out in a holistic manner.

4.1 Objectives Of Hazard Mapping

The objectives of hazard mapping are:

- To produce maps indicating ecological and geographical locations of hazards that would guide in formulating policies and legislation regarding disaster management nation-wide. It shall also serve as a guide for disaster management, *i.e.* prevention, mitigation, preparedness, emergency response, rehabilitation, resettlement and reconstruction.
- To assess vulnerability/risk.
- To map safe havens

4.2 Vulnerability/ Risk Mapping

The process involves systematic assessment of elements at risk and their degree of vulnerability. These include the following:

- Communities at risk
- Utility Services & Lifeline facilities - (water supply, communication, electricity)
- Stored food ,Livestock and Poultry
- Structures and Infrastructure (Roads, Railways, Hospitals, Schools, Banks, Police Station , Ports, & Harbours)
- Crops and timber.

The mapping process shall be extended to cover hazards which may affect life and property.

4.3 Mapping Of Safe-Havens

This will require the identification of open spaces at vantage and safe points in and around communities which could be used as safe-havens in times of emergencies. Such areas include stadia football parks, church premises, schools, mosques and other open spaces.

Activities here will also include the following:

- Preparation of topographic maps and site plans of reserved open spaces within and around communities.
- Reporting on land ownership and socio-cultural surveys.

4.4 Institutional Arrangements For Hazard Mapping

Since disaster management has multi-sectoral and multi-disciplinary factors, it requires an integrated approach in its planning and implementation. The relevant government establishments will be tasked with the responsibility of undertaking and overseeing these activities as specified in **Table 8**. It shall be ensured that an effective co-operation and networking relationships exist among the respective lead and collaborating agencies.

Table 8 Hazard Mapping Activities, Inputs and Responsible Agencies

Disaster Type	Activity	Inputs	Lead Agency(ies)	Collaborating Agencies
Pest & Insect Infestation	National survey on pest and insect outbreaks	Consultancy Services	MOFA (PPRSD, AESD, VSD)	GHS, COCOBOD, CSIR, BNARI, EPA, FDB, Universities, NADMO
Disease (Epidemics)	Mapping of geographical areas of high disease incidence	Consultancy Services	GHS,	NMIMR, NGOs, WHO Universities (College of Health Sciences), NADMO
Fires	<p>1. Mapping of high, medium and low bushfire prone areas</p> <p>2. Preparation of thematic maps on fire hazards</p> <p>3. Preparation of maps showing the location of forest reserves in the country.</p> <p>4. Preparation of maps showing the location of food, cash crops and silos.</p>	<p>Geographic Information System (GIS)</p> <p>Base Maps, Consultancy Services</p> <p>Base Maps, Consultancy Services</p> <p>Base Maps, Consultancy Services</p>	<p>GNFS, Forestry Commission</p> <p>Survey Dept.,</p> <p>Forestry Commission, Survey Dept.</p> <p>Survey Dept., MOFA,</p>	<p>TCPD, Ministry of Water Resources, Works & Housing (MWRWH) Dept. of Game & Wildlife</p> <p>Geography Dept. UG-Legon, GNFS, NADMO</p> <p>EPA, MMDAs, GNFS, NADMO</p> <p>MMDAs, COCOBOD</p>
Hydro-meteorological	<p>1. Mapping of flood prone areas</p> <p>2. Reading and recording of rainfall & water levels</p> <p>3. Preparation of drainage master plans</p> <p>4. Preparation of Flood Insurance Risk Maps (FIRM)</p> <p>5. Installation of early warning systems</p>	<p>1. Base maps, Consultancy Services</p> <p>2. Rain gauges & automatic water level recorders</p> <p>3. Consultancy Services</p> <p>4. Consultancy Services</p> <p>5. Consultancy Services</p>	<p>GMet</p> <p>GMet, Hydrological Services Department, WRC</p> <p>Hydrological Services Department,</p> <p>National Insurance Commission</p> <p>Gmet, Hydrological Services Department</p>	<p>T&C PD, MMDAs, Water Research Institute (CSIR), Dept. of Urban Roads, Forestry Dept, EPA</p> <p>MMDAs, NADMO</p> <p>MMDAs, T& CPD, GHA, NADMO</p> <p>Hydrological Services Department, MMDAs, NADMO</p> <p>MMDAs, WRC, NADMO</p>
Geological	<p>1. Preparation of geological hazard maps</p> <p>2. Monitoring of geological hazards</p>	<p>Base maps Consultancy Services</p> <p>Seismographs Consultancy Services</p>	<p>Geological Survey Department, /NADMO</p>	<p>MMDAs, Survey Dept., CSIR, Ministry of Lands & Forestry, Universities, T&CPD, Mines Dept., EPA</p>

SECTION TWO

5.0 EDUCATION, TRAINING AND RESEARCH

Appropriate syllabi, education and training materials shall be developed and used to educate and train various categories of people to be able to engage in prevention, preparedness and response activities related to all type of disasters applicable in Ghana as shown in **table 9**.

Research shall be conducted into the various disaster types with the view to assessing their socio-economic effects and also for updating data for education and training purposes. Agencies for research shall include District Assemblies, MDAs, Universities, NGOs and other relevant agencies.

Table 9 Institutions Identified for Education and Training

Target Group	Topics	Inputs	Responsible Agencies
Political leaders, decision-makers, opinion leaders and development planners, teachers and general public, especially vulnerable groups.	<ul style="list-style-type: none"> • Types of disasters, causes, effects, prevention and mitigation and response • Information on disaster prone areas • Public response to disasters when they occur • Roles and responsibilities of stakeholders • Contingency planning • Legislation and regulations 	Educational materials and consultants	NADMO, Ministry of the Interior, Information Services Department, Ghana Education Service, Assemblies, Security Services, Religious Bodies, Ghana Health Service, Opinion Leaders etc.
Train –the –trainers: agriculturists, planners, medical personnel, architects, engineers, geologists, seismologists, security personnel, media practitioners, selected members of the community, teachers etc.	<ul style="list-style-type: none"> • Disaster types and their characteristics • Risk reduction and response • Search ,rescue and evacuation of victims • Relief , Recovery and reconstruction • Needs assessment (before, during and after disaster) • Disaster evaluation and reporting • Restoration of essential services • Medical Response • Exercises and Drills 	ogistics Training materials Consultants	NADMO, Ministry of the Interior, Information Services Department, Ghana Education Service, Assemblies, Security Services, Religious Bodies, Ghana Health Service, Opinion Leaders etc.

SECTION THREE

6.0 EMERGENCY RESPONSE AND RELIEF MANAGEMENT

6.1 EMERGENCY RESPONSE

These constitute immediate actions that have to be taken to meet the requirements of the victims in the event of man-made and natural disasters . These include the provision of food, water, shelter, clothing, counselling, medical care and security.

6.2 RELIEF MANAGEMENT

6.2.1 General Considerations

The following are to be noted in a food aid programme:

- Food aid is given following disasters which have significant effect on food crops, stocks or marketing systems or the inability of families to prepare food.
- Food aid is provided free of cost to the beneficiary for a minimum period of three (3) to four (4) months.
- Food items differ with climatic and geographical conditions. Therefore, the victims in the southern sector of the country may require food items different from those in the northern sector.

6.2.2 Food Package

The essential food package includes:

- Cereals (rice, maize, *etc*)
- Proteins (beans, fish)
- Supplement (salt, sugar)
- Condiment (pepper, tomatoes).

6.2.3 Ration of Food and Water

The estimated food rations and scales for issuing food items are shown in **Tables 10 & 11** respectively. Water requirements are as shown in **table 12**

6.2.4 Strategy for Distribution of Food Items

Distribution is based on some or all of the following propositions:

- A family/household size on the average is up to eight (8) people.
- Ten (10) families constitute a community.
- Any additional member to the eight (8) people is entitled to family size ration.
- Food items are allocated to each member of the family.
- newly born baby is also entitled to a full ration (plus supplementary ration).
- Other condiments are to be provided.

Table 10 Food Rations

<i>Item</i>	<i>Ration per person per month (kg)</i>	<i>Qty for 1,000 persons per month (kg)</i>	<i>Qty for 1,000 persons per month in 50kg bags</i>
Rice	12.5	12,500	250 bags
Maize	12.5	12,500	250 bags
Gari	12.5	12,500	250 bags
Sorghum	12.5	12,500	250 bags
Beans	1.66	1,660	33.2 bags
Millet	12.5	12,500	250 bags
Groundnut	1.66	1,660	33.2 bags
Sugar	0.25	250	5 bags
Salt	0.25	250	5 bags
Canned fish	(1.66 tin)	1,660	10 cartons
Cooking Oil	0.75 (<i>ltr</i>)	750 (<i>ltr</i>)	83 cartons 4 bottles

Table 11 Scales of Issue of Food Items

<i>Item</i>	<i>Scale</i>
Cereals	10 – 12 kg/person/month
Beans, groundnut	1.66 kg/person/month
Cooking oil	1.5 (<i>ltr</i>)/person/month
Canned/tinned fish	48 tins/person/month

6.2.5 Water Requirements

The distribution of water should be according to particular situations as outlined in Table 13.

Table 12: Water Ration

<i>Situation/Facility</i>	<i>Ration per person per day (litres)</i>	<i>Ration per person for 30 days (litres)</i>
(Normal) Household	20	600
Clinic/hospital	30	900
Camp	20	600

6.2.6 Institutional Collaboration

Institutions identified to perform specific duties during emergencies are as indicated in **table 13**

Table 13: Institutional Collaboration

Action to be Taken	Collaboration Institutions	Lead Institution
Identification and registration of victims	NADMO, NGO Consortium, District Assemblies, WFP, GRCS	NADMO
Provision of cooked food	NADMO, Women's Organizations	NADMO
Counselling	Religious Organisations, NGOs, GHS, GRCS, UNICEF, NADMO	GHS
Provision of dry rations	NADMO, CRS, ADRA, NGO Consortium, GRCS, WFP.	NADMO
Provision of non-food items e.g. tents, blankets, clothing	NADMO, NGO Consortium, UNHCR, UNICEF, WFP	NADMO
Provision of fire fighting equipment	GNFS, NADMO, Ghana Armed Forces, VALCO, TOR, GPHA, GCAA, GWCL, PWTOA, NGO Consortium,	GNFS
Provision of Potable water	GWCL, PWTOA, GAF, CWSA, MMDAs, Water Resources Commission, UNICEF, NADMO	GWCL
Provision of mobile water purifiers	NADMO, MMDAs, GAF, GRCS, EPA, CWSA, GWCL, UNICEF	MMDAs
Maintenance of sanitation	Waste Management Services, CWSA, MMDAs, NADMO	MMDAs
Construction of toilets	48 Engineer Regiment, Department of Rural Housing, NADMO	Department of Rural Housing
Training in the construction of provisional field toilets, etc	NADMO, 48 Engineer Regiment, Department of Rural Housing, Local Communities World Vision International	Department of Rural Housing
Waste Disposal	Waste Management Services, CWSA, MMDAs, EPA, NADMO	MMDAs
Provision of warehouse and other storage facilities	RCCs, MMDAs, GAF, Private Warehouses, WFP, etc	RCCs
Public education & information dissemination	NADMO, MMDAs, Media (Print & Electronic), GES, ISD, NCCE, UNICEF, OCHA	NADMO
Provision of first aid/medical care	GHS, GRCS, St John Ambulance, WARA, GAF, Health Institutions, WHO, UNICEF	MOH
Logistics support	EU, UNDP, other Bilateral & Multilateral Agencies, MMDAs, NGOs, NADMO	NADMO
Control of pest & insect infestation	MOFA, MMDAs, DVGs, COCOBOD, NADMO,	MOFA
Protection	Min. of Interior, Security Agencies, GRB, DOVVSU, CSO's, GRCS, MOWAC, DSW, UNICEF, UNHCR	Ministry of the Interior
Emergency Sheltering	NADMO, MMDAs, Religious Bodies, GES, UNHCR	NADMO
Search, Rescue and Evacuation	GNFS, Security Agencies, GRCS, GPRTU, DVGs, NAS, GHS, NADMO,	NADMO, GNFS
Iodine prophylaxes	NAMDO, GHS, GAEC, WHO	GHS
Food restriction	MOFA, GAEC, MMDAs, FDB, WFP, NADMO	MOFA
Decontamination	GNFS, GAEC, MMDAs, NADMO	GNFS, NADMO
Relocation and resettlement	NADMO, Ministry of Finance, MMDAs, UNHCR	NADMO

6.2.6 Non-Food Items

Non-food items include blankets, mattresses, cups, cutlery, soap, plastic cups, bowls, buckets, toilet rolls, sanitary pads, *etc.* Their distribution should follow the criteria listed below:

- Each member of the family could be given items such as blankets, plastic cups, plates, spoons; soap, foam mattress, toilet rolls, clothing and sanitary pads.

- The items below are distributed as follows:

(i) Plastic jerry cans (5 gallons)	-	1 to a family
(ii) Cooking utensils	-	1 set to a family of at least 3
(iii) Lantern	-	1 to a family
(iv) Bowl/bucket	-	1 each to a family of 3 and above
(v) Water tanks (1,200ltr)	-	1 to a family
(vi) Torch flash light	-	1 to a family
(vii) Mosquito net	-	according to needs
(viii) Clothing	-	according to needs and to individuals
(ix) Soap	-	2 bars per person per month
(x) Foam mattress	-	1 to each member of family
(xi) Fuel (charcoal, kerosene, firewood)	-	according to needs
(xii) Dustbins – medium size	-	1 to a family
(xiii) Dustbins – container	-	1 to a community
(xiv) Coal pot/stove	-	1 to a family
(xv) Bin liner (polythene bag)	-	1 per day to a family
(xvi) Dry cell battery	-	4 pairs per family

SECTION FOUR

7.0 REHABILITATION, RESETTLEMENT AND RECONSTRUCTION TO THE CONTINUUM

7.1 INTRODUCTION

Disasters normally have a long-term effect on the victims and the environment in general. In some instances, the victims become traumatised and helpless. Affected areas might be declared disaster zones because they are vulnerable to future disasters. In such cases, constructing and resettling the affected communities become necessary.

In all phases of rehabilitation, resettlement and reconstruction, it is important that:

- The culture of the people is taken into consideration.
- Counselling is considered a vital function.
- Rehabilitation, resettlement and reconstruction are made practicable.
- Volunteers at the zonal and district levels as well as all stakeholders work as a team in applying solutions proposed.

Planning for rehabilitation, resettlement and reconstruction is required for all the disaster types on immediate, medium and long-term bases. These operations would entail the improvement of public utilities and provision of building materials like roofing sheets, plywood and timber for building semi-permanent and/or permanent structures. Heavy-duty equipment and other tools shall be identified during the pre-disaster phase to facilitate timely implementation of constructional projects for the victims.

7.2 GENERAL ACTIVITIES

The following services shall be provided:

- Support services such as appropriate technology transfer and access to economic support in aid of the disaster victims.
- Medical services and rehabilitation, resettlement and reconstruction materials.
- Counselling services started in the response period shall continue for several weeks, or even months.

Health personnel, religious groups, counsellors and all other known governmental and non-governmental agencies that have the ability and capability to help with rehabilitation, resettlement and reconstruction will also be mobilised to provide services to the victims of the disaster.

Disaster Volunteer Groups (DVGs) and construction personnel of the state Security Agencies, the Public Works Department (PWD), the Department of Rural Housing and other state, or private construction companies who are well disposed to undertake this specialised task efficiently will be mobilised to undertake the works.

Plans, guidelines and assessment made by the team of experts shall be taken into consideration or adopted for implementation in the resettlement and reconstruction exercise. Reference should be made to such guidelines in future. Any reconstruction should be in accordance with the approved building regulations, and only in places properly zoned for rehabilitation by the Town and Country Planning Department in consultation with the MMDAs.

In cases where resettlement is required, use shall be made of:

- Stockpile of construction materials, food, clothing and medical supplies.
- Transport, communication and infrastructure (e.g. access roads and boats to afford easy accessibility to schools, markets, farms, hospital, clinics and health centres).

7.3 ACTIVITIES FOR SPECIFIC DISASTER TYPES

Specific disasters, due to their peculiar nature, shall require particular inputs and activities to alleviate their impact on the people and the environment.

7.3.1 Pest and Insect Infestation Disasters

In order to encourage victims to grow their own food as well as keep their livestock during the rehabilitation phase, there should be provision of agricultural package, particularly, for Pest and Insect Infestation disasters. The following inputs are therefore important: planting materials, agro-chemicals, farmlands and replacement of lost livestock by providing breeding stock. In addition, the victims must be educated on the safe use of agro-chemicals.

The Ministry of Food and Agriculture will inspect all the chemicals and other items for restarting farms to ensure that they satisfy the relevant standards. The Environmental Protection Agency (EPA) and other research agencies should also extend their services to such places.

Chemicals coming through all entry points of the country must be passed through the relevant tests.

In order to be able to resettle and reconstruct, the following shall be carried out by the relevant ministries and agencies:

- Elimination of diseased animals and plants and their products where necessary.
- Provision of breeding stock to replace the destroyed ones.

- Mobilisation of support for the affected farmers and other members of the community.
- Arrangement for tools and protective clothings for affected farmers.

7.3.2 Disease Epidemic Disasters

Rehabilitation, resettlement and reconstruction in Disease Epidemic Disasters entail the following:

- Management of complications of diseases in the affected individuals.
- Restoration of the environment, disinfection of water bodies and environmental sanitation.
- Construction of facilities in endemic areas to absorb the overflow of patients from the regular health facilities where necessary.
- Re-stocking of medical supplies, equipment and protective clothing.
- Improvement in infrastructure generally, and rationalising the design of architectural structure with the aim of minimising recurrence of such epidemics.
- Equipping regional and district hospitals to manage referral cases.
- Provision of counselling services where needed.
- Ensuring enforcement of bye-laws for the use of approved routes for entering the country.

7.3.3 Fire Disasters

The Ghana Water Company Limited (GWCL), in collaboration with the Ghana National Fire Service (GNFS) shall install as many hydrants as possible and map them out as part of their corporate planning. The development and use of fire-proof materials should be encouraged.

Electricity providers must incorporate into their electrical systems equipment which can detect faults and terminate supply.

In the case of fires which may engulf large segments of communities, the rehabilitation, resettlement and reconstruction plan for other disaster types mentioned earlier will apply.

7.3.4 Geological and Hydrometeorological Disasters

For Geological and Hydrometeorological disasters consequences are severe in terms of deaths, injuries and displacement of persons. Destruction is always in larger geographic areas involving infrastructure and utility services. Reconstruction will be capital intensive and will also require specialised agencies and equipment.

The following actions would be required:

- Disaster prevention volunteer corps in the affected communities and the relevant agencies should be involved in restoring expeditiously the facilities mentioned above.
- Disaster managers should liaise with development planners, NGOs, UN agencies and other relevant agencies in assessing the scale, scope, extent and requirements for the rehabilitation, resettlement and reconstruction of affected communities.

7.3.5 Man-made Disasters

In Man-made disasters, the appropriate agencies will be mobilised to carry out post-disaster programmes.

It is also noted that the solutions mentioned earlier in the various disaster types are usually employed, as appropriate, to solve the problems of Man-made disasters.

8.0 MONITORING AND EVALUATION

The NDMP is a dynamic document and will be reviewed and evaluated periodically to ensure consistency with national initiatives and Government priorities. Key performance indicators will be monitored and reported annually to assess the progress of the implementation of the plan. The key indicators will:

- Measure the expected outcomes of the Plan.
- Set benchmarks.
- Measure the effectiveness of policies, strategies and programmes and inform policy development.
- Identify Agencies and Departments accountable and responsible for each performance indicator.
- Identify opportunities for improvement that lead to enhancement of the Disaster Management System.

The National Disaster Management Committee will be responsible for monitoring progress of implementation of this plan at the national level. The Regional Disaster Management Committee will be responsible for monitoring at the Regional and District levels.

9.0 FINANCING DISASTER MANAGEMENT

Disaster Management will be funded from the following sources:

1. Government subvention from the consolidated fund to cater for
 - (i) Personnel emoluments
 - (ii) Administrative expenses
 - (iii) Service activities and
 - (iv) Investment activities.
2. Disaster Management Fund to support Prevention, Preparedness, Response and Recovery activities.
3. Monies received from grants, donations and gifts.

10.0 DISASTER MANAGEMENT SYSTEM

The NADMO has the responsibility for co-ordinating national disaster management efforts across all agencies. The disaster management system is based upon the legal mandate given to NADMO in Act 517 of 1996.

In Section 2.2 of the Act the legal mandate include the following;

- Prepare National, Regional and District Disaster Management Plans for preventing and mitigating the effects of disasters.
- Ensure the establishment of adequate facilities for technical training and institution of educational programmes to provide public awareness, early warning systems, and general preparedness for its staff and the general public.
- Ensure that there are appropriate and adequate facilities for the provision of relief, rehabilitation and reconstruction after any disaster.
- Co-ordinate local and international support for disaster or emergency relief services and reconstruction.
- Monitor, evaluate and update Disaster Management Plans.
- Perform any other functions that are incidental to the functions specified above.

10.1 DISASTER MANAGEMENT COMMITTEES

The establishment of Disaster Management Committees at National, Regional and District levels are to ensure effective planning and co-ordination of disaster risk reduction and emergency response management.

10.2 TECHNICAL ADVISORY COMMITTEES

Technical Advisory Committees have been set up to advise on scientific, technical, and implementation issues related to the identified disaster types. The Technical Committees membership are drawn from Ministries, Departments, Agencies, Public Institutions, Private Institutions, Experts, Academia, Research Institutions.

The Technical Committees are on:

- Fire Disasters
- Pest and Insects Infestation Disasters
- Disease and Epidemic Disasters
- Hydro-Meteorological Disasters
- Geological Disasters
- Man-Made Disasters
- Nuclear and Radiological Disasters
- Relief and Reconstruction

10.3 DISASTER MANAGEMENT LEGAL FRAMEWORK

The legal basis for disaster management is derived from:

- The 1992 Constitution of Ghana.
- Act 517 of 1996 which established NADMO with the legal mandate for co-ordinating national disaster management efforts across all agencies.

Regulations shall be developed and promulgated to provide detailed requirements for Prevention, Preparedness, Response and Recovery from disasters.

Guidelines on best practices for the management of natural and man-made disasters at all levels shall be prepared.

10.4 DISASTER MANAGEMENT PLANS

In addition to this national plan regional ,district , zonal and institutional level plans will be developed compatible with the national one to deal with specific disasters applicable to the regions, districts, zones and Institutions in Ghana.

10.5 DISASTER MANAGEMENT ACTION PLANS

Action plans shall be developed for effective implementation of disaster management strategies.

The following thematic areas shall cover ed:

- **Reviewing Legal frame work for disaster management in Ghana:** Act 517 of 1996 shall be reviewed to give NADMO both co-ordinating and regulatory functions. Supporting regulations and guidance documents shall be developed.
- **Strengthening Institutional Capacity Building:** Develop professional and competent Disaster Management work force that demonstrates effective leadership nationally and locally. Build national capacity to educate and train all stakeholders (decision makers, response organizations, media, etc) as appropriate. Develop a monitoring and evaluation system to enable the effectiveness of the education and training strategy to be measured.
- **Empowering Communities at Risk to Disasters:** Develop and establish standard assessment procedures to identify communities and household risk levels. Empower community response teams to undertake prevention, emergency response and recovery activities.
- **National Level Co-operation**

NADMO shall co-operate with other response organizations such as Ghana National Fire Service , Ghana Police Service , Ghana Armed Forces , Ghana Health Service, Ministry of Food and Agriculture (MOFA), Ghana Meteorological Agency (GMet), National Ambulance Service(NAS), Ghana Atomic Energy Commission, (GAEC), Council for Scientific and Industrial Research (CSIR), etc. through networking for effective disaster reduction and emergency response programmes .

- **International Level Co-operation**

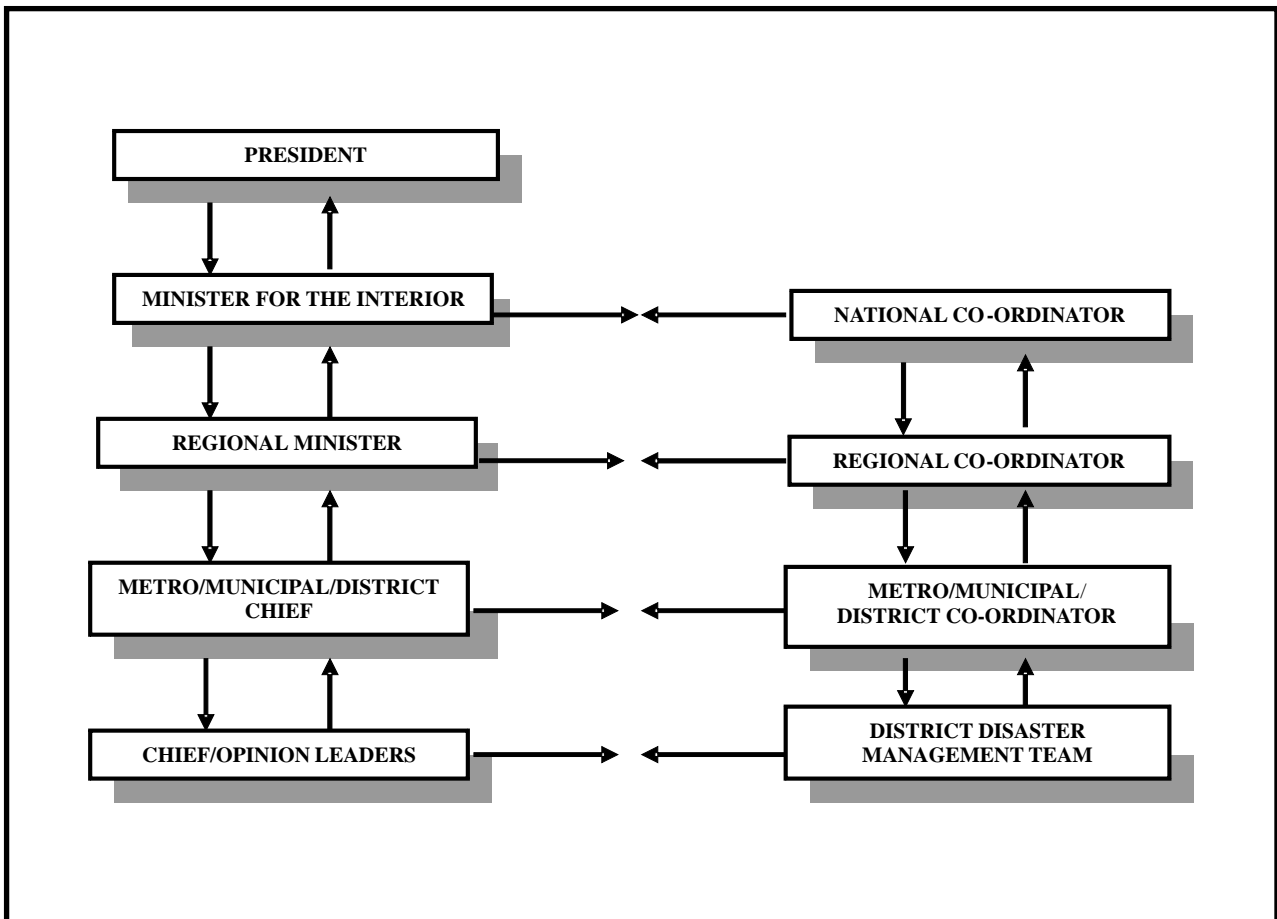
NADMO shall maintain relations with relevant International organizations such as the UN system, NGOs, FEMA, and the International Civil Defence Organisation (ICDO), co-operate and liaise with these organizations on matters of disaster management.

- **Response Systems**

Response systems to be put in place shall cover the following;

- ❖ Establishment of National, Regional and District Emergency Operational Centres (EOCs) with the requisite technical, technological and physical facilities to effectively respond to a declared emergency or disasters.
- ❖ Establish and operate National Disaster Information Centres with internet connection to all districts.
- ❖ Establish and operate effective community alert systems.
- ❖ Establish and operate search and rescue mechanisms.
- ❖ Develop and operate emergency response plans for all disaster types applicable to Ghana.
- ❖ Develop and operate post-disaster recovery and reconstruction mechanisms.

Organogram of Disaster Management in Ghana



GLOSSARY

Accident : Any unintended event, including operating errors, equipment failures or other mishaps, the consequences or potential consequences of which are not negligible from the point of view of human health and safety and or environmental protection.

Climate Change: A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.

Conflicts: Struggle between opposing forces who think or have incompatible goals. It applies both to open fighting between hostile groups and to a struggle between antithetical forces.

Conflict Resolution: A conflict situation intervened and resolved by other forces to prevent and provide solution to volatile situation. *Incubating prejudices and injustices inevitably breed hatred and conflict and leads to predictable instability and disaster.*

Contingency Plan: A deliberative process in which objectives are set for different emergency scenarios in advance according to set or critical thresholds, indicators and conditions. Managerial and technical actions are defined, and potential response systems put in place in order to prevent or better respond to an emergency.

Counselling: The prevention of serious mental health problems through education and short-term treatment

Disaster:

- i. Any occurrence, natural or man-made, that causes damage to life and property, ecological disruption, loss of human lives, deterioration in utility facilities and services on a scale sufficient to warrant a response from outside community ... (-UN)
- ii. A serious disruption of the functioning of a community or society causing widespread human, material economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources ...(-ISDR)

Disaster Assessment: An evaluation of loss or expected loss in a given disaster.

Disaster Management:

- i: The systematic process of using administrative decisions, organisation, operational skills, capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters.

- ii: An applied science which seeks by systematic observation and analysis of disasters, to improve measures relating to prevention, mitigation, preparedness, emergency response and recovery.

Disaster Response: Measures taken before, during and immediately after a disaster impact. It is directed to salvage life, protect property and deal with the immediate damage caused by the disaster and assist in restoring life in the community to normalcy.

Disaster Risk Reduction: The conceptual framework of elements considered with the possibilities to minimise vulnerabilities and disaster risks throughout society, to avoid (prevent) or to limit (mitigate) and prepare for the adverse impacts of disasters, within the broad context of sustainable development.

Early Warning: The provision of timely and effective information through identified institutions that allow individuals exposed to hazards to take action, avoid or reduce their risk and prepare for effective response.

Emergency: An extraordinary situation where there are serious and immediate threats to human life as a result of:

- disaster
- imminent threat of disaster
- civil conflict
- environmental degradation

Emergency Response Operations: Activities undertaken immediately before, during or after an event which help to reduce loss of life, illness or injury to humans, property loss or damage, or damage to the environment. It may include, for example, planning, co-ordination and implementation of measures to lessen the effects of a disaster upon members of the public or to protect any property.

Famine: An extreme collapse of local availability and access to food that causes a widespread rise in mortality from outright starvation or hunger related illnesses.

Food Insecurity: People undernourished due to the physical unavailability of food, their lack of social or economic access, and/or inadequate food utilisation. Food in-secure people are those individuals whose food intake falls below their minimum calorie (energy) requirements, as well as those who exhibit physical symptoms caused by energy and nutrient deficiencies resulting from an inadequate or unbalanced diet, or from inability of the body to use food effectively because of infection or disease.

... World Food Summit, 1996

Food Security: Economic access to buy, produce, obtain or consume sufficient, safe and nutritious food to meet dietary needs and food preferences for a healthy and active life.

Hazard: A potential damaging physical event, phenomenon and /or human activity, which may cause loss of life or injury, damage to property, social and economic disruption or environmental degradation.

Mitigation: Structural and non-structural measures undertaken to limit the adverse impact of natural and technological hazards and environmental degradation.

Needs-Based Assessment: An estimate of the needs or requirements of a disaster affected community.

Public Awareness: The process of informing the general population, increasing levels of consciousness about risks and how people can act to reduce their exposure to hazards.

Preparedness: Activities and measures taken in advance to ensure timely response to and effective mitigation of the impact of disasters, including the issuance of timely and effective early warnings and temporary relocation of people and property from a threatened location.

Prevention: Activities to provide outright avoidance of the adverse impact of hazards and means to minimize related environmental, technological and other disasters.

Relief: Provision of money, food, medicine, shelter, clothes or any other assistance, public or private, provided to people and communities to overcome the effects of a disaster event.

Reconstruction: The process of restoring affected infrastructure to its pre-event condition.

Recovery: Measures that are designed to develop the systems required to support affected communities in the reconstruction of their physical infrastructure and restoration of their emotional, economic and physical well being.

Resilience: The capacity that communities and individuals have developed in their culture to maintain certain structures and functions despite major disturbances. It includes also the capacity to return to a stable equilibrium.

Risk: The measure of the likelihood of harmful consequences arising from the Interaction of hazards, vulnerable community elements and the environment.

Risk Reduction: The systematic process of defining and re-defining risk and managing risk.

Social Protection: Policies, interventions and mechanisms to support individuals, households and communities to manage risks better, provide assistance to extreme poor, and above all to realise human rights.

Trauma: A mental condition caused by severe shock, especially when harmful effects lasts for a long time.

Trauma Healing: The method used to remove the effects of a traumatic event on victims and thus permitting the individual or group to return to their state of equilibrium, which existed before the traumatic event.

Vulnerability: A measurement of community elements at risk that are exposed to specific hazards, both natural and human induced, and that have a low level of resilience to cope with the impacts of that hazard or characteristics of that hazard.

Vulnerability Assessment: An estimate of degree of loss or damage that could result from hazardous event of a given severity, including damage to structures, personal injury, interruption of economic activities, and the normal functions of settlement.

War: A state of widespread conflict between states, organisations, or relatively large groups of people, which is characterised by the use of violent, physical force between combatants or upon civilians and the environment.

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- Act 517 (1996)

ANNEXES- ACTION PLANS

ANNEX 1

LEGAL FRAMEWORK FOR DISASTER MANAGEMENT IN GHANA

Task	Activities	Resources	Responsible Agencies
1. Review Act 517 (1996) to give NADMO both co-ordinating and regulatory functions	<ol style="list-style-type: none"> 1. Draft a bill to propose amendment to the Act 517 (1996). 2. Proposed Bill discussed by Management of NADMO and stakeholders 3. Revised Proposed bill sent to Attorney General's Department through the Ministry of the Interior for processing. 3. Enactment of Bill into law 	Funding and logistics Legal and Technical Experts	NADMO, Ministry of the Interior, Attorney General's Department, .Parliament Government
2. Regulations to support the implementation of new ACT	<ol style="list-style-type: none"> 1. Drafting of regulations. 2. Draft regulations discussed by NADMO and stakeholders. 3. Revised Regulations sent to Attorney General's Department for processing. 3. Enactment of Regulations. 	Legal and Technical Experts	NADMO, Ministry of the Interior, Attorney General's Department, .Parliament NADMO, Ministry of the Interior
3. Guidelines on best practices for management of disasters at all levels prepared.	<ol style="list-style-type: none"> 1. Identify and prepare relevant Guidelines 2. NADMO to adopt Guidelines 3. Guidelines published 	A team of experts from NADMO and stakeholder Institutions	NADMO

ANNEX 2

4. NATIONAL AND INTERNATIONAL LEVEL CO -OPERATION

Task	Activities	Resources	Responsible Agencies
1. Co-operation with response and stakeholder agencies at the national level	1. Identify all stakeholders 2. Establish effective collaboration with response and stakeholder agencies at the national level through establishment of Disaster Risk reduction Desks. 3. Establish Memoranda of Understanding (MOUs) with stakeholder agencies	Funds and logistics	NADMO and stakeholder agencies Ministry of the Interior, NADMO and stakeholder agencies
2. Establish and maintain relations with relevant international organisation	1. Establish relations with the relevant international organisations on disaster management and related subjects. 2. Accede to all relevant international legal Instruments	Funds and logistics	NADMO, Ministries of Interior and Foreign Affairs

ANNEX 3

STRENGTHENING INSTITUTIONAL CAPACITY BUILDING

There is the need to (i) Establish Institutional and community capacity to manage disasters and (ii) Establish effective mechanisms for monitoring and evaluation of performance of disaster management programmes

Task	Activities	Resources	Responsible Agencies
To strengthen disaster management capacity in Ghana	1. Enhance professional competence of staff of NADMO in disaster management through structured training programmes at all levels.	Funding and logistics Technical Experts to offer training	NADMO and key stakeholders
	2. Joint training programmes organized for stakeholder agencies.		NADMO and key stakeholders
	3. Seminars on disaster risk reduction organised for decision makers.		NADMO
	4. Joint exercise and drills on emergency response.	Procedures for conducting exercises and drills	NADMO and key stakeholders
	5. Establish and operate National Disaster Information Centres	Internet links with all districts	NADMO
Monitoring and Evaluation	6. Effective monitoring and evaluation mechanism put in place	Monitoring and evaluation procedures available and used	NADMO

ANNEX 4

EMERGENCY RESPONSE

There is the need to empower National, Regional, Districts and Communities' response teams to undertake prevention, emergency response and recovery activities.

Task	Activities	Resources	Responsible Agencies
Emergency Operation Centres (EOCs)	1. Establish National EOC for all disasters 2. Establish Regional EOCs fo all disasters 3. Establish District EOCs for all disasters	Funding and logistics to establish EOCs	NADMO NADMO NADMO
Emergency Response Teams	Establish emergency response teams to undertake prevention, emergency response and recovery activities.	Expert teams to handle On-scene operations for all types of disasters	NADMO EOCs at all levels

Abbreviations / Acronyms

ADB	Agricultural Development Bank
ADRA	Adventist Development and Relief Agency
AEA	Agricultural Extension Agents
AESD	Agricultural Extension Services Division
AESL	Architectural and Engineering Services Limited
ARI	Animal Research Institute
BNARI	Biotechnology and Nuclear Agricultural Research Institute
BNI	Bureau of National Investigation
BRRI	Building and Road Research Institute
COCOBOD	Ghana Cocoa Board
CIDA	Canadian International Development Agency
CRI	Crop Research Institute
CRS	Catholic Relief Institute
CSIR	Council for Scientific and Industrial Research
CSM	Cerebro-Spinal Meningitis
CWSA	Community Water and Sanitation Agency
ECG	Electricity Company of Ghana
EOC	Emergency Operation Centre
EPA	Environmental Protection Agency
EPI	Expanded Programme of Immunisation
EU	European Union
DANIDA	Danish International Development Agency
DA	District Assembly
DFID	Department for International Development
DG&W	Department of Game and Wildlife
DMC	Disaster Management Committee
DVCs	Disaster Volunteer Corps
FDB	Food and Drugs Board
FIRM	Flood Insurance Risk Map
FRI	Food Research Institute
GAEC	Ghana Atomic Energy Commission
GAF	Ghana Armed Forces
GCAA	Ghana Civil Aviation Authority
GHA	Ghana Highway Authority
GHS	Ghana Health Service
GIS	Geographic Information System
GMA	Ghana Meteorological Agency
GNFS	Ghana National Fire Service
GPHA	Ghana Ports and Harbour Authority

GPRTU	Ghana Private Roads and Transport Union
GRCS	Ghana Red Cross Society
GSB	Ghana Standards Board
GWCL	Ghana Water Company Limited
IDNDR	International Decade for Natural Disaster Reduction
INGO	International Non-Governmental Organisations
ISDR	International Strategy for Disaster Reduction
ISD	Information Services Department
MDAs	Ministries Departments and Agencies
MLF&M	Ministry of Lands, Forestry & Mines
MLGRD	Ministry of Local Government Rural Development
MMDAs	Metropolitan, Municipal and District Assemblies
MOFA	Ministry of Food and Agriculture
MOH	Ministry of Health
MWRWH	Ministry of Water Resources, Work and Housing
NADMO	National Disaster Management Organisation
NAS	National Ambulance Service
NGOs	Non-Governmental Organisations
NMIMR	Noguchi Memorial Institute of Medical Research
NORRIP	Northern Region Rural Integrated Programme
OASL	Office of the Administration Stool Lands
PCs	Personal Computers
PPRSD	Plant Protection and Regulatory Services Division
PPRR	Prevention Preparedness Response and Recovery
PWD	Public Works Department
PWTOA	Private Water Tanker Owners Association
RCCs	Regional Coordinating Councils
STC	State Transport Company
TCPD	Town and Country Planning Department
TOR	Tema Oil Refinery
UG	University of Ghana
UN	United Nations
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
UNDP	United Nations Development Programme
VALCO	Volta Aluminium Company
VRA	Volta River Authority
WFP	World Food Programme
WHO	World Health Organisation
WRC	Water Resources Commission
WRI	Water Research Institute
WVI	World Vision International

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